BRNO
UNIVERSITY
OF TECHNOLOGY

FIT

FACULTY
OF INFORMATION
TECHNOLOGY

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ANNUAL REPORT 2006

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I. INTRODUCTION

Brno University of Technology (BUT) is the second largest and the second oldest technical university in the Czech Republic. It was founded in **1849** for technical, agricultural and commercial specialization. The languages of instruction were Czech and German. As a consequence of political and national disputes, Czech ceased to be used as language of tuition and in **1899 the Czech High Technical School** was founded in Brno**.** After World War I and the foundation of Czechoslovakia, the school merged with the German Technical High School (originally bilingual) to form the High Technical School in Brno, which later carried the name of Dr. Edvard Beneš, the second president of Czechoslovakia. In the period between World War I and World War II this school was among the best technical universities in Europe.

During World War II the school was, as all other high schools were, closed and the premises were used by German military institutions, and most equipment was destroyed. Immediately after the end of World War II the activities of the school were resumed. In 1951, the Technical High School was closed and the departments became parts of the newly established Military Technical Academy. Tuition for civilians continued at the former faculty of civil engineering only. However, it soon became evident that the technical university should be re-established. Since 1956 the school gradually started its activities in various fields.

The Faculty of Information Technology (FIT) at Brno University of Technology was established on 1st January 2002 from the former Department of Computer Science and Engineering, Faculty of Electrical Engineering and Computer Science, Brno University of Technology.The Department of Computer Science and Engineering (DCSE) was established in 1964. Further development of the Department was related to the dynamic development in the area of computer science and its applications, called informatics. The ever-increasing demands on specialists in this area determined the extent and orientation of the teaching, research tasks and joint projects and they also influenced the increase in number of students and staff of the Department. The increasing importance of teaching informatics at the faculty brought a transformation to the Faculty of Electrical Engineering and Computer Science (FEECS) in 1993 and separation of the computer science study plans from the rest not later than after the 1st semester of the common study programme.

At the end of the millenium the importance of the DCSE and the ratio of informatics in teaching exceeded the organizational, technical and financial limits so that the transformation of the DCSE into a new faculty could be launched.

A number of historical decisions were taken at the FEECS in 2001 in connection with the planned foundation of a new **Faculty of Information Technology (FIT)** and

transformation of the **Faculty of Electrical Engineering and Computer Science (FEECS)** into the **Faculty of Electrical Engineering and Communication (FEEC).** The Academic Senate of BUT approved the establishment of the faculty to 1st January 2002. The uneasy task of working out new study programmes for both faculties for accrediation was crowned by an approval of new study programmes for both faculties by the Accreditation Board of the Ministry of Education of the Czech Republic and its consent with the foundation of the new faculty. In case of the FIT it was a three-year Bachelor's study programme , and a follow-up two-year Master's study programme.

In the first year of the first four-year office, BUT was directed by **Prof. Ing. Karel Rais, CSc., MBA,** who was elected Rector by the Academic Senate in November 2006. He started his first four-year office in February 2006. **Doc. Dr.Ing. Petr Hanáček,** Head of the Department of Intelligent Systems, was another significant leading personality of BUT coming from our faculty – he was the Chairman of the Academic Senate of Brno University of Technology (AS BUT) and the Chairman of the Chamber of Academic Staff and at the same time worked as a member of the Economic Committee of the AS BUT . Another representative of the FIT in the AS BUT, **Doc. Ing. Jiří Kunovský, CSc.**, from the Department of Intelligent Systems, worked in the Pedagogical Committee of the AS BUT. **Bc. Jakub Mahdal**, a student of the follow-up Master's study programme, worked as a representative of the Student s Chamber of the AS BUT and as a member of the Economic Committee of the AS BUT.
Prof. Ing. Tomáš Hruška, CSc., Prof. RNDr. Milan Češka, CSc., and **Prof. Ing. Jan M. Honzík, CSc.,** were members of the Scientific Board of BUT.

In 2006, **Prof. Ing. Tomáš Hruška, CSc.**, the Dean, directed the FIT together with five Vice-Deans. The Vice-Deans were in charge of research and creative activities, international and external relations and campus development in co-operation with the relevant Dean's Office Departments. The Research Board, the Pedagogical Council and the Disciplinary Board are autonomous academic bodies. Dean's advisory boards are the following: Dean's Board, Study Programme Board, Creative Project Board and Information System Board. The Faculty Secretary was responsible for the finance, operation and development of the faculty together with the individual sections of the Dean's Office. In 2006, there was a teaching staff of 51 members and 2200 students in all state-supported study programme.

The faculty management in 2006:

Prof. Ing. Tomáš Hruška, CSc.	Dean
Prof. RNDr. Milan Češka, CSc.	Vice-Dean, Science and Research
Prof. Ing. Jan M. Honzík, CSc.	Vice-Dean, Public Relations
	Acting Dean
Doc. Ing. Vladimír Drábek, CSc.	Vice-Dean, Education
Ing. Miloš Eysselt, CSc.	Vice-Dean, Students Affairs
Ing. Zdeněk Bouša	Vice-Dean, Campus Development

Ing. Zdeněk Bouša worked as the Faculty Secretary. **Doc. Ing. Jaroslav Zendulka, CSc.**, Head of the Department of Information Systems, was the Chairman of the Academic Senate of the FIT. **Ing. Petr Lampa**, Head of the Computer Centre FIT BUT, was the first Vice-Chairman of the Academic Senate of the FIT BUT and, at the same time, the Chairman of the Academic Chamber of the FIT BUT.

Zdeněk Letko, Bc., a student, worked in the position of the second Vice-Chairman of the Academic Senate of the FIT, and, at the same time, in the position of the President of the Student Union FIT BUT . **Doc. Ing. Josef Schwarz,CSc.,** represented the Trade Union in the faculty management.

In its fifth year, the faculty consisted of four departments and the Computer Centre:

- Department of Information Systems (DIFS)
- Department of Intelligent Systems (DITS)
- Department of Computer Graphics and Multimedia (DCGM)
- Department of Computer Systems (DCSY)
- Computer Centre (CC)

In 2006, the FIT continued tuition in the below-mentioned Bachelor's and Master's study programmes **Electrical Engineering and Computer Science (EI)**, registered in 1999 according to University Education Act. These running out study programmes are likely to continue until the end of the academic year 2006/2007. In 2006, the FIT also provided tuition in the **Ph.D. study programme Information Technology (DIT).** 2006 was the fifth year of the existence of the **Bachelor's study programme Information Technology,** which was introduced to the faculty in 2002/2003. The new follow-up **Master's study programme Information Technology (MIT)** continued in its second year of existence with 180 students. These new study programmes correspond to the Bologna Declaration on the Development of Higher Education in Europe and their structure of studies is fully compatible within Europe.

Study programmes taught at the FIT in 2006:

Bachelor Study programme Electrical Engineering and Computer Science
Nominal length of study: 3,5 years
Line of study   Computer Science and Engineering (VTB)

Follow-up Master Sstudy programme Electrical Engineering and Computer Science
Nominal length of study: 3 years
Line of study   Computer Science and Engineering (VTN)

Master Study programme Electrical Engineering and Computer Science
Nominal length of study: 5 years
Line of study   Computer Science and Engineering (VTI)

Bachelor Study programme Information Technology
Nominal length of study: 3 years
Line of study   Information Technology (BIT)

A new follow-up Master Study programme Information Technology launched at the FIT in the academic year 2005/2006 with the following lines of study:

- Information Systems (MIS)
- Computer Graphics and Multimedia (MGM)
- Intelligent Systems (MIN)
- Computer Systems and Networks (MPS)

A Doctoral Study programme
Nominal length of study: 3 years (internal form of study)

Line of study   Information Technology (DIT)

In 2006, 281 Bachelors, 185 students of the Master Study programme graduated at the FIT and 9 students completed the Doctoral Study programme. 633 new students entered the first year of the regular Bachelor Study programme, 284 students entered the follow-up Master Study programme, and 29 students entered the postgraduate doctoral study, 25 of them in the internal form, and 4 of them in the combined form of study.

In 2006, 37 foreign students studied at the FIT BUT within the Socrates/Erasmus mobility programme.

In 2006, one habilitation procedure for professorship started and Doc. Ing. Daniel Cvrček, Ph.D., Doc. Ing. Lukáš Sekanina, Ph.D., and Doc. RNDr. Pavel Smrž, Ph.D. successfully completed the habilitation proceedings for the title of "Docent" (Associate Professor).

The most significant events and activities that influenced the life at the faculty in 2006 were the following:

- Open Day at the FIT BUT, on 13th January, 2006,
- The traditional FIT/FEEC ball, a high-level and well-organized event which took place in International Hotel, on 3rd February 2006,
- Work on the innovation of the "Long-Term Plan of Development of BUT",
- Activities of the pedagogical staff of the FIT related to the new study programmes,
- 5 new GACR (Grant Agency of the Czech Republic) projects (2 standard and 3 postdoctoral) were accepted in 2006, the total number of GACR projects at the faculty being 16 (11 standard,1 doctoral and 4 postdoctoral projects),
- 18 new FRVS (Higher Education Development Fund) projects were accepted,
- 5 MSMT (Ministry of Education) projects, 1 AV ČR (Academy of Science of the Czech Republic) project, 4 MPO ČR (Ministry of Defence of the Czech Republic) projects, 2 RP MSMT and 5 CESNET projects were worked on,
- 5 EU (European Union) projects were worked on at the FIT BUT,
- Experts from the FIT participated in the evaluation of exhibits for the "Cristal Disc" award at INVEX trade fair,
- The IASTED International Conference on Databases and Applications (DBA 2006) was held on 13th – 15th February, 2006,
- Co-organization of the NETSS 2006 (New Trends in System Simulation) international conference, Přerov, 22nd-23rd February, 2006,
- Co-organization of the ECBS 2006 (13th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems), Potsdam, 26th – 30th March, 2006,

- Co-organization of the ISIM Conference 2006 (Information Systems Implementation and Modelling 2006), Přerov, 25th – 27th April, 2006, FIT BUT being the main organizer,
- Co-organization of WFM 2006 (1st International Workshop on Formal Models), Přerov, 25th – 27th April, 2006,
- Co-organization of MOSIS 2006 (Modelling and Simulation of Systems), Přerov, 25th – 27th April, 2006,
- The 2nd Open Day for those interested in the Doctoral study programme at the FIT BUT, took place on 26th April, 2006,
- In April, Brno Days dedicated to Kurt Gödel (a significant mathematician, physicist and philosopher) were organized, one part of the celebration being held on 28th April at the FIT BUT, where the E112 lecture hall was solemnly named after him and a commemorative plaque was unveiled showing his name and a brief commentary on his life,
- Participation in the 3nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Washington D.C:, USA, 1st – 3rd May, 2006,
- Participation in International Conference on Acoustics, Speech, and Signal Processing, ICASSP 2006, Toulouse, France, 14th – 19th May, 2006,
- Participation in evaluations and NIST Workshop and The Speaker and Language Recognition Workshop, Puerto Rico , San Juan, 25th – 30th June, 2006,
- Participation in IEEE Odyssey 2006: The Speaker and Language Recognition Workshop San Juan, Puerto Rico, 28th – 30th June, 2006,
- Ongoing co-operation with the Ministry of Defence in the field of security technologies and automatic speech processing, including the organization of some significant seminars,
- Participation in the 1st NASA/ESA Conference on Adaptive Hardware and Systems, Istanbul, 15th – 18th June, 2006,
- Annual Scientific Conference of the FIT BUT – a session held on occasion of 5th anniversary of the foundation of the FIT BUT, Skalský Dvůr, 11th – 12th September, 2006,
- Co-organization of ASIS Conference (28th International Autumn Colloquium Advanced Simulation of Systems), Vranov, 12th – 14th September, 2006,
- Co-organization of 7th International Scientific Conference Electronic Computers and Informatics 2006, Herľany, 20th – 22nd September, 2006,
- CSEW 2006 (Computer Science Education Workshop) - a meeting of Czech and Slovak departments and faculties involved in computer science, Gabčíkovo, 26th – 27th October, 2006,
- Co-organization of MEMICS Conference 2006 (2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science), Mikulov, 27th – 29th October, 2006,
- Participation in NIST Spoken Term Detection evaluations and in NIST Spoken Term Detection Evaluation Workshop, Gaithersburg, MD, USA, 14th – 15th December, 2006,
- Co-organization of the EMI, international students´competition supported by Honeywell,
- Activities of Doc. Ing.Vladimír Drábek, CSc., Vice-Dean, and his colleagues resulting in automated assessment of written entrance examinations,
- Activities of pedagogical staff connected with information sessions at different types of secondary schools,

- Co-organization of STUDENT EEICT 2006 conference, the main organizer being the Faculty of Electrical Engineering and Communications, Brno University of Technology,
- Participation in the GAUDEAMUS 2006 trade fair and presentation of the FIT and its study programmes,
- The second stage of the 'Reconstruction and building of Božetěchova 1 and 2 campuses', i.e. the reconstruction of Carthusian monastery and building of the lecture hall centre II. was launched,
- An opening ceremony related to the first stage of 'Reconstruction and building of Božetěchova 1 and 2' was held on 19th September 2006 . By that date all faculty dapartments and the Computer Centre had been transferred into new buildings of Božetěchova 1.
- The finals of "Baltazar and Baltík", a national programming competition, was held at the FIT BUT on 10th -12th November 2006. It was organized by SGP s.r.o. and Ing. Soukup, with a contribution of the FIT. Prof. Ing. Jan M Honzík, CSc., handed over valuable prizes to the finalists at the closing celebration .
- The finals of Filuta 2006, a competition in programming for secondary school students, took place at the FIT premises on 9th December 2006 together with the finals of "Girls for Computers and Computers for Girls" (Holky pro počítač a počítač pro holky) competition for secondary school female students, where the prize awarding was accompanied by publication of the best essays.
- Activities of the AS FIT BUT members, namely Doc.Ing. Jaroslav Zendulka, CSc., Ing. Petr Lampa, Ing. Bohuslav Křena, Ph.D., and Zdeněk Letko, related to the organization, development and economic interests of the faculty,
- Activities of Prof. Ing. Jan M. Honzík, CSc., Vice-Dean for Public Relations, in Socrates/Erasmus and other European programmes,
- Activities linked with the Bachelor's study programme ''Information Technology'', a part of MSMT programmes, especially preparatory work for the accreditation of the distance form of this programme, under Prof. Ing. Jan M. Honzík, CSc., charge,
- Improvement of the student´s part of the FIT Information System and development of the staff´s part of the FIT Information System,
- The first and constituent assembly related to the two-year "Curriculum Development" project (within the Socrates-Erasmus programme) was held on 12th December 2006. Ing. Dorine Gevaert from KHBO Oostende-Brugge is the leader of the programme and FIT and FEEC BUT and Technical University of Sofia, Bulgaria, are the partners.

On 18th May 2006, Doc. Ing. Zdena Rábová, CSc., a founding member of the faculty, department, and specialization, passed away at the age of 70. She was a significant founder of the Czech school of modelling and simulation attended by dozens of graduates of doctoral studies, a number of associate professors and three professors. She worked to the last moment. In Zdena Rábová, the faculty lost a kind, efficient, reliable and skilled research worker. She left an indelible mark in the history of the faculty.

Significant Awards in 2006

Silver BUT Medals were awarded to **Ing. Lukáš Burget, Ph.D., Ing. Pavel Matějka** and **Ing. Petr Schwarz,** members of Speech@FIT research group, for outstanding results in research and scientific work in 2006.

Five Ph.D. students of the FIT BUT were awarded **Prof. Hlavička Prize** at the Czech-Slovak seminar Computer Architecture and Diagnostics which was held on $18^{th} - 20^{th}$ September 2006 in Poprad, Slovakia, for their contributions in the individual categories, namely: **Ing. Lukáš Stareček -** 1st place in the category of the first year, **Ing. Michal Bidlo** $1^{st} - 2^{nd}$ place and **Ing. Jaroslav Škarvada** 3rd place in the category of the second year, **Ing. Miloš Ohlídal** 1st place and **Ing. Tomáš Pečenka** 2nd place in the category of the third year.

Ing. Zdeněk Vašíček was awarded **Josef Hlávka Prize** for his research work. **Josef Hlávka Prize** is meant for talented students of Bachelor's, Master's and doctoral studies who showed extraordinary abilities and creativity in their branch, and for young and talented scientists-workers of the Aademy of Science of the Czech Republic, under 33 years of age.

Bc. Tomáš Karásek was awarded the **Certificate of Merit** in **AFCEA 2006,** a student's competition for the best achievement in the area of information and communication system organized by the Czech section of AFCEA (Armed Forces Communications & Electronics Association).

Petr Blahák won **2nd place** and **Bc. Jaromír Smrček** won **3rd place** in **AFCEA 2006,** a student's competition for the best achievement in the area of information and communication system organized by the Czech section of AFCEA (Armed Forces Communications & Electronics Association).

Petr Kaleta, Martin Bambas, Aleš Šturala (all from the **FIT BUT)** together with **Daniel Široký** from the **FEEC BUT** (Faculty of Electrical Engineering and Communications) achieved extraordinary success in the world **Microsoft Imagine Cup** competition for creating a smart white cane for the visually impaired. The achievement was accompanied by special scholarships.

Doc. Ing. Lukáš Sekanina, Ph.D., Ing. Michal Bidlo and **Ing. Radek Bidlo** received **Achievement Award Certificate** at the XV. International Conference on Computer and Information Science and Engineering.

Patrik Beck, Juraj Blaho, Petr Kaštovský, Martin Košek and **Lukáš Sol'anka,** students of the FIT, were awarded **GE Foundation Scholar-Leaders Program 2005-2006,** in the second year of the scholarship programme for the Czech Republic (General Electric Foundation), meant for 15 excellent second-year students of five selected universities (ČVUT, ČZU, Masaryk University, VŠB-TU and BUT) involved in economics, management, engineering or technology.

Bc. Tomáš Bátrla, Bc. Jiří Musil and **Bc. Marek Žídek** achieved success in **NOVATechCom -** an international competition in entrepreneurial plans in the sphere of advanced technology.

The faculty also successfully presented a system for speaker recognition developed by the **Speech@FIT group** at NIST 2006 Speaker Recognition evaluation organized by the U.S. National Institute of Standards and Technology among 37 competing laboratories worldwide (the rules of NIST do not allow to publish the exact placement).

Ing. Pavel Matějka reached the finals of the **Student Paper Contest** at the International Conference on Acoustics, Speech, and Signal Processing (ICASSP 2006) in Toulouse, France, presenting 'Use of Anti-models to Further Improve State-of-the-art PRLM', with **Ing. Petr Schwarz** and **Ing. Lukáš Burget** as co-authors.

In 2006, FIT BUT continued co-operating with the following significant partners:

- ANF Siemens Austria,
- ApS Brno, spol. s r.o.,
- AutoCont CZ, a.s.,
- CAMEA, spol. s r.o.,
- CESNET, z.s.p.o.,
- Cisco Systems,
- GRISOFT, s.r.o.,
- Harman-Becker, SRN,
- Honeywell, s.r.o.,
- IBM Česká republika,
- Lingea, s.r.o.,
- LogicaCMG,
- MEDITRONIC s.r.o.,
- Microsoft ČR, s.r.o.,
- MP-Soft, s.r.o. Brno,
- Phonexia s.r.o.,
- Vema, a.s.

2006 was the fifth year of the existence of the FIT. The main goal was the introduction of the 2nd year of a completely new follow-up Master Study programme with 180 students admitted and the acquisition of a new research project. Another significant step was the completion of the first stage of the reconstruction and building of Božetěchova 1 and 2 faculty premises.

The faculty achieved very good economic results in 2006 and the total economic trend was favourable. The improvement of material and financial situation at the faculty was due to successful research project leaders, most of all projects of the Grant Agency of the Czech Republic, Grant Agency of the Academy of Science of the CR, Higher Education Development Fund (FRVS) and projects supported by the EU.

On behalf of the management of the Faculty of Information Technology BUT I wish all members of academic staff, students, and all employees of the faculty favourable working conditions, and success in their efforts for a further development and benefit of all, despite the present complicated situation due to building work and reconstruction of the faculty premises. The building activities are performed with a prospect of significant improvement of our future

working conditions. At the same time, I thank all employees who contributed to the functioning of the FIT in its fifth year of existence, for the extraordinary efforts devoted to all activities related with the foundation of the FIT, and for mutual understanding, solidarity, and wisdom they showed when seeking solutions to difficult problems.

Prof. Ing. Tomáš Hruška,CSc.
Dean of the FIT BUT

II. AREAS OF ACTIVITIES AT THE FIT

II.1 Study Programmes

II.1.1. Bachelor Study Programme – Information Technology (BIT), internal form of study

Number of applications for admission	1967
Number of applicants who sat for the entrance examination, including those who appeared on the back-up date	1444
Number of positive acceptance decisions, including those refused because of limited capacity	1165
Number of students who failed or did not turn up at the examination	802
Number of students admitted, without applicants admitted after reviewing the original decision	819
Number of students admitted	819
Number of students enroled	633
Number of graduates, including those from the running-out programme (6)	281

II.1.2. Follow-up Master's study programme - Information Technology (MIT), internal form of study

Number of applications for admission	309
Number of applicants who sat for the entrance examination, including those who appeared on the back-up date	309
Number of positive acceptance decisions, including those refused because of limited capacity	309
Number of students who failed or did not turn up at the examination	0
Number of students admitted, without applicants admitted after reviewing the original decision	309
Total number of accepted applicants	309
Number of enrolled	284
Number of graduates, including those from the running-out programme (4)	185

II.1.3. Basic Statistical Data

Total number of students:	2200
Number of teachers:	51
Total number of graduates:	466

II.1.4. Development of Number of Graduates

Number of Graduates in Computer Science and Engineering (CSE) and Information Technology (IT)

Specialization	1999	2000	2001	2002	2003	2004	2005	2006
EI-BC-3				5	6	5	23	6
IT-BC-3							164	275
EI-MGR-3								4
EI-MGR-5	77	96	107	99	87	91	90	181

Doc. Ing. Vladimír Drábek, CSc.
Vice-Dean for Education

II.2. Creative Activities, Science, Research and Postgraduate Doctoral Study

II.2.1. Science and Research

The new faculty continued in the tradition of basic and applied research in the area of computer hardware, software, prototypes of computer systems, and application of information technology in practical life. The main research areas at the FIT BUT in 2006 were the following:

- Information and Database Systems
- Computer Graphics and Multimedia
- Speech Processing
- Computer Architecture
- Intelligent Systems and Robotics
- System Modelling, Simulation and Formal Verification
- IS Security and Cryptography

Let us mention here some important events which could give evidence of the faculty activities and which are likely to influence its development in the years to come:

- Foundation of the Creative Project Board, the Dean's advisory board that should make the engagement of the faculty in the international collaboration in the sphere of middle-sized and big research projects more efficient.
- A proposal of a new faculty research project.
- Participation in a significant research intention of FEEC BUT ,''New trends in microelectronic systems and nanotechnologies'' (MICROSYN).
- Co-operation with the Department of Informatics of the Slovak Academy of Science in publishing the journal of Computing and Informatics.
- Activities of members of the FIT in international scientific and research organizations, in editorial boards of journals and programme committees of international conferences (See paragraphs called ''Membership in International Organizations and Societies'' in parts of this report dedicated to individual departments of the faculty)
- Extensive publication activity of the faculty (21 journal articles a 198 contributions in conference proceedings)
- Acquisition and work on the MSMT project Centre of basic research of LC (Centre of Computer Graphics).
- Work on four proposals of bilateral GACR (Grant Agency of CR) projects in collaboration with Deutsche Forschungsgemeinschaft (DFG).
- On the occasion of 5th anniversary of the existence of the FIT, a scientific conference took place whose main aim was to discuss general problems of the FIT and provide mutual information on the most significant scientific, research and application areas the faculty is dealing with.

- Organization of regular professional seminars with the participation of all faculty departments.
- Further development and use of the faculty information system, which helps to improve the quality of research infrastructure.

European Union Projects at the FIT in 2006

Agency	Theme	Project Code	Name of the Project	Total in thous. CZK
EU	6FP - IST	506811 AMI	Augmented Multi-party Interaction	1 872
EU	6FP - IST	027231 CARETAKER	Content Analysis and Retrieval Technologies to Apply Knowledge Extraction to Massive Recording	2 846
EU	6FP	2005-2.5.5 SHADOWS	A Self-Healing Approach to Designing Complex Software Systems	1 972
EU	6FP - IST	033812 AMIDA	Augmented Multi-party Interaction with Distance Access	2 133
Total				**8 823**

Grant Agency of Czech Republic (GACR) Projects at the FIT in 2006

GA ČR	Name of the Project	Total in thous. CZK
102/06/P383	Interactive Keyword Detector	285
102/06/P309	Research on Methods of Intelligent System Modelling and Simulation	220
102/06/P076	Methods and Tools for Automated Bug Detection in SW	237
102/06/0599	Methods of Polymorphic Digital Circuit Design	606
201/06/1821	Algorithms for Image Recognition	767
102/05/0278	New Trends in Research and Application of Voice Technology	220
102/05/H050	Integrated Approach to Education of PhD Students in the Area of Parallel and Distributed Systems	1 454
102/05/0467	Architectures for Embedded System Networks	328
102/05/0723	Framework or Formal Specifications and Prototyping of Network Applications of Information Systems	580
102/05/P193	Optimization in Diagnostics and Digital Systems	131
102/04/0871	Information System Security – Research on Attacks against Tamper-resistant Cryptographic Hardware	732
102/04/0737	Modern Methods of Digital System Synthesis	919
102/04/0780	Automated Methods and Tools for the Development of Reliable Parallel and Distributed Systems	766
201/04/0441	Optimally Integrated Models of Modern Information Technologies	375

408/04/1370	Research on Interactive Media – a project	27
102/03/D211	Advanced Methods of Automatic Verification of Parametric and Infinite-state Systems	168
Total		**7 815**

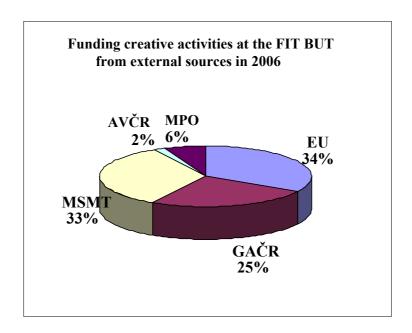**Higher Education Development Fund (FRVS) Projects at the FIT in 2006**

FRVS MSMT	Theme	Name of the Project	Total in thous. CZK
136	G1	Evolutionary algorithms applied on dynamic problems.	59
825	G1	Biology-inspired HW teaching support	62
1909	G1	Didactic demonstration of formal Language Models	93
2031	A c	Faculty open computer laboratories	1 488
2557	G1	Identification and analysis of relation of process and project management in SW product development and their influence on quality management	49
2622	A a	Laboratory of advanced communication technologies	1 472
2656	A b	Computer classroom for modelling, simulation and GIS	1 391
2818	G1	Mobile autonomous robot	95
2848	G1	Memetic evolutional algorithms applied to communication scheduling	78
2877	G1	Ontologies a Semantic Web	72
2880	F1a	Learning tool for C/E Petri net	54
2978	Aa	Teaching Support for HW formal verification	26
2983	G1	EDA evolutionary design of group communication schedules	70
3064	G1	Bioinformatics and knowledge discovery in biological databases	71
3097	G1	Teaching Support for the Modelling and Simulation Course	77
3101	G1	Formal verification of programs working with dynamic structures	22
3198	G1	Testing of embedded systems	75
3383	G1	Test scheduling for embedded systems under power constraints	45
Total			**5 299**

Survey of Other Research Projects at the FIT in 2006

Agency	Project Code	Name of the Project	Total in thous. CZK
MSMT	MSM 21630503	New trends in microelectronic systems and nanotechnologies (MIKROSYN)	489
MSMT	1K04106	Reputation-based security in information systems	479
MSMT	2B06052	Determination of markers, screening and early diagnostics of cancer diseases using highly automated processing of multidimensional biomedical images	1 307
MSMT	LC - CPG	Centre of Computer Graphics	1 885
MSMT	2-06-27	Barrande - Vérification automatique de programmes avec structures de données dynamiques a pointeurs	34
MSMT	2C06008	Virtual laboratory of microprocessor technology application	913
MPO	FT-TA3/006	Research and development of corpus and speech technologies in new generation of electronic dictionaries	1 285
MPO	FT-TA3/162	Research and application of systems for large data analysis and decision support	265
MPO	FT-TA3/128	Language and Development Environment for Microprocessor Design	311
MPO	FI-IM3/223	Research, Development and Deployment of Secure Client Authorization of Electronic Transactions	160
AVČR	1ET400750408	Rapid prototyping tools for development of HW-accelerated embedded image- and video-processing applications	516
Celkem			**7 644**

Survey of external sources in funding creative activities at the FIT in 2006

Source	Project	Number of projects	Total in thous. CZK
MSMT	Research projects	1	489
MSMT	Higher education development fund (FRVS) projects	18	5 299
MSMT	Other MSMT projects	5	4618
MPO	Ministry of Industry and Trade projects	4	2 021
GACR	Grant agency of CR projects	16	7 815
AVCR	Academy of Science of CR project	1	516
EU	Projects of the 5th and 6th framework programme of the EU	5	10 391
Total			**31 149**

**Funding creative activities at the FIT BUT
from external sources in 2006**

II.2.2. Doctoral Study Programme

- The Information Technology doctoral study programme with one specialization of the same name was started at the same time as the FIT BUT – on 1st January 2002.
- The main tasks solved in this area in 2006 were the following:
- Co-operation with the Faculty of Electrical Engineering and Communications, BUT and with the Faculty of Informatics, Masaryk University in Brno as far as the offer of courses, organization of the State Doctoral Examinations, and defenses of dissertations are concerned.
- Integrated approach to education of PhD students in the area of parallel and distributed systems, a GACR doctoral grant in co-operation with the Faculty of Informatics, Masaryk University in Brno.
- Organization of the Doctoral Workshop on Mathematical and Engineering Methods in Computer Science – MEMICS 2006 - in co-operation with the Faculty of Informatics, Masaryk University in Brno.
- Open Day for those interested in the Doctoral study programme at the FIT.
- Offer of a large choice of subjects with respect to high professional quality, balance between theory and application of IT, and detailed descriptions of the individual subjects (both in Czech and in English) on the Internet available to enrolled students as well as prospective applicants for the study.
- Record of dissertation theses and offer of new themes through the Faculty Information System.
- Consistent checking of the individual study plans of Ph.D. students followed by differentiated payment of extra scholarship money.
- Providing a scholarship money "stimulus" for doctoral students who succeed in completing and defensing their dissertations during the 3rd and 4th years of study.
- Participation of Ph.D. students in regular seminars held at the departments of the faculty.
- Proposal of accreditation of a new 4-year doctoral study programme.

Ph.D. study statistics

Year	Type of study	Number of students
1.	internal	22
	combined	5
2.	internal	20
	combined	2
3.	internal	15
	combined	1
4.	prolonged internal	10
	combined	9
5.	combined	8
6.	combined	13
7.	combined	5
Total		**110**

Ph.D. theses defended in 2006

Ph.D. student:	Arnošt Vladimír, Ing.
Study area:	Information technology
Thesis:	Simulation of spatial sound propagation
Supervisor:	Zbořil František V., Doc. Ing., CSc.
Defended on:	5th June 2006

Ph.D. student:	Smolík Petr, Ing.
Study area:	Information technology
Thesis:	MAMBO metamodelling environment
Supervisor:	Hruška Tomáš, Prof. Ing., CSc.
Defended on:	13th June 2006

Ph.D. student:	Kopeček Tomáš, Ing.
Study area:	Information technology
Thesis:	Descriptional complexity and derivational similarity of formal grammars
Supervisor:	Meduna Alexander, Prof. RNDr., CSc.
Defended on:	6th October 2006

Ph.D. student:	Lorenc Luboš, Ing.
Study area:	Information technology
Thesis:	Alternative approach to translation: formal models and optimization techniques
Supervisor:	Meduna Alexander, Prof. RNDr., CSc.
Defended on:	6th October 2006

Ph.D. student:	Lukáš Roman, Ing.
Study area:	Information technology
Thesis:	Multigenerative grammar systems
Supervisor:	Meduna Alexander, Prof. RNDr., CSc.
Defended on:	6th October 2006

Ph.D. student:	Martin Vítek, Ing.
Study area:	Information technology
Thesis:	New operations in the formal language theory and their use
Supervisor:	Meduna Alexander, Prof. RNDr., CSc.
Defended on:	6th October 2006

Ph.D. student:	Potúček Igor, Ing.
Study area:	Information technology
Thesis:	Omni-directional image processing for human detection and tracking
Supervisor:	Zemčík Pavel, Doc. Dr. Ing.
Defended on:	20th October 2006

Ph.D. student: Čech Vladimír, Ing.
Study area: Information technology
Thesis: Principles, processes a technology of distant education
Supervisor: Honzík Jan M., Prof. Ing., CSc.
Defended on: 20th October 2006

Ph.D. student: Slavíček Pavel, Ing.
Study area: Information technology
Thesis: Distributed simulation environment
Supervisor: Rábová Zdeňka, Doc. Ing., CSc.
Defended on: 3rd November 2006

Prof. RNDr. Milan Češka, CSc.
Vice-Dean, Creative Activities

II.2.3. Student Creative Activities

The student creative activity at the FIT was based on a long tradition and experience. Student conferences and competitions in computer science and information technology have been organized annually since 1972.

Although the FEECS split into two faculties (the FIT and FEEC), STUDENT EEICT (Electrical Engineering, Information and Communication Technologies) Conference and Competition have been organized for students of both facultieps.

In 2006, the student conference took place on 27th April 2006 at the premises of BUT Pod Palackého vrchem. After the opening ceremony, students of the FIT Master's study programme and Ph.D. students defended their work in the following specializations: Information systems, Graphics and Multimedia, Computer systems, and Intelligent systems.

The evaluation committees were formed by academics, sponsors, and representatives of the Student Union. After presentations the committees chose the best contributions and suggested the financial reward for the individual authors. Thus the professional level of the work, attractiveness for industry and students' viewpoint were incompassed. There were 16 competitors from the Bachelor's study programme, 34 students of the Master's study programme, and 28 doctoral students of the FIT present. All contributions were successfully reviewed and published in a shortened version in the Conference Proceedings. The electronic version of the proceedings can be found on the Internet and CDs.

After all committees had completed their work, a final ceremony took place in which all sponsoring companies were introduced. The representatives of the sponsoring companies together with the Vice-Deans for Research Prof. Ing. Zbyněk Raida, CSc. and Prof. RNDr. Milan Češka,CSc., awarded the prizes to the winners.

We hope that these students' competitions will continue in the future, as they bring unique motivation for students'creativity work.

The importance of the student creativity is especially high in case of our young faculty as a considerable number of winners enter the Ph.D. study programme and several most outstanding graduates become new young members of the academic staff.

RNDr. Jitka Kreslíková, CSc.

II.3. International Relations

International activities at the FIT are dealt with by the following group: the Vice-Dean Prof. Ing. Jan M. Honzík, CSc., Mrs. Michaela Studená, the assistant for public relations, and Doc. Dr. Ing. P.Zemčík, a teacher with considerable international experience. International activities are focused on support of international mobility of both students and teachers, on organizing and offering tuition to foreign students who pay their tuition fees and on information and consultation services. In 2006, there were bilateral agreements between the faculty and **25** foreign universities in the framework of Socrates/Er Programme, which enabled **42** FIT students to spend some time at study stays abroad and **33** students from foreign partner institutions to study at the FIT.

Each student's language competence for the particular study stay is highly emphasized and tested at a competition, in co-operation with the Department of Languages, the Faculty of Electrical Engineering and Communication, BUT (PhDr. Marcela Borecká).

The following table lists foreign partners who had active bilateral agreements with the FIT within the framework of Socrates/Erasmus.

Country	University	Erasmus code
Belgium	Katholieke Hogeschool Brugge Oostende http://www.khbo.be/international/index.php?linkRubriek=International	B BRUGGE11
	Katholieke Hogeschool Kempen http://www.khk.be/khk04/	B GEEL07
Denmark	Odense University College of Engineering www.ouc.dk	DK ODENSE04
Finland	Helsinki University of Technology http://www.hut.fi/English	FI ESPOO01
	Lappeenranta University of Technology http://www.lut.fi/en	SF LAPPEEN01
	University of Joensuu http://www.joensuu.fi/englishindex.html	SF JOENSUU01
	Oulu Polytechnic Institute of Technology www.oamk.fi	SF OULU11
France	Ecole Supérieure d`Ingénieurs en Électrotechnique http://www.esiee.fr	F NOISY02
	Universite la Rochelle http://www.univ-lr.fr	F LA-ROCH08
	Université de Paris 7-Denis Diderot http://www.sigu7.jussieu.fr	F PARIS007
	ESIEE Amiens http://www.esiee-amiens.fr	F AMIENS18
The Netherlands	Utrecht University, Faculty of Mathematics and Computer Science http://www.math.uu.nl	NLUTRECHT01
Germany	Universität Siegen, IMT http://www.uni-siegen.de	D SIEGEN01
	Fachhochschule Wiesbaden http://fh-web1.informatik.fh-wiesbaden.de/go.cfm	D WIESBAD01

Portugal	Universidade de Trás-os-Montes e Alto Douro http://www.utad.pt	P VILA-RE01
	Instituto Politécnico do Porto http://www.is.pt/english/	P PORTO05
	Instituto Politécnico do Lisboa http://www.ipl.pt/	P LISBOA05
Austria	Graz University of Technology http://www.international.tugraz.at	A GRAZ 02
Greece	Technological Educational Institute of Crete http://www.teiher.gr	GR KRITIS 04
	Panepistimio Kritis, Faculty of Sciences and Engineeting http://www.neagenia.gr/files/a6000003_06.html	GR KRITIS 01
Slovakia	Slovak University of Technology in Bratislava http://www.stuba.sk/eng1/about/index.html	SK BRATISL 01
	Comenius University in Bratislava http://www.uniba.sk	SK BRATISL 02
Spain	Universidad de Valladolid http://www.uva.es	E VALLADO 01
	Universidad Politécnica de Madrid http://www.upm.es	E MADRID 05
Turkey	Yildiz Technical University, Department of Mathematical Engineering http://www.yildiz.edu.tr/english/index2.php	TR ISTANBUL 01
Great Britain	University of Surrey http://www.surrey.ac.uk	UK GUILDFO 01
	University of Bristol http://www.bris.ac.uk	UK BRISTOL 01
	Coventry University http://www.coventry.ac.uk/	UK COVENTR 02

Student mobilities at the FIT in 2006 - ERASMUS and others

Incoming students:

Name	Stay	University
Ahmet BUYURAN	1/2006 - 6/2006	Turkey, Yildiz Technical University
Alper Taha YÜCE	1/2006 - 7/2006	Turkey, Yildiz Technical University
José LORENZO ESCUDERO	1/2006 - 5/2006	Spain, UPM Madrid
Joao SILVA	1/2006 - 2/2006	Portugal, UTAD
Joao TAVARES SILVA	1/2006 - 1/2006	Portugal, UTAD
Paulo MACHADO	1/2006 – 6/2006	Portugal, UTAD
Bruno MORAIS	1/2006 - 6/2006	Portugal, UTAD
Samuel Freire ALVES	1/2006 - 6/2006	Portugal, UTAD
Joana Alexandra T. de OLIVEIRA	1/2006 - 6/2006	Portugal, UTAD
Amaro ANTUNES	1/2006 - 6/2006	Portugal, UTAD
Rui Miguel Lamas ALFERES	1/2006 - 6/2006	Portugal, UTAD
Martin MACKO	2/2006 - 6/2006	Slovakia - FIIT Bratislava
Rudolf KAJAN	2/2006 - 6/2006	Slovakia - FIIT Bratislava
Radoslav MENKYNA	2/2006 - 6/2006	Slovakia - FIIT Bratislava
Tibor SCHVARTZ	2/2006 - 6/2006	Slovakia - FIIT Bratislava
Ivan GÁL	2/2006 - 6/2006	Slovakia - FIIT Bratislava
Vladimír HUDEC	2/2006 - 6/2006	Slovakia - FIIT Bratislava
Pertti KOKKONEN	1/2006 - 6/2006	Finland – University of Kuopio
Alejandro Giralda RODRÍGUEZ	2/2006 - 8/2006	Spain, Universidad de Valladolid
Ignacio Fernández-Dívar ESCACHO	2/2006 - 8/2006	Spain, Universidad de Valladolid
Nikolaos MANTZARAKIS	2/2006 - 6/2006	Greece, TEI of Crete
Khaled ZAGHDOUD	4/2006 - 7/2006	France, ESIEE Paris
Yannick SCHWARTZ	4/2006 - 7/2006	France, ESIEE Paris
Maxime BARACCO	4/2006 - 7/2006	France, ESIEE Paris
Aysegul MUT	9/2006 - 12/2006	Turkey, Yildiz Technical University
Fadime AYDIN	9/2006 - 12/2006	Turkey, Yildiz Technical University
Deniz ACILAN	9/2006 - 12/2006	Turkey, Yildiz Technical University
Stefan SIEBEL	9/2006 - 12/2006	Germany, Universität Siegen
Alaney Kilson J. S. DÓRIA	9/2006 - 12/2006	Portugal, ISEL-Lisabon
Jorge BARRACHINA	9/2006 - 12/2006	Spain, UPM Madrid
Iria Gonzalez HURTADO	9/2006 - 12/2006	Spain, UPM Madrid
Jaime Herrera RIAZA	9/2006 - 12/2006	Spain, UPM Madrid
Peter STANOVSKÝ	9/2006 – 12/2006	Slovakia, FIIT Bratislava
Ilya OPARIN	10/2006 - 12/2006	University of West Bohemia, Plzeň
Anant Prakash Verma	5/2006 - 8/2006	India, IIT Kanpur (INTERNSHIP)
Ioannis SKLAVOUNOS	11/2006 – 12/2006	Greece, TEI of Crete (LEONARDO)
Ivan BUDNYK	2/2006 - 12/2006	the Ukraine, Kyiv-Mohyla Academy (Visegrad scholarship)

Unlabelled stays: stays within the Socrates/Erasmus programme

Outgoing students:

Jméno studenta	Doba pobytu	Univerzita
Jakub Bednář	1/2006 – 2/2006	Greece, TEI of Crete
Petr Blahak	1/2006 – 2/2006	Greece, TEI of Crete
Michal Butek	1/2006 – 1/2006	France, ESIEE Amiens
Pavel Gunia	1/2006 – 3/2006	Portugal, UTAD
Radek Hlaváček	1/2006 – 3/2006	Germany, Universität Siegen
Adam Husár	1/2006 – 5/2006	France, ESIEE Amiens
Matej Konečný	1/2006 – 5/2006	Finland, Helsinki University of Technology
Miroslav Koval	1/2006 – 2/2006	Austria, Graz University of Technology
Aleš Kovářík	1/2006 – 5/2006	Finland, Helsinki University of Technology
Richard Latislav	1/2006 – 2/2006	Greece, TEI of Crete
Zdeněk Letko	1/2006 – 5/2006	Finland, Lappeenranta University of Technology
Petr Pokorný	1/2006 – 6/2006	Belgium, Katholieke Hogeschool Brugge Oostende
Ladislav Ruttkay	1/2006 – 6/2006	Great Britain, University of Bristol
Peter Trebula	1/2006 – 6/2006	Denmark, Odense University College of Engineering
Tomáš Dvořák	1/2006 – 5/2006	Great Britain, University of Surrey
Tomáš Sychra	1/2006 – 6/2006	Great Britain, University of Bristol
Michal Butela	1/2006 – 6/2006	Denmark, Odense University College of Engineering
Martin Pařenica	1/2006 – 6/2006	Denmark, Odense University College of Engineering
Ondřej Šiler	2/2006 – 6/2006	France, Universite la Rochelle
Ondřej Viceník	2/2006 – 6/2006	Denmark, Odense University College of Engineering
Jana Brychová	2/2006 – 6/2006	France, INSA Rennes
Jiří Špička	2/2006 – 7/2006	France, Universite la Rochelle
Pavlína Sehnalová	2/2006 – 7/2006	The Netherlands, Utrecht University
Miroslav Zámečník	2/2006 – 6/2006	Spain, Universidad de Valladolid
Štefan Mikula	2/2006 – 6/2006	Slovakia, FIIT Bratislava
Pavel Hendrych	2/2006 – 7/2006	Austria, TU Graz
Michal Čáp	9/2006 – 12/2006	Great Britain, Coventry
Ondřej Hampl	9/2006 – 12/2006	Germany, Fachhochschule Wiesbaden
David Hnilica	10/2006 – 12/2006	France, ESIEE Paris
Vít Kučera	8/206 – 12/2006	Finland, University of Joensuu
Ondřej Kučera	9/2006 – 12/2006	Finland, Oulu Polytechnic Institute of Technology
Michal Lichvár	9/2006 – 12/2006	Finland, Helsinki University of Technology
Tomáš Obrátil	8/2006 – 12/2006	Finland, Lappeenranta University of Technology
Jiří Petrželka	9/2006 – 12/2006	Great Britain, Coventry
Karel Piwko	9/2006 – 12/2006	France, ESIEE Paris
Martin Pražák	10/2006 – 12/2006	Great Britain, University of Bristol
Miroslav Sobotka	9/2006 – 12/2006	France, Universite la Rochelle
Filip Šuba	9/2006 – 12/2006	Finland, Helsinki University of Technology
Jiří Techet	9/2006 – 12/2006	Spain, Universidad de Valladolid
Radovan Tůma	9/2006 – 12/2006	Greece, University of Crete
Tomáš Vítek	8/2006 – 12/2006	Denmark, University of Southern Denmark
Jan Zahradník	8/2006 – 12/2006	Finland, Lappeenranta University of Technology
Pavel Očenášek	1/2006 – 1/2006	Belgie, Katholieke Universiteit Leuven (RP MSMT)
Pavel Očenášek	6/2006 – 9/2006	USA, University of Missouri - St.Louis (RP MSMT)
Michal Vaněk	7/2006 – 7/2006	Greece, TEI of Crete (RP MSMT)
Peter Trebula	6/2006 – 11/2006	Denmark, University of Southern Denmark(RP MSMT)

Michal Bartl	7/2006 – 7/2006	Greece, TEI of Crete (RP MSMT)
Martin Hás	7/2006 – 7/2006	Greece, TEI of Crete (RP MSMT)
Milan Pavlíček	8/2006 – 12/2006	Denmark, University of Southern Denmark (RP MSMT)
Jan Bartůšek	10/2006 – 12/2006	Greece, TEI of Crete (RP MSMT)

Unlabelled stays: financed within Socrates/Erasmus, MSMT ČR (Ministry of Education, Czech Republic) and the BUT mobility fund.

Prof. Ing. Jan. M. Honzík, CSc.
Vice-Dean, Public Relations

II.4. Lifelong Education

Doc. Ing. Jiří Kunovský, CSc., again contributed to the programme of the Third Age University (U3V) by giving lectures on "Digital photography and computer graphics". Based on the experience from the previous academic year and based on the large amount of senior students interested in his lectures, Doc. Ing. Jiří Kunovský, CSc., offered "Digital photography and computer graphics" in two separate lecture groups.

The last stage of the MSMT integrated project "Preparation of the Distance and Combined Forms of Study at Brno University of Technology" was worked on. Study materials created within this project are focused on e-learning and computer-aided teaching technologies and can form part of knowledge database that is going to serve all FIT students since the next academic year.

Ing. Martínek from the FIT provided all-year tuition of "Selected Parts of Informatics" for the secondary school in Vídeňská Street, Brno. It took place in the FIT Computer Centre once a week and offered the following topics of computer science: programming and independent work on projects, especially in C language, operating systems – fundamentals of Unix/Linux systems (basics of control, script programming), and work with the Internet, (information retrieval).

Within the Government Policy on IT in Education, the FIT organized several training courses in close co-operation with ApS Brno s.r.o. such as advanced courses for teachers of elementary and secondary schools, predominantly in the reagion of Ivančice. A total of 70 teachers were trained. Some of them were awarded the highest certificate for having completed all compulsory and optional courses of P modules of SIPVZ.

In 2005/06, the capacity of optional courses on Microsoft technologies was raised again. These are unique courses which prepare students for future professional life. Microsoft technologies were chosen with regard to their direct applicability in practical life, with regard to the fact that the above-mentioned technologies cover a considerable part of the market in the area of server and development tools. Each of the five courses prepares students for an international examination and for receiving the renowned MCP certificate (Microsoft Certified Professional). More than fifty FIT students were awarded the MCP certificate last year. The courses are provided with the help of Microsoft IT Academy, whose member the Faculty of Information Technology has been for many years and in the highest category.

Prof. Ing. Jan. M. Honzík, CSc.
Vice-Dean, Public Relations

II.5. Dislocation, Modernization, and Faculty Development in 2006

In 2006, the managements of BUT and FIT concentrated on the strategic investment intention of dislocation and stabilization of the FIT in Božetěchova 2 and Božetěchova 1 premises. A special attention was paid to realization of the first stage of the completion of construction and re-construction of Božetěchova 1 premises so that it might be put into operation in the middle of 2006 at the latest.

The opening ceremony was held on 19th September 2006 in attendance of representatives of the Ministry of Education of the Czech Republic, of the region, of Brno, and representatives of universities. In summer, the whole faculty moved to the buildings that had been completed in the first stage and the second stage - the reconstruction and completion of Carthusian monastery - started. The second stage is supposed to be ready by the beginning of the 2007/2008 academic year. The original investment programme was amended by two other investment intentions which deal with the reconstruction of the refectory including its static security and including the supply of active elements, enlargement of the access path and the mobile interior. Moreover it was enlarged by the reconstruction of the northern seclusion. For the time being, the former small castle in Božetěchova 1 premises and the indoor and outdoor sports fields have not been included into the reconstruction due to lack of finance. The approved investments are being carried out together with the second stage of the Božetěchova area reconstruction, which should be completed by mid-2007. Both premises were successfully linked by a bridge and the bulding permit was administered.

The operating documentation of the second stage of the faculty development was completed and a separate project on the mobile interior as a source material for public tender was made.

It is the Vice-Dean Ing. Zdeněk Bouša, who is in charge of the extremely important and demanding task of the faculty development and finance.

Ing. Zdeněk Bouša
Vice-Dean, Campus Development

II.6. Library at the FIT

In 2006, the library aimed at providing high-quality library and information service – loans, reference service, on-line service, and international loan service - and thus supporting the study and research activities at the faculty.

The acquisition activities based on requirements of academic staff and students resulted in a total of **1136 new library items.** The library stock of the faculty was thus enlarged up to **9500 library items.** The library took **47 foreign and Czech journals.**

In 2006, more than **4700 loans** from the FIT library collection were registered. **70** items were provided to the FIT employees through **international loan service** and **35** items through **inter-library lending**. In 2006, the opening hours of the library and study room were **43 hours a week.**

In 2006, a better version of the library system **Aleph 16** was introduced. Now the users can follow their loans on-line, prolong them, and book library items without visiting the library.

The first year students attended lectures where they were informed about the basic library terminology and also introduced to the services of the FIT Library and other libraries at BUT.

A lot of sales exhibitions of computer literature were organized in 2006. Apart from collaboration with Zoner Press, BEN – technical literature, another new collaboration started - with Computer press, a.s. and Mafra, a.s., which granted free journals and periodicals to our students.

In August 2006, the library temporarily moved into the new faculty building at 1, Božetěchova Str. Since then, reconstruction of the library in the area of the historical monastery has been going on.

Finance for purchase of books in 2006 (in CZK)

Czech books	150 000 Kč
Foreign books	850 000 Kč
Financed from grants	320 000 Kč
Total	**1 320 000 Kč**

Finance for purchase of periodicals in 2006 (in CZK)

Czech periodicals	10 000 Kč
Foreign periodicals	290 000 Kč
Total	**300 000 Kč**

Loans in 2006

Number of registered loans	4700
Number of inter-library and international inter-library loans	105

Mgr. Barbora Selingerová
Head of the Library

II.7. Annual Report - the Academic Senate of the FIT BUT in 2006

In 2006, the Academic Senate comprised:

Doc. Ing. Jaroslav Zendulka, CSc.	*Chairman*
Ing. Petr Lampa	*Vice-Chairman and*
	Chairman of the Chamber of the Academic Staff
Bc.Zdeněk Letko	*Vice-Chairman and*
	Chairman of the Student Chamber

Chamber of Academic Staff

Dr Ing. Otto Fučík (DCSY)
Ing. Radek Kočí, Ph.D. (DITS)
Ing. Bohuslav Křena, Ph.D. (DITS)
Doc. Ing. Jiří Kunovský, CSc. (DITS)
Ing. Petr Lampa (CC)
Prof. RNDr. Alexander Meduna, CSc. (DIFS)
Ing. Tomáš Vojnar, Ph.D. (DITS)
Doc. Ing. Jaroslav Zendulka (DIFS)

Student Chamber

Ing. Vítězslav Beran (Ph.D.programme IT)
Jan Filip (Bachelor's programme IT, since 22th June 2006)
Bc. Michal Hejč (follow-up Master's programme MIN)
Jaroslav Kapoun (Master's programme EI, CSE specialization, till 13th June 2006)
Bc. Zdeněk Letko (follow-up Master's programme MIS)
Jana Melicheríková (Master's programme EI, CSE specialization, till 13th June 2006)
Jan Richter (Bachelor's programme IT, since 7th November 2006)

AS FIT Committees

Legislative Committee

Ing. Vítězslav Beran
Bc. Michal Hejč
Ing. Bohuslav Křena, Ph.D. – *Chairman*
Doc. Ing. Jiří Kunovský, CSc

Economic Committee

Dr. Ing. Otto Fučík
Ing. Petr Lampa – *Chairman*
Ing. Tomáš Vojnar, Ph.D.
Ing. Vítězslav Beran
Jana Melicheríková (till 13th June 2006)
Bc. Zdeněk Letko (since 22th June 2006)

Activities of the AS FIT

The Academic Senate gathered at eight regular meetings in 2006 with an average attendance of 91%. All meetings had a quorum.

In the legislative section the Academic Senate (AS) focused on discussing and approving proposals of amendments to the internal regulations and standards which were provoked by the supplementary bill on Higher education and the consequent amendments to the internal regulations of BUT. The amendment proposals referred to the Electoral Rules and Rules of Procedure of the AS FIT and the Disciplinary Rules of the FIT.

The approval procedure has not been completed in either case. New Dean´s Regulations forming a Supplement to the BUT Scholarship Regulations and the FIT Dean's Regulation to the BUT Rules for Studies and Examinations were agreed on. In the former, the most distinctive change was admitting claims for scholarships by semesters, in the latter, regulation related to the organization of examinations, completion of study, subject documentation, subject recognition, etc. were refined.

In the economic field the AS agreed on buying two cars and thus enlarging the faculty fleet. The Academic Senate also agreed on the annual report on financial management of the FIT in 2005 and the budget proposal for 2006. In its meetings in October and December, the senate discussed the drawing of the FIT funds in 2006 and agreed on the division of financial reserves. Principles of drawing funds in the period of provisional budget were set in collaboration with the faculty management.

The Academic Senate also discussed and approved the Annual Report on the Activities of the FIT in 2005 and the Long-term intention of scientific, research, development, educational and other creative activities at the FIT BUT in 2006 to 2010. The Dean´s suggestion regarding the Disciplinary Commission was also agreed on.

As two members of the AS FIT graduated, the necessity of by-election for the Student Chamber of the AS FIT arose. The election was done electronically for the first time and proved successful.

The Legislative Committee of the AS FIT met twice (on 31st January and 7th November 2006) and discussed all proposals of amendments to the FIT internal regulations and standards (see above) at the meetings or electronically. The Economic Commitee of the AS FIT met once to deal with the budget proposal for 2006.

Ing. Bohuslav Křena, Ph.D., was the FIT Deputy in the Czech Council of Higher Education. In 2006 he took part in the activities of the expert committee for science and the expert committee for IT in Higher Education.

More detailed information about the individual sessions of the AS FIT can be found in the minutes (http://www.fit.vutbr.cz/FIT/AS/), which form part of the Faculty Information System.

Doc. Ing. Jaroslav Zendulka, CSc.
Chairman of the AS FIT

II. 8. Student Organizations

The Student Chamber of the Academic Senate of the FIT represents the students of the FIT, is elected by the academic staff and closely co-operates with the Student Union of the FIT.

The Student Union of the FIT is an interest group of the students at the faculty. It is here to inform students about important activities and events at the FIT, and about all that is important for their successful study and life in Brno. It contributes to various events of the FIT or BUT.

Activities of the Student Chamber of the Academic Senate (SCAS) of the FIT in 2006

Student senators regularly attended meetings of the AS of the FIT. They participated in the Economic and Legislative Committees of the Senate.

Activities of the Student Union (SU) FIT in 2006

The members of the SU participated in the FIT Open Day, organized their own ball, and contributed to the organization of the joint ball of the FIT and FEEC. They also helped to promote the faculty at the international trade fair of higher education called Gaudeamus. They also visited some secondary schools to inform secondary school students about possibilities of studying at the FIT.

The members of the SU helped to promote various faculty events, such as: lectures given by Seznam.cz company, promotion of LogicaCMG company,or the Linuxalt weekend full of lectures.

For the fourth time, the SU prepared a brochure containing useful information on the study start-up for the first-year students.

The SU also contributed to the organization of Majáles and provided several lectures for the first-year students to inform them about the start of the study at the faculty.

Martin Gazda
Chairman of the SU FIT

III. DEPARTMENTS AT THE FIT BUT IN 2006

III.1. Department of Information Systems

The **Department of Information Systems** is responsible for teaching the MSc specialisation **Information Systems**, which covers such fields as programming, formal languages and compilers, database and information systems, computer networks, formal specifications, internet and distributed applications. The objective is to make students familiar with theory, technologies and procedures used in information system development, and to teach them to develop such systems applying advanced development tools and technologies. Besides, the Department is also in charge of teaching courses in the Bc programme called **Information Technology** and in the Ph.D. programme called **Information Technology**.

Scientific and research activities of the Department are focused on database technology, implementation of information systems, management of software projects, and the theory of formal languages and compilers. The main areas of interest are the following ones:

- Object modelling, object-oriented databases, database design,
- knowledge discovery in databases,
- formal specifications of reactive and real-time systems,
- computer networks and communication protocols,
- information system implementation,
- software metrics and software project management,
- formal languages,
- functional languages.

The lectures in most of the courses are supplemented with projects or laboratory sessions, where students acquire hands-on experience and skills with the latest software packages, with software projects, and they learn basics of a teamwork and project management.

Staff

Head of Department
   Zendulka Jaroslav, Doc. Ing., CSc.
Deputy Head of Department
   Meduna Alexander, Prof. RNDr., CSc.
Professor
   Honzík Jan M., Prof. Ing., CSc.
   Hruška Tomáš, Prof. Ing., CSc.
   Meduna Alexander, Prof. RNDr., CSc.
   Švéda Miroslav, Prof. Ing., CSc.
Associate professor
   Kolář Dušan, Doc. Dr. Ing.
   Zendulka Jaroslav, Doc. Ing., CSc.
Assistant professor
   Bartík Vladimír, Ing., Ph.D.
   Burget Radek, Ing., Ph.D.
   Kreslíková Jitka, RNDr., CSc.
   Lukáš Roman, Ing., Ph.D.

Matoušek Petr, Ing., Ph.D.
Ryšavý Ondřej, Ing., Ph.D.

Assistant lecturer

Ráb Jaroslav, Ing.
Ščuglík František, Ing.

Ph.D. student

Bidlo Radek, Ing.
Blatný Petr, Ing.
Chmelař Petr, Ing.
Kroulík Jan, Ing.
Křivka Zbyněk, Ing.
Kubát Lubomír, Ing.
Kunc Michael, Ing.
Květoňová Šárka, Ing.
Martínek Zdeněk, Mgr.
Masařík Karel, Ing.
Masopust Tomáš, Mgr.
Matějka Lukáš, Mgr.
Očenášek Pavel, Ing.
Rudolfová Ivana, Ing.
Rychlý Marek, Mgr.
Rychnovský Lukáš, Ing.
Schönecker Rudolf, Ing.
Stryka Lukáš, Ing.
Techet Jiří, Ing.
Trchalík Roman, Mgr.
Weiss Petr, Ing.

Equipment

A new laboratory of advanced communication technologies was built at the FIT supported by the Higher Education Development Fund. In it , students can use aquipment for building classical data transmission nets, such as Ethernet (Gigabit Ethernet, 10G Ethernet), WiFi, and technologies for telecommunication transmissions, such as xDSL and ISDN. Besides 20 student workstations, the laboratory also contains a switchboard with active network elements (Cisco switches and routers), IP DSLAM, Access Server, DSL modems for DSL connection, ISDN AdTRAN exchange, which together with ISDN BRI modules in Cisco routers enables to make ISDN dial-up access. The lab is separated from the faculty computer network and enables students to link and configure standard network services, too. With its technical equipment the lab supports tuition in specialized courses within Cisco Network Academy programme, which was implemented as part of Bachelor Study programme at the FIT. The equipment also serves practical training in the Computer Systems and Network courses of the Master Study programme.

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
IAL	Algorithms	W	5	39-0-0-0-13	Honzík Jan M., Prof. Ing., CSc.
IAL	Algorithms	S	5	39-0-0-0-13	Honzík Jan M., Prof. Ing., CSc.

AIS	Information Systems Analysis and Design	W	5	39-0-0-0-13	Zendulka Jaroslav, Doc. Ing., CSc.
IDS	Database Systems	S	5	39-0-0-0-13	Zendulka Jaroslav, Doc. Ing., CSc.
DSKP	Data Warehouses (for FBM)	W	6	13-0-0-26-0	Bartík Vladimír, Ing., Ph.D.
MW1	Microsoft Windows Desktop Systems	W	5	26-0-0-26-0	Honzík Jan M., Prof. Ing., CSc.
IFJ	Formal Languages and Compilers	W	5	39-0-0-0-13	Meduna Alexander, Prof. RNDr., CSc.
IFJ	Formal Languages and Compilers	S	5	39-0-0-0-13	Meduna Alexander, Prof. RNDr., CSc.
SSD	Formal Specifications of Computer-Based Systems	S	0	39-0-0-0-0	Švéda Miroslav, Prof. Ing., CSc.
FPR	Functional and Logic Programming	S	5	26-0-0-12-14	Kolář Dušan, Doc. Dr. Ing.
FLP	Functional and Logic Programming	S	5	26-0-0-12-14	Kolář Dušan, Doc. Dr. Ing.
IIS	Information Systems	W	4	26-0-0-0-13	Hruška Tomáš, Prof. Ing., CSc.
WAP	Internet Applications	S	5	39-0-0-0-13	Hruška Tomáš, Prof. Ing., CSc.
KPA	Computer Communications and Interfacing	S	5	39-0-2-4-7	Švéda Miroslav, Prof. Ing., CSc.
TID	Modern Theoretical Computer Science	W	0	39-0-0-0-13	Meduna Alexander, Prof. RNDr., CSc.
IPK	Computer Communications and Networks	W	5	26-0-13-13-0	Švéda Miroslav, Prof. Ing., CSc.
IPK	Computer Communications and Networks	S	5	39-0-4-0-9	Švéda Miroslav, Prof. Ing., CSc.
PSI	Computer Networks and Communication Protocols	W	6	39-0-0-12-14	Švéda Miroslav, Prof. Ing., CSc.
MW4	Microsoft Enterprise Solutions	S	5	0-0-0-52-0	Kurečka Radomír, Ing.
PDB	Advanced Database Systems	W	5	26-6-0-6-14	Kolář Dušan, Doc. Dr. Ing.
PKS	Advanced Communication Systems	W	5	39-0-13-0-0	Švéda Miroslav, Prof. Ing., CSc.
PRD	Post-Relational Databases	W	5	26-6-0-6-14	Kolář Dušan, Doc. Dr. Ing.
PRD	Post-Relational Databases	S	6	26-0-0-26-13	Kolář Dušan, Doc. Dr. Ing.
IPP	Principles of Programming Languages	W	5	39-0-0-0-13	Kolář Dušan, Doc. Dr. Ing.
IPP	Principles of Programming Languages	S	5	39-0-0-0-13	Kolář Dušan, Doc. Dr. Ing.

MW5	Programming .NET and C#	S	5	26-0-0-26-0	Kurečka Radomír, Ing.
PDI	Distributed Application Environment	W	5	39-0-0-5-8	Zendulka Jaroslav, Doc. Ing., CSc.
PDT	Data Communications and Computer Networks	S	6	39-4-2-0-8	Švéda Miroslav, Prof. Ing., CSc.
PDS	Data Communications, Computer Networks and Protocols	S	5	39-4-2-0-7	Švéda Miroslav, Prof. Ing., CSc.
CC2	LAN Switching and Design (CCNA3)	W	5	26-0-26-0-0	Matoušek Petr, Ing., Ph.D.
IRP	Information Systems Project Management	W	4	39-0-0-0-0	Kreslíková Jitka, RNDr., CSc.
IRP	Information Systems Project Management	S	4	26-0-0-4-9	Kreslíková Jitka, RNDr., CSc.
RPS	Project Management of Computer-Based Systems	S	6	39-6-0-0-20	Kreslíková Jitka, RNDr., CSc.
IPM	Pascal and Modula Languages	S	4	39-0-0-0-13	Honzík Jan M., Prof. Ing., CSc.
MW2	Microsoft Windows Server Systems	S	5	26-0-0-26-0	Kurečka Radomír, Ing.
CC1	Network Cabling and Routing (CCNA1+CCNA2)	S	5	26-0-26-0-0	Matoušek Petr, Ing., Ph.D.
ISA	Network Applications and Network Administration	W	5	26-0-6-0-20	Švéda Miroslav, Prof. Ing., CSc.
ISA	Network Applications and Network Administration	S	5	39-0-13-0-0	Švéda Miroslav, Prof. Ing., CSc.
MW3	Microsoft Windows Network Technologies	W	5	0-0-0-52-0	Kurečka Radomír, Ing.
SVD	Specification of Embedded Systems	W	0	39-0-0-0-0	Švéda Miroslav, Prof. Ing., CSc.
SVS	Embedded System Specification	S	5	39-0-2-4-7	Švéda Miroslav, Prof. Ing., CSc.
TJD	Programming Language Theory	W	0	39-0-0-0-0	Hruška Tomáš, Prof. Ing., CSc.
ITW	Web Design	W	5	26-0-0-12-14	Burget Radek, Ing., Ph.D.
ITW	Web Design	S	5	26-0-0-12-14	Burget Radek, Ing., Ph.D.
TWS	Web Page Design	S	5	26-0-0-12-14	Burget Radek, Ing., Ph.D.
C2C	Introduction to LAN Switching and Design	W	4	26-0-13-0-13	Matoušek Petr, Ing., Ph.D.
C3C	Introduction to WAN Technology	W	4	26-0-13-0-13	Matoušek Petr, Ing., Ph.D.
VKA	Selected Chapters on Algorithms	S	0	39-0-0-0-0	Honzík Jan M., Prof. Ing., CSc.

VPD	Selected Topics of Information Systems	S	0	39-0-0-0-0	Hruška Tomáš, Prof. Ing., CSc.
VYP	Compiler Construction	W	5	39-0-0-0-13	Meduna Alexander, Prof. RNDr., CSc.
IZP	Introduction to Programming Systems	W	7	39-0-0-12-14	Kreslíková Jitka, RNDr., CSc.
ZZD	Knowledge Discovery in Databases	W	0	39-0-0-0-13	Zendulka Jaroslav, Doc. Ing., CSc.
ZZN	Knowledge Discovery in Databases	W	5	39-0-0-0-13	Zendulka Jaroslav, Doc. Ing., CSc.

Research Projects

Bioinformatics and Knowledge Discovery in Biological Databases,
FRVŠ MSMT, FR3064/2006/G1, 2006, running
Research leader: Rudolfová Ivana
Team leader: Zendulka Jaroslav

Didactic Demonstration of Formal Language Models, FRVŠ MSMT, FR1909/2006/G1, 2006, running
Research leader: Křivka Zbyněk
Team leaders: Lukáš Roman, Meduna Alexander

Identification and analysis of relations of process and project management in SW product development and their influence on quality management , FRVŠ MSMT, FR2557/2006/G1, 2006, running
Research leader: Martínek Zdeněk
Team leader: Kreslíková Jitka

Language and Development Environment for Microprocessor Design , MPO ČR, FT-TA3/128, 2006-2010, running
Research leader: Kurečka Radomír
Team leader: Hruška Tomáš

Laboratory of Advanced Communiction Technologies, FRVŠ MSMT, FR2622/2006/A, 2006, completed
Research leader: Švéda Miroslav
Team leaders: Matoušek Petr, Ščuglík František

Ontologies and Semantic Web, FRVŠ MSMT, FR2877/2006/G1, 2006, running
Research leader: Očenášek Pavel
Team leader: Hruška Tomáš

Development of Structured and Modular Study Programmes, RP MSMT, 2006, completed
Research leader: Honzík Jan M.

Internationalisation – Preparatory Phase for the European Joint Degree, RP MSMT, 2006, running
Research leader: Honzík Jan M.
Team leader: Zemčík Pavel

Toward International Learning Environment for Real-Time Safety-Critical Control Systems, EC EU, ATLANTIS-ILERT, 2006-2008, running
Research leader: Švéda Miroslav
Team leader: Ryšavý Ondřej

Gaudeamus 2006 – Trade Fair of Higher Education, RP MSMT, 2006, completed
Research leader: Honzík Jan M.

Research and application of systems for large data analysis and decision support, MPO ČR, FT-TA3/162, 2006-2010, running
Research leader: Máčel Michal
Team leader: Hruška Tomáš

IT Professionals – Graduates Competitiveness Increase for European Labour Market, MSMT, CZ.04.1.03/3.2.15.1/0003, 2006-2007, running
Research leader: Hruška Tomáš
Team leader: Růžička Richard

Increasing of Qualification in the Area of Network Security and Wireless Technologies, CESNET, CESNET 2006, 2006-2007, running
Research leader: Matoušek Petr
Team leaders: Čejka Rudolf, Ščuglík František

Network Architectures for Embedded Systems, GACR, GA102/05/0467, 2005-2007, running
Research leader: Srovnal Vilém
Team leaders: Bílek Jan, Švéda Miroslav

**Integrated Approach to Education of DSP Students in the Field of Parallel and Distributed Systems
Systems,** GACR, GA 102/05/H050, 2005-2008, running
Research leader: Gruska Jozef
Team leader: Češka Milan

Framework for Formal Specification and Prototyping of Network Applications of Information Systems, GACR, GA 102/05/0723, 2005-2007, running
Research leader: Švéda Miroslav
Team leaders: Hruška Tomáš**,** Zendulka Jaroslav

Research and Development of an Economically Acceptable Information and Security System aiming at building up and modernizing older blocks of flats, MPO ČR, FT-TA2/095, 2005-2007, running
Research leader: Dvořák Jaroslav
Team leader: Zezulka František

Information System Security– Research of Attacks on Tamper-Resistant Cryptographic Hardware, GACR, GA 102/04/0871, 2004-2006, running
Research leader: Hanáček Petr
Team leaders: Cvrček Daniel, Hrubý Martin, Hruška Tomáš, Peringer Petr, Rábová Zdeňka

ECTS/DS - National Coordinator-Team, EC EUA ECTS, 2004-2007, running
Research leader: Honzík Jan M.
Team leader: Zemčík Pavel

Optical Network in National Research and its New Applications - Programmable Hardware, CESNET, MSM6383917201, 2004-2010, running
Research leader: Novotný Jiří
Spoluřešitelé: Čejka Rudolf, Fučík Otto, Kořenek Jan, Martínek Tomáš, Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Vojnar Tomáš, Zemčík Pavel

Optimally Integrated Models of Modern Information Technologies, GAČR, GA201/04/0441, 2004-2006, running
Research leader: Meduna Alexander
Team leader: Kolář Dušan

Participation in Development of European SW Standards for Car Industry, AV ČR, 1ET400750406, 2004-2007, running
Research leader: Kadlec Jiří
Team leaders: Černý Stanislav, Hanzálek Zdeněk

Research Project in Interactive Media, GACR, GA408/04/1370, 2004-2006, running
Research leader: Gajdoš Július
Team leader: Zendulka Jaroslav

Research and Implementation of Knowledge-Based Management Methods for SW Development and Maintenance, AV CR, 1ET409980417, 2004-2006, running
Research leader: Opršal Zdeněk
Team leaders: Kreslíková Jitka, Zendulka Jaroslav

A Support Program for Selected Study Programmes and their Development, MSMT, MSMT, 2002-2007, running
Research leader: Honzík Jan M

Development of Study Programmes as Part of Bologna Declaration, MSMT, MSMT RP, 2001-2007, completed
Research leader: Honzík Jan M.

Co-operation

Co-operation the Czech Republic

- Application Software, s.r.o.- RNDr.Lubomír Ptáček, co-operation in education and courses for the FIT, http://www.pocitacoveskoleni.cz
- VEMA, a.s., Ing. Michal Máčel, CSc. – co-operation in research and development, http://www.vema.cz
- IBM CR – co-operation in education promotion and employment of the graduates from the FIT, http://www.ibm.com/cz
- Computer Press, Connect! (a journal), Lukáš Honek- analysing and testing network equipment, www.connect.zive.cz
- Department of Automation and Measurement FEI, VŠB - Technical University Ostrava, Prof. Vilém Srovnal – co-operation in the field of embedded systems, http://www.fei.vsb.cz/www/katedry/455/profil_kat.html.
- Department of Control Technology FEL, ČVUT Praha – Doc. Jan Bílek – co-operation in the field of embedded systems, http://dce.felk.cvut.cz/pub
- Faculty of Informatics, Masaryk University Brno, Ing. Matej Lexa, Ph.D. - co-operation in the field of bioinformatics, http://www.fi.muni.cz/fi/
- Grisoft, Ing. Karel Oblouk, Ph.D. – topics of diploma theses and consultations, research in antivirus protection, http://www.grisoft.cz
- InterSystems B.V., Ing. Daniel Kutač – provision of the Caché system and support within Caché Campus program, http://www.intersystems.cz
- Allium, s.r.o., Ing. Zdeněk Opršal – co-operation in the field of Knowledge-Based Management Methods for SW Development and Maintenance, http://www.allium.cz
- STAVCERT, s.r.o. Praha, Ing. Jiřina Štěpánská, chief auditor QMS, EMS, co-operation in the field of quality assessing of the process of the development of information systems with the aim of the system certification for quality management, http://www.stavcert.cz
- Department of Information and Knowledge Engineering, FIS, VŠE, Praha, Ing. Vojtěch Svátek, Dr.- scientific co-operation, project submitting, http://www.vse.cz/
- Department of Theatre and Interactive Media Studies, Masaryk University, Faculty of Arts, Prof. PhDr. Július Gajdoš, Ph.D. – joint grant project "Research in Interactive Media, GACR, GA408/04/1370", http://www.phil.muni.cz/udim/
- Brno Trade Fair, a.s., Mgr. Gabriela Sochnová – co-organizer, voting in the Cristal Disc competition in 2006, http://www.bvv.cz/
- Cisco Network Academy, Karol Kniewald – co-operation in the implemetation of CCNA courses into the programme of tuition, http://cisco.netacad.net.
- Profinit, s.r.o., M. Franc – co-operation, the 'Thesis of the Year' competition and specialized lectures, http://www.profinit.cz
- ANF DATA, s.r.o., local affiliate in Brno, Ing. Petr Šebesta, diploma theses – topics and consultations, http://www.anfdata.cz
- Software Technology Institute, a.s., Ing. Zdeněk Opršal – co-operation in the field of Knowledge-Based Management Methods for SW Development and Maintenance, http://www.avo.cz
- LBMS, s.r.o. Praha, František Solar, Strategic Account Manager, co-operation in the field of process management and application for the support of process management, http://www.lbms.cz
- ICZ a.s., Ing. Miroslav Rybníček, co-operation in the field of project managment and application for the support of process management, http://www.i.cz/

International Co-operation

- University of Arizona, Tuscon, Arizona, USA, Prof. Jerzy Rozenblit – co-operation in the field of embedded systems and formal specifications, http://www.ece.arizona.edu.
- University of Stirling, Stirling, Scotland, UK, Prof. Charles Rattray – co-operation in the field of formal specifications, http://www.cs.stir.ac.uk.
- Embry Riddle Aeronautical University, Daytona Beach, Florida, USA, Prof. Andrew Kornecki, co-operation in the field of embedded systems: ATLANTIS-ILERT, http://www.erau.edu.
- AGH University of Science and Technology, Krakow, Poland, Prof. Wojciech Grega - co-operation in the field of embedded systems: ATLANTIS-ILERT, http://aq.ia.agh.edu.pl.
- Université Joseph Fourier, Grenoble, France, Prof. Jean Marc Thiriet - co-operation in the field of embedded systems: ATLANTIS-ILERT, www.eie-surveyor.org.

Visits of Staff Members to Foreign Institutions

- Honzík Jan M., Prof. Ing., CSc., European Comission EU- Education and Training, EC EU, Brusel, Brusel, BE, 8 days, a study stay
- Hruška Tomáš, Prof. Ing., CSc., University of Birmningham, UNIB, Edgbaston, B15 2TT Birmingham, GB, +44 121 414 3344, GB, 14 days, a study stay
- Masopust Tomáš, Mgr., Universidad de Valladolid, UVA, Plaza de Santa Cruz 8, 47002 Valladolid, ES, +34 983 42 32 33, ES, 9 days, a study stay
- Matoušek Petr, Ing., Ph.D., Verification of Protocols for Security and Mobility, Copenhagen, DK, 6 days, a study stay
- Meduna Alexander, Prof. RNDr., CSc., Kyoto Sangyo University, Kyoto Sangyo University, JP, 2 months, – a research stay
- Meduna Alexander, Prof. RNDr., CSc., Universidad de Valladolid, Valladolid, Spain, ES, 8 days, a series of invited lectures,
- Meduna Alexander, Prof. RNDr., CSc., University of Milan, Italy, IT, 8 days, a series of invited lectures
- Očenášek Pavel, Ing., Katholieke Universiteit Leuven, KU Leuven, BE, 29 days, – a research stay
- Očenášek Pavel, Ing., University of Missouri - St. Louis Math and Computer Science Department, UMSL Missouri, 8001 Natural Bridge Rd., MO 63121 St. Louis, US, 3 months – a research stay
- Švéda Miroslav, Prof. Ing., CSc., IEEE Computer Society, Miami, Florida, US, 10 days, request consultations
- Techet Jiří, Ing., Universidad de Valladolid, UVA, Plaza de Santa Cruz 8, 47002 Valladolid, ES, +34 983 42 32 33, ES, 4 months, a study stay

Agreements

- Agreement on Professional Aid, STAVCERT Praha, Ltd.
- A Bi-lateral Agreement on Student and Teacher Mobilities within the Socrates/Erasmus Programme made with La Universidad de Valladolid, http://www.uva.es/, ES
- An Agreement on Alignment of the FIT to the CNA programme (co-operation with UO Brno) 2004 - .
- An Agreement with ApS Brno, spol., s. r.o., 2002 - .
- An Agreement with Vema a.s., 2002 -.
- An Agreement with Profinit, s.ro., 2006 -.

Memberships in International Organizations and Societies

- Honzík Jan M., Prof. Ing., CSc.,
    - IGIP
    - IFIP
    - EUA-ECTS/DS National Coordinator
    - Member of the National Team of Bologna Promoters,
- Hruška Tomáš, Prof. Ing., CSc.,
    - ACM (thruska@acm.org)
    - Czech and Slovak Simulation Society (CSSS)
- Kolář Dušan, Doc. Dr. Ing.,
    - ACM
- Očenášek Pavel, Ing.,
    - IEEE Computer Society
    - ACM
- Ryšavý Ondřej, Ing., Ph.D.,
    - IEEE Computer Society
- Ščuglík František, Ing.,
    - IEEE Computer Society
- Švéda Miroslav, Prof. Ing., CSc.,
    - IEEE Computer Society
    - IEEE Technical Committee on Engineering of Computer-Based Systems (ECBS)
    - IFIP WG10.1
- Zendulka Jaroslav, Doc. Ing., CSc.,
    - ACM

Publications

Journal Articles:

Bidlo, M., Bidlo, R., Sekanina, L.: Designing a Novel General Sorting Network Constructor Using Artificial Evolution, In: Enformatika, Vol. 15, No. 1, 2006, Barcelona, ES, pp. 85-90, ISBN 975-00803-4-3, ISSN 1503-5313

Křivka, Z., Meduna, A., Schönecker, R.: Generation of Languages by Rewriting Systems that Resemble Automata, In: International Journal of Foundations of Computer Science, Vol. 17, No. 5, 2006, ZZ, pp. 1223-1229, ISSN 0129-0541

Matoušek, P.: Dobrého nespálí. Test firewallů pro sítě do 150 uživatelů (Test of Hardware Firewalls for Small Networks), In: CONNECT!, Vol. 2006, No. 6, Brno, CZ, pp. 26-29, ISSN 1211-3085

Meduna, A., Lukáš, R.: Multigenerative Grammar Systems, In: Schedae Informaticae, Vol. 2006, No. 15, Krakov, PL, p. 11, ISSN 0860-0295

Meduna, A.: Deep Pushdown Automata, In: Acta Informatica, Vol. 2006, No. 98, DE, pp. 114-124, ISSN 0001-5903

Očenášek, P., Trchalík, R.: On the Implementation of Metrics in the Workflow System, In: WSEAS Transactions on Computers Research, Vol. 1, No. 2, 2006, Athens, GR, pp. 360-362, ISSN 1991-8755

Očenášek, P.: Automatic System for Making Web Content Accessible for Visually Impaired Users, In: WSEAS Transactions on Computers Research, Vol. 1, No. 2, 2006, Athens, GR, pp. 325-328, ISSN 1991-8755

Conference Proceedings:

Zendulka, J. (editors): Proceedings of 9th International Conference ISIM'06, Ostrava, CZ, MARQ, 2006, s. 192, ISBN 80-86840-19-0

Conference Papers:

Bidlo, R., Blatný, P., Meduna, A.: Vertical Context in Phrase-Structure Grammars, In: Second Doctoral Workshop on Mathematical and Engineering Methods in Computer Science (MEMICS 2006), Mikulov, CZ, 2006, pp. 17-23, ISBN 80-214-3287-X

Bidlo, R., Blatný, P.: Two-Sided Pushdown Automata over Free Groups, In: Proceedings of the 12th Conference Student EEICT 2006 Volume 4, Brno, CZ, FEKT BUT, 2006, pp. 352-355, ISBN 80-214-3163-6

Bližňák, M., Kolář, D.: Formal-method-based Software Development Applied on Embedded Systems: Basic concepts, In: 17th International DAAAM Symposium 2006, Vienna, AT, 2006, pp. 45-46, ISBN 3-901509-57-7

Bližňák, M., Kolář, D.: Formal-method-based Software Development Applied on Embedded Systems: Platform-independent Source Code, In: Conference Proceedings of MITIP, Budapest, HU, 2006, pp. 487-492, ISBN 963-86586-5-7

Burget, R.: Visually-oriented document modelling on WWW, In: Datakon 2006, Brno, CZ, MUNI, 2006, pp. 159-168, ISBN 80-210-4102-1

Čech, V.: Principles of Distance Education, In: Student EEICT 2006, Brno, CZ, 2006, pp. 356-359

Čech, V.: Zajištění kvality distančního vzdělávání prostředky projektového řízení (Quality assurance in distance education by means of project management), In: Zborník príspevkov eLearn 2006, Žilina, SK, 2006, pp. 33-36, ISBN 80-8070-505-4

Fujcik, L., Vrba, R., Švéda, M.: A 16-Bit Switched-Capacitor Sigma-Delta Modulator Matlab Model Exploiting Two-Step Quantization Process, In: Proceedings of the Third International Conference on Informatics in Control, Automation and Robotics (ICINCO 2006), Setúbal, PT, IEEE CS, 2006, pp. 142-147, ISBN 972-8865-59-7

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Očenášek, P.: Semantic Web Tutorial, Brno, CZ, 2006, p. 27

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Seminars

13.2.2006	Graphical representacion of formal languages - Maria Luisa González Díaz
20.2.2006	A Reduction of Scattered Context Grammars – A. Meduna, J. Techet, T. Masopust
27.2.2006	Self-Regulated Finite Automata – T. Masopust
6.3.2006	Architecture Description Languages – K. Masařík
13.3.2006	Patterns and Skeletons for Parallel and Distributed Computing – I.Budnyk Visual Segmentation of Web Documents – R. Burget
20.3.2006	Human Tracking Concepts – P. Chmelař
27.3.2006	A Framework for Systems of Asynchronous Concurrent Processes – M. Rychlý

10.4.2006	An Introduction to Business Process Modelling - Š. Květoňová
2.10.2006	An Introduction to the 2006 UIFS seminar – A. Meduna
9.10.2006	An infinite hierarchy of language families based on the pushdown depth - A. Meduna
16.10.2006	Rewriting Systems and An Infinite Hierarchy - A. Meduna, R. Schönecker, Z. Křivka
23.10.2006	Using Knowledge Management in Project Management - Š. Květoňová
30.10.2006	Self Explaining On-Line Analytical Data Mining - P. Chmelař, L. Stryka
6.11.2006	Properties of n-Parallel Languages - L. Rychnovský
13.11.2006	Project and process management relationships - Z. Martínek
20.11.2006	Evolutionary Approach in the Security Protocol Design - P. Očenášek
27.11.2006	Verification of RT systems described using UML - J. Ráb An introduction to FP7 – O.Ryšavý
4.12.2006	Tools for Verification of Security Protocols - P. Matoušek
11.12.2006	SOA and the Possibilities of its Modelling - P. Weiss, Quality Connector: Asynchronous Network Framework Approach and Pattern Language -I. Budnyk
18.12.2006	Kurt Goedel - his significance for philosophy and informatics - B. Švandová

Other Activities

- Organization of the "9th Information Systems Implementation and Modelling" (ISIM 2006), which is an international conference on theory, modelling techniques and tools, methods of information systems design and database systems.
- Doc. Zendulka was a member of the evaluation board in 'Database Product of 2006' competition organized by the journal of 'Database World' (Databázový svět)..
- Prof. Honzík was the chief executive of the evaluation board and Prof. Hruška and Doc. Zendulka were members of the academic part of the evaluation board of the Cristal Disc Competition within Invex 2006, the international trade fair on IT. Dr. Burget was in charge of information support.

III.2. Department of Intelligent Systems

The **Department of Intelligent Systems** is responsible for teaching courses specialized in Intelligent Systems. This branch of study synthesizes knowledge from several scientific fields, such as artificial intelligence, system modelling, simulation and formal analysis of system models, neural nets, genetic algorithms and fuzzy systems. The common feature here are the non-traditional ways of computing, which provide solutions of problems with highly sophisticated, indefinite and dynamic character of the processes.

The graduates will become experts in system modelling, and creation, including signal recognition (speech and visual image processing), processing of natural language and decision-making based on inaccurate and incomplete information. They will also master intelligent control systems, intelligent information systems and intelligent robots.

The research activity of the Department is focused first of all on Intelligent Systems, but attention is also paid to systems for specific applications, computer-based systems, interface design and the use of multilevel parallelism. Further fields of interest are: integration of components into embedded applications, simulation and prototyping of different configurations, and formal specification and verification of the design.

The majority of subjects are supplemented with projects and laboratory work, in which students gain practical experience with the latest software products and systems.

Staff

Head of Department
> Hanáček Petr, Doc. Dr. Ing.

Deputy Head of Department
> Zbořil František V., Doc. Ing., CSc.

Professor
> Češka Milan, Prof. RNDr., CSc.

Associate professor
> Cvrček Daniel, Doc. Ing., Ph.D.
> Hanáček Petr, Doc. Dr. Ing.
> Kunovský Jiří, Doc. Ing., CSc.
> Zbořil František V., Doc. Ing., CSc.

Assistant professor
> Drahanský Martin, Ing., Dipl.-Ing., Ph.D.
> Hrubý Martin, Ing., Ph.D.
> Janoušek Vladimír, Ing., Ph.D.
> Kočí Radek, Ing., Ph.D.
> Křena Bohuslav, Ing., Ph.D.
> Marek Vladimír, Ing.
> Orság Filip, Ing., Ph.D.
> Peringer Petr, Dr. Ing.
> Vojnar Tomáš, Ing., Ph.D.
> Zbořil František, Ing., Ph.D.

Assistant lecturer

> Kumpošt Marek, Mgr.
> Martinek David, Ing.
> Smrčka Aleš, Ing.

Ph.D. student

> Cerhák Michal, Ing.
> Erlebach Pavel, Ing.
> Grulich Lukáš, Ing.
> Holík Lukáš, Mgr.
> Jurka Pavel, Ing.
> Kironský Elöd, Ing.
> Kluz Marek, Mgr.
> Konvalina Jiří, Ing.
> Kraus Michal, Ing.
> Malinka Kamil, Mgr.
> Mazal Zdeněk, Ing.
> Novosad Petr, Ing.
> Pecho Peter, Ing.
> Pindryč Milan, Ing.
> Polášek Petr, Ing.
> Rogalewicz Adam, Mgr.
> Rozman Jaroslav, Ing.
> Samek Jan, Ing.
> Schäfer Jiří, Ing.
> Skřivánek Roman, Ing.
> Šátek Václav, Ing.
> Turakhodjaeva Nasibakhon, Ing.
> Vintera Jiří, Ing.

Equipment

Laboratory of robots and biometric systems:

- Robot Trilobot (11 pieces)
- Logitech web cameras (10 pieces)
- Robot Robosapien (2 pieces)
- a battery charger for robots
- SkyTale chip card reader
- Fingerprint Scanners

  - o Bergdata FCAT 100 (thermal)
  - o Hamster SecuGen II. (optical)
  - o Suprema SFM 3000 (E-Field)
  - o Suprema SFM 3010 (thermal)
  - o Suprema SFM 3020 (optical)
  - o Suprema SFM 3050 (capacitive)
  - o Suprema SFR 300 (optical)
  - o Veridicom 5th Sense PRL (capacitive)
- AGA Thermovision 110 thermocamera
- Videre Design stereocamera, STH-MDCS2-VARX-C
- HeadSet Genius HS-02N (10 pieces)

- PLC –Samson 6411 control unit
- Rosemount pressure sensor for explosive environment
- CO + LPG detector
- KTY91-222 resistance thermal sensor
- Pt100 resistance thermal sensor
- Siemens inductive position transducer
- Photoresistor + photodiode
- FSR pressure sensors + depression sensor
- SDK Bergdata 2004
- SDK Suprema UniFinger
- SDK Veridicom Protector Suite v3.5.1
- Eagle 4.1 Light
- a soldering set for SMD

BUSlab:

- OfficePro 5000D midi computer (8 pieces)
- Server BUSLab
- Belkin Gigabit switch, 8 ports,
- Asus WL-500g 54Mbit AP/KL/Router/Br/Switch
- BENQ BP2250 data projector
- RouterBOARD RB535
- RouterBOARD RB112 1xLAN
- External HDD WD NetCenter 250GB+LAN 3.5"
- GemPC410-SL reader (5 pieces)
- GemPC430 v.1.4 reader (5 pieces)
- Omnikey Cardman 4000 reader - PCMCIA reader
- GemProx-P2, contactless card reader
- GemProx-C2, contactless card reader
- AMC DV103003 - development kit (RFID)
- GemXPress III development equipment
- SCSATMOD 4 board
- Scopemeter Fluke 123S
- F123S portable measuring kit
- DF5305 0-50V/0-5A – a laboratory power source
- APC Smart-UPS 1500 VA
- Micro-soldering iron with an advanced stabilization of tip temperature

The Department uses the equipment of the Computer Centre

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
AGS	Agent and Multiagent Systems	W	5	26-0-0-13-13	Zbořil František V., Doc. Ing., CSc.
AGS	Agents and Multiagents Systems	S	5	39-0-0-0-13	Zbořil František V., Doc. Ing., CSc.
AINX	Artificial Intelligence	S	5	39-13-0-0-0	Zbořil František V., Doc. Ing., CSc.

IAS	Assembly Languages	W 6	39-0-0-13-0	Zbořil František V., Doc. Ing., CSc.
IBP	BSc Thesis	S 6	0-0-0-0-78	Rábová Zdeňka, Doc. Ing., CSc.
BMS	Wireless and Mobile Networks	W 5	39-0-0-0-13	Hanáček Petr, Doc. Dr. Ing.
BKR	Computer Security and Cryptography	S 6	39-0-0-0-26	Hanáček Petr, Doc. Dr. Ing.
BIS	Information System Security	W 5	39-0-0-0-13	Hanáček Petr, Doc. Dr. Ing.
BID	Information system security and cryptography	S 0	39-0-0-0-4	Hanáček Petr, Doc. Dr. Ing.
BIO	Biometric Systems	W 5	39-0-6-0-7	Drahanský Martin, Ing., Dipl.-Ing., Ph.D.
DPI	MSc Thesis Project	S 10	0-0-0-0-130	Rábová Zdeňka, Doc. Ing., CSc.
FAV	Formal Analysis and Verification	W 5	39-0-0-0-13	Vojnar Tomáš, Ing., Ph.D.
GIS	Geographical Information Systems	S 4	26-0-0-4-9	Hrubý Martin, Ing., Ph.D.
SEN	Intelligent Sensors	W 5	26-4-4-0-18	Drahanský Martin, Ing., Dipl.-Ing., Ph.D.
SIN	Intelligent Systems	W 5	39-0-0-0-13	Janoušek Vladimír, Ing., Ph.D.
ISD	Intelligent Systems	W 0	0-0-0-0-0	Zbořil František V., Doc. Ing., CSc.
IJC	The C Programming Language	W 5	39-0-0-0-13	Peringer Petr, Dr. Ing.
CPP	The C Programming Language	W 5	39-0-0-0-13	Peringer Petr, Dr. Ing.
IJC	The C Programming Language	S 5	39-0-0-0-13	Peringer Petr, Dr. Ing.
KRY	Cryptography	W 5	39-0-0-0-13	Hanáček Petr, Doc. Dr. Ing.
KIBP	Cryptography and Information Security (for FBM)	W 5	26-0-0-0-13	Cvrček Daniel, Doc. Ing., Ph.D.
IMS	Modelling and Simulation	W 5	39-6-0-0-7	Peringer Petr, Dr. Ing.
MSI	Modelling and Simulation	W 6	39-0-0-10-16	Peringer Petr, Dr. Ing.
APP	Advanced Computer Applications	S 6	39-0-0-26-0	Kunovský Jiří, Doc. Ing., CSc.
NEU	Neural Networks	W 6	39-0-0-0-26	Zbořil František V., Doc. Ing., CSc.
OMP	Object Oriented Modelling and Prototyping	S 6	26-0-0-12-27	Janoušek Vladimír, Ing., Ph.D.
IOS	Operating Systems	S 5	39-0-0-0-13	Vojnar Tomáš, Ing., Ph.D.
PRL	Parallel and Distributed Algorithms	S 5	39-0-0-0-13	Hanáček Petr, Doc. Dr. Ing.
PES	Petri Nets	S 5	39-0-0-0-13	Češka Milan, Prof. RNDr., CSc.
PAS	Advanced Assembly Languages	W 5	26-0-0-16-10	Orság Filip, Ing., Ph.D.
IPR	Computer Hardware	S 6	26-13-13-0-0	Kunovský Jiří, Doc. Ing., CSc.
ROB	Robotics	W 5	26-0-6-0-20	Orság Filip, Ing., Ph.D.
PI2	Year project 2/2	S 4	0-6-0-0-20	Rábová Zdeňka, Doc. Ing., CSc.
RDID	Dissertation	S 0	0-0-0-0-26	Češka Milan, Prof. RNDr., CSc.
ICP	The C++ Programming Language	S 4	0-26-0-0-13	Peringer Petr, Dr. Ing.
IJA	Java Programming Language	S 4	0-26-0-0-13	Kočí Radek, Ing., Ph.D.
IST	Smalltalk	S 4	0-26-0-0-13	Janoušek Vladimír, Ing., Ph.D.

STI	Theoretical Computer Science Seminar	W	3	0-26-0-0-0	Češka Milan, Prof. RNDr., CSc.
SNT	Simulation Tools and Techniques	S	5	39-0-0-0-13	Češka Milan, Prof. RNDr., CSc.
SFC	Soft Computing	W	5	26-0-0-0-26	Zbořil František V., Doc. Ing., CSc.
ISI	Community and Information Technology	S	3	26-0-0-0-0	Křena Bohuslav, Ing., Ph.D.
TIN	Theoretical Computer Science	W	5	39-0-0-0-13	Češka Milan, Prof. RNDr., CSc.
TI2	Theoretical Computer Science 2	S	6	39-0-0-12-14	Češka Milan, Prof. RNDr., CSc.
TAD	Theory and Applications of Petri Nets	S	0	39-0-0-8-0	Češka Milan, Prof. RNDr., CSc.
ITO	Circuit Theory	W	6	26-13-0-13-0	Kunovský Jiří, Doc. Ing., CSc.
ITY	Typography and Publishing	S	4	13-0-0-0-26	Křena Bohuslav, Ing., Ph.D.
UIN	Artificial Intelligence	S	6	39-0-0-12-14	Zbořil František V., Doc. Ing., CSc.
IUS	Introduction to Software Engineering	W	5	26-0-0-6-7	Křena Bohuslav, Ing., Ph.D.
VND	Higly Sophisticated Computations	S	0	39-0-0-0-0	Kunovský Jiří, Doc. Ing., CSc.
IZU	Fundamentals of Artificial Intelligence	W	4	26-0-0-13-0	Zbořil František V., Doc. Ing., CSc.
IZU	Fundamentals of Artificial Intelligence	S	4	26-0-0-13-0	Zbořil František V., Doc. Ing., CSc.

Research Projects

Formal Verification of Programs Working with Dynamic Data Structures, FRVŠ MSMT, FR3101/2006/G1, 2006, running
Research leader: Erlebach Pavel
Team leader: Vojnar Tomáš

Methods and Tools for Automated Bug Detection in Software, GAČR, GP102/06/P076, 2006-2008, running
Research leader: Křena Bohuslav

Mobile Autonomous Robot, FRVŠ MSMT, FR2818/2006/G1, 2006-2007, running
Research leader: Rozman Jaroslav
Team leader: Zbořil František V.

Computer Classroom for Modelling, Simulation and Geographical Information Systems, FRVŠ MSMT, FR2656/2006/Ab, 2006, running
Research leader: Peringer Petr
Team leaders: Hrubý Martin, Kunovský Jiří, Vojnar Tomáš

Teaching Support for HW formal verification, FRVŠ MSMT, FR2978/2006/G1, 2006, running
Research leader: Smrčka Aleš
Team leader: Vojnar Tomáš

Teaching Support for the Modelling and Simulation Course, FRVŠ MSMT, FR3097/2006/G1, 2006, running
Research leader: Grulich Lukáš
Team leader: Rábová Zdeňka

SHADOWS - A Self-Healing Approach to Designing Complex Software Systems, EC EU, 2006-2009, running
Research leader: Křena Bohuslav
Team leaders: Kočí Radek, Vojnar Tomáš, Zbořil František

Vérification automatique de programmes avec structures de données dynamiques a pointeurs, BARRANDE, 2-06-27, 2006-2007, running
Research leader: Vojnar Tomáš
Team leader: Habermehl Peter

Learning Tool for C/E Petri Nets, FRVŠ MSMT, FR2880/2006/G1, 2006, running
Research leader: Novosad Petr
Team leader: Češka Milan

Research on Modelling and Simulation Methods of Intelligent Systems, GAČR, GP102/06/P309, 2006-2008, running
Research leader: Hrubý Martin

Research, Development and Deployment of Secure Client Authorization of Electronic Transactions, MPO ČR, FI-IM3/223, 2006-2007, running
Research leader: Hanáček Petr
Team leaders: Cvrček Daniel, Malinka Kamil, Tomec Martin

Integrated Approach to Education of DSP Students in the Field of Parallel and Distributed Systems
Systems, GACR, GA 102/05/H050, 2005-2008, running
Research leader: Gruska Jozef
Team leader: Češka Milan

Automated Methods and Tools Supporting Development of Reliable Parallel and Distributed Systems, GAČR, GA102/04/0780, 2004-2006, running
Research leader: Češka Milan
Team leaders: Haša Luděk, Janoušek Vladimír, Kočí Radek, Křena Bohuslav, Rábová Zdeňka, Vojnar Tomáš

Information System Security – research on attacks on tamper-resistant cryptographic hardware, GAČR, GA102/04/0871, 2004-2006, running
Research leader: Hanáček Petr
Team leaders: Cvrček Daniel, Hrubý Martin, Hruška Tomáš, Peringer Petr, Rábová Zdeňka

Reputation-based Security in Information Systems, MSMT, 1K04106, 2004-2007, running
Research leader: Hanáček Petr
Team leader: Cvrček Daniel

Optical Network in National Research and its New Applications, CESNET,
MSM6383917201, 2004-2010, running
Research leader: Novotný Jiří
Team leaders: Čejka Rudolf, Fučík Otto, Kořenek Jan, Kršek Přemysl, Martínek Tomáš,
Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Smrž Pavel, Vojnar Tomáš, Zemčík Pavel

Advanced Methods of Automatic Verification of Parametric and Infinite-State Systems,
GAČR, GP102/03/D211, 2003-2006, completed
Research leader: Vojnar Tomáš
Team leader: Češka Milan

Co-operation

Co-operation in the Czech Republic

- Artisys, Brno, http://www.artisys.aero/, co-operation in the tools development for automated bug detection and self-healing in parallel programs within the European 'Shadows' project.
- CESNET, Praha, http://www.cesnet.cz , research and application of formal verification methods in the Liberouter project focused on the development of active FPGA-based net elements.
- Digitus, s.r.o., Přerov, **www.digitus.cz**, biometric systems
- E-COM, s.r.o., Slavkov u Brna, www.e-com.cz, graphic simulation tools
- Emerson Process Management, s.r.o., Praha, **www.emersonprocess.cz**, control and automation technology
- EVPÚ Defence, s.r.o., Uherské Hradiště, www.evpudefence.com, development of image stabilization
- FI MU, Brno, http://www.fi.muni.cz, co-operation in education of doctoral students in the field of parallel and distributed systems within the 102/05/H050 GACR project, and in the research and application of formal verification methods in the Liberouter project
- FI MU, Brno, http://www.fi.muni.cz, co-operation in the field of security.
- Grisoft, a.s., www.grisoft.com, co-operation in the field of security.
- Lab-Met, s.r.o., Brno, www.labmet.cz, validation of measuring devices
- Monet+,Zlín, www.monetplus.cz, co-operation in the field of security
- Rutronik, s.r.o., Brno, www.rutronik.cz, support in electrical components development
- ZZM, Ltd., Brno, www.zzm.cz, co-operation, system of store management and security
- UPEI FSI, BUT, http://www.upei.fme.vutbr.cz, co-operation, simulation of waste incineration plants

International Co-operation

- Frauenhofer Gesellschaft, Institut für Graphische Datenverarbeitung, Darmstadt, Germany, biometric systems

- Gesellschaft für Informatik e.V., image-building of our department in the international context
- IBM Haifa Research Laboratory, Haifa, Izrael, http://www.haifa.il.ibm.com, Royal Philips Electronics, Eindhoven, The Netherlands, http://www.philips.com/, University of Potsdam, Německo, http://www.uni-potsdam.de/, LTA, DISCo, Universita degli studi di Milano Bicocca, Itálie, http://www.lta.disco.unimib.it, Scapa Technologies, Edinburgh, Velká Británie, http://www.scapatech.com/, Comverse, Tel Aviv, Izrael, Net Technologies, Atény, Řecko, http://www.nettechn.com, co-operation, research in automated bug detection and self-healing in parallel programs within the European 'Shadows' project.
- project'https://sysrun.haifa.il.ibm.com/shadows/
- Institut für Informatik, TU München, Germany, http://www4.in.tum.de, co-operation in the research of methods of formal verification of infinite-state systems based on learning regular languages from patterns
- LIAFA, Université Paris 7 – Denis Diderot/CNRS, Paris, France, http://www.liafa.jussieu.fr, co-operation in the research of methods of formal verification of infinite-state systems, e.g. programs with infinite dynamic pointer-based data structures .
- Security Research, Computer Laboratory, University of Cambridge, www.cl.cam.ac.uk, co-operation in the field of security.
- VERIMAG, UJF/INPG/CNRS, Grenoble, France, http://www-verimag.imag.fr, co-operation in the research of methods of formal verification of infinite-state systems, e.g. programs with infinite dynamic pointer-based data structures.

Visitors to the Department

- Prof. Jonathan Billington, University of South Australia, Adelaide, Australia, a lecture on Coloured Petri Net based Distributed Systems Research given at the department, discussion on possible co-operation in the field of verification of infinite-state systems.
- Ing. Milan Goldmann & Ing. Lubomír Stehlíček, Emerson Process Management s.r.o., a lecture for students.
- Dr. Peter Habermehl, LIAFA, Paris, France, two visits dedicated to joint research in the field of verification of infinite-state systems, especially programs with infinite dynamic pointer-based data structures .
- O. Nezhyba, Digitus, s.r.o. a lecture for students
- Prof. Mauro Pezze, Testing and Analysis Laboratory, DISCo, Universita degli Studi di Milano, Milano, Italy, http://www.lta.disco.unimib.it – a lecturer invited to give a lecture at MEMICS doctoral workshop.
- Dr. Radu Iosif, VERIMAG, Grenoble, France, two visits dedicated to joint research in the field of verification of infinite-state systems, especially programs with infinite dynamic pointer-based data structures .
- Dr. Tayssir Touli, LIAFA, Paris, France, a professional visit focused on joint research on application non-deterministic tree automata for automatic verification of infinite-state systems.
- Dr. Jana Flochova, FIIT, Slovak University of Technology in Bratislava http://www.fei.stuba.sk– a lecturer invited to give lecture: "Design of Model Based Fault Diagnosis Methods"

Visits of Staff Members to Foreign Institutions

- Drahanský Martin, Ing., Dipl. Ing., Ph.D., Universität Siegen, Uni-Siegen, FB12, Hölderlinstr. 3, D-57076, Siegen, DE, 6 days
- Drahanský Martin, Ing., Dipl.-Ing., Ph.D., Technische Universität Wien, TU-Wien, Karlsplatz 13, AT, AT, 1 day
- Drahanský Martin, Ing., Dipl.-Ing., Ph.D., Univerzita Karlova v Praze, UK, Ovocný trh 5, 116 36 Praha 1, CZ, 1 day
- Drahanský Martin, Dipl.-Ing., Ph.D., Fraunhofer Gesellschaft - Institut Graphische Datenverarbeitung, Darmstadt, DE, 3 days
- Hanáček Petr, Doc. Dr. Ing., T-Mobile, Praha, CZ, 1 day
- Křena Bohuslav, Ing., Ph.D., Galileo Avionica S.p.A., Galileo Avionica, Torino, IT, 3 days
- Křena Bohuslav, Ing., Ph.D., Universita degli Studi di Milano - Bicocca; Dipartimento di Informatica, Sistemistica e Comunicazione; Laboratorio di Test e Analisi del Software, DISCo, LTA, Piazza dell'Ateneo Nuovo 8, 20126 Milano, IT, 10 days
- Křena Bohuslav, Ing., Ph.D., IBM Haifa Labs, IBM Research, IBM, IBM Haifa Labs, Haifa University Campus, Mount Carmel, 31905 Haifa, IL, 972-4-8296211, IL, 6 days
- Křena Bohuslav, Ing., Ph.D., Europe's Information Society, The Helsinki Fair Centre, Messuaukio 1, 00521, Helsinki, FI, 4 days
- Křena Bohuslav, Ing., Ph.D., Universita degli Studi di Milano - Bicocca; Dipartimento di Informatica, Sistemistica e Comunicazione; Laboratorio di Test e Analisi del Software, DISCo, LTA, Piazza dell'Ateneo Nuovo 8, 20126 Milano, IT, 4 days
- Vojnar Tomáš, Ing., Ph.D., three professional visits dedicated to joint research in the field of verification of infinite-state systems, especially programs with unlimited dynamic data structures based on indicators.
- Vojnar Tomáš, Ing., Ph.D., IBM Haifa Research Laboratories, a professional visit within the Shadows European project – research and development of techniques for automatic error detection and self-healing of programs.
- Zbořil František, Ing., Ph.D., EVPU Defence, s.r.o., Uherské Hradiště, CZ, 1+1 days
- Zbořil František, Ing., Ph.D., Academy of Science CR, Praha, Masarykova kolej, Thakurova 1, CZ, 1 day

Agreements

- EVPÚ Defence, s.r.o., Uherské Hradiště, image stabilization – a project
- Monet+, Zlín, Research, development and implementation of safe client authorization of electronic transactions.

Membership in International Organizations and Societies

- Drahanský Martin, Ing., Dipl.-Ing., Ph.D.,
  - Gesellschaft für Informatik
  - BioAPI Consortium
  - Czech and Slovak Simulation Society
- Hanáček Petr, Doc. Dr. Ing.,
  - CIS (Czech and Slovak Information Society)
  - Czech and Slovak Simulation Society
- Peringer Petr, Dr. Ing.,
  - Czech and Slovak Simulation Society
  - Programme committees of ASIS (CR) and MOSIS (CR) conferences

- Zbořil František V., Doc. Ing., CSc.,
    - o Czech and Slovak Simulation Society
    - o Programme committees of ASIS (CR) and MOSIS (CR) conferences

Publications

Journal Articles

Bouajjani, A., Habermehl, P., Rogalewicz, A., Vojnar, T.: Abstract Regular Tree Model Checking, In: ELECTRONIC NOTES IN THEORETICAL COMPUTER SCIENCE, Vol. 149, No. 1, 2006, US, pp. 37- 48, ISSN 1571-0661

Češka, M., Erlebach, P., Vojnar, T.: Pattern-Based Verification of Programs with Extended Linear Linked Data Structures, In: ELECTRONIC NOTES IN THEORETICAL COMPUTER SCIENCE, Vol. 2006, No. 145, US, pp. 113-130, ISSN 1571-0661

Drahanský, M., Orság, F.: Biometrische kryptograpfische Schlüssel, In: DuD - Datenschutz und Datensicherheit, Vol. 2006, No. 8, Wiesbaden, DE, pp. 501-505, ISSN 1614-0702

Drahanský, M., Orság, F.: Standards and Regulations in Biometry, In: DSM Data Security Management, Vol. 2006, No. 4, CZ, pp. 26-29, ISSN 1211-8737

Habermehl, P., Radu, I., Vojnar, T.: Automata-based Verification of Programs with Tree Updates, In: Lecture Notes in Computer Science, Vol. 2006, No. 3920, DE, pp. 350-364, ISSN 0302-9743

Hrubý, M., Čambala, P., Toufar, J.: Modelování spolupráce elektrizačních soustav v evropském regionu (Modelling of Co-operation of Electricity Systems in Europe), In: Energetika, Vol. 2006, No. 11, CZ, pp. 343-346, ISSN 0375-8842

Orság, F.: Speaker recognition in the biometric security systems, In: Computing and Informatics, Vol. 2006, No. 5, Bratislava, SK, p. 23, ISSN 1335-9150

Conference Papers

Blahák, P., Cvrček, D.:Alternative Security Mechanisms for WiFi Networks, In: DATAKON 2006, Brno, CZ, 2006, pp. 1-8

Bouajjani, A., Habermehl, P., Rogalewicz, A., Vojnar, T.: Abstract Regular Tree Model Checking of Complex Dynamic Data Structures, In: Static Analysis, Berlin, DE, Springer, 2006, pp. 52-70, ISBN 3540377565, ISSN 0302-9743

Cvrček, D., Danezis, G., Kumpošt, M., Matyáš, V., m.: A Study on The Value of Location Privacy, In: Workshop on Privacy in Electronic Society 2006, Washington, US, 2006, p. 10

Cvrček, D., Danezis, G., Kumpošt, M., Matyáš, V., m.: The Value of Location Information, In: not yet known, Berlin, DM, 2006, pp. 1-4

Cvrček, D., Kumpošt, M., Matyáš, V., m.: A Privacy Classification Model Based on Linkability Valuation, In: Security and Embedded Systems, NL, Kluwer, 2006, pp. 91-98

Cvrček, D., Pecho, P.: Smart-card Authentication System for Linux OS, In: DATAKON 2006, Brno, CZ, 2006, pp. 1-8

Cvrček, D., Sedlák, M.: Securing VoIP Systems, In: DATAKON 2006, Brno, CZ, 2006, pp. 1-8

Češka, M., Janoušek, V., Kočí, R., Křena, B., Vojnar, T.: PNtalk: State of the Art, In: Proceedings of the Fourth International Workshop on Modelling of Objects, Components, and Agents, Hamburg, DE, 2006, pp. 301-307

Drahanský, M., Funk, W., Nötzel, R.: Liveness Detection based on Fine Movements of the Fingertip Surface, In: IEEE - The West Point Workshop, West Point, New York, US, 2006, pp. 42-47, ISBN 1-4244-0130-5

Grulich, L., Rábová, Z.: Framework for Socio-Economic Modelling, In: Proceedings of 40th Spring International Conference MOSIS'06, Přerov, CZ, MARQ, 2006, pp. 129-136, ISBN 80-86840-21-2

Grulich, L., Rábová, Z.: Modelování socio-ekonomických procesů (ekonomistický přístup) (Modelling of socio-economic processes), In: Kognice a umělý život, Opava, CZ, SU, 2006, pp. 159-165, ISBN 80-7248-355-2

Hanáček, P., Hrubý, M., Peringer, P., Rábová, Z.: Bakalářský studijní program na VUT FIT (Bachelor Study Programme at the FIT BUT) In: Sborník konference Informatika 2006, Brno, CZ, 2006, pp. 1-4

Hanáček, P.: Security of Information Systems and Errors in Design – are we able to prevent them?, In: Sborník příspěvků MKB06, Brno, CZ, TNS, 2006, pp. 89-94, ISBN 978-80-903083-7

Hlávka, P., Řehák, V., Smrčka, A., Šafránek, D., Šimeček, P., Vojnar, T.: Formal Verification of the CRC Algorithm Properties, In: MEMICS 2006 Second Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Mikulov, CZ, 2006, pp. 55-62, ISBN 80-214-3287-X

Hrubý, M., Toufar, J.: Modelling the Electricity Markets using Mathematical Game Theory, In: Proceedings of the 15th IASTED International Conference on APPLIED SIMULATION AND MODELLING, Calgery, CA, ACTA Press, 2006, pp. 352-357, ISSN 1021-8181

Hrubý, M.: Using the HELEF Language to Model the Strategic Games, In: Proceedings of XXVIIIth International Autumn Colloquium ASIS 2006: Advanced Simulation of Systems, Ostrava, CZ, MARQ, 2006, pp. 121-126, ISBN 80-86840-26-3

Hrubý, M.: Výuka GIS na FIT BUT v Brně (Teaching GIS at the FIT BUT), In: Proceedings of Geoinformatics CTU 2006, Praha, CZ, 2006, pp. 10-15, ISSN 1802-2669

Janoušek, V., Kironský, E.: Exploratory Modelling with SmallDEVS, In: Proc. of ESM 2006, Ghent, BE, 2006, pp. 122-126, ISBN 90-77381-30-9

Janoušek, V., Kironský, E.: SmallDEVS, an Interactive Modelling and Simulation Tool for Smalltalk, In: Proceedings of MOSIS'06, Ostrava, CZ, MARQ, 2006, pp. 91-98, ISBN 80-86840-21-2

Janoušek, V., Kočí, R.: Formální modely a simulace ve vývoji softwarových systémů (Formal Models and Simulations in SW System Development), In: Proceedings of ASIS'06, Ostrava, CZ, MARQ, 2006, pp. 164-169, ISBN 8086840263

Janoušek, V., Polášek, P., Slavíček, P.: Metajazyk pro popis DEVS formalismu (Meta Language for DEVS Formalism Description), In: NETSS 2006, Ostrava, CZ, MARQ, 2006, pp. 43-48, ISBN 80-86840-06-9

Janoušek, V., Polášek, P., Slavíček, P.: Towards DEVS Meta Language, In: ISC 2006 Proceedings, Zwijnaarde, BE, 2006, pp. 69-73, ISBN 90-77381-26-0

Janoušek, V.: On the Prototype-Based Object Orientation in Modelling and Simulation, In: Proceedings of of Advanced Simulation of Systems 2006, Ostrava, CZ, MARQ, 2006, pp. 6, ISBN 80-86840-26-3

Jurka, P.: Mining Quantitative Association Rules in Large Relation Tables, In: NETSS 2006, Ostrava, CZ, MARQ, 2006, pp. 11-14, ISBN 80-86840-06-9

Jurka, P.: Rough Sets Utilization in Datamining, In: Proceedings of the 12th Conference and Competition STUDENT EEICT 2006 Volume 4, Brno, CZ, FIT BUT, 2006, pp. 475-480, ISBN 80-214-3163-6

Kočí, R., Turakhodjaeva, N.: Modelling Workflow Using Object Oriented Petri Nets, In: Proceedings of ASIS'06, Ostrava, CZ, MARQ, 2006, pp. 127-132, ISBN 8086840263

Kočí, R., Vintera, J.: Modelling and Simulation of Thermic Waste Processing, In: Proceedings of ASIS'06, Ostrava, CZ, MARQ, 2006, pp. 133-136

Křena, B.: Computer Go as a Verification Case Study, In: Proceedings of XXVIIIth International Autumn Colloquium ASIS 2006: Advanced Simulation of Systems, Ostrava, CZ, MARQ, 2006, pp. 95-100, ISBN 80-86840-26-3

Křena, B.: Typography and Publishing - Introduction of a subject at the FIT BUT, In: Sborník konference Informatika 2006, Brno, CZ, 2006, pp. 1-5

Kunovský, J., Konvalina, J., Kraus, M.: Implementace TKSL v pevné a pohyblivé řádové čárce, In: Proceedings of 40th Spring International Conference "Mosis'06", Modelling and Simulation of Systems, Ostrava, CZ, 2006, pp. 259-264, ISBN 80-86840-21-2

Kunovský, J., Petřek, J., Šátek, V.: Fourier Series and Symbolic Computations, In: Proceedings of 40th Spring International Conference "Mosis'06", Modelling and Simulation of Systems, Ostrava, CZ, 2006, pp. 85-90, ISBN 80-86840-21-2

Kunovský, J., Pindryč, M.: Experimental Comparisons of Simulation Algorithms, In: Proceedings of the Seventh International Scientific Conference "Electronic Computers and Informatics" ECI 2006, Košice, SK, 2006, pp. 349-353, ISBN 80-8073-598-0

Kunovský, J.: Flight Simulator, In: Proceedings of 40th Spring International Conference "Mosis'06", Modelling and Simulation of Systems, Ostrava, CZ, 2006, pp. 167-172, ISBN 80-86840-21-2

Kunovský, J.: Model of the angle of attack in a flight simulator, In: Proceedings of XXVIIIth Autumn Colloqium ASIS 2006, Advanced Simulation of Systems, Ostrava, CZ, 2006, pp. 79-84, ISBN 80-86840-26-3

Martinek, D.: A Tree Representation of Fuzzy Inference Rules, In: Proceedings of 40th Spring International Conference MOSIS'06, Přerov, CZ, MARQ, 2006, p. 6, ISBN 80-86840-21-2

Martinek, D.: Uncertainty in Modelling and Simulation of Waste Incinerators, In: Proceedings of XXVIIIth International Autumn Colloquium ASIS 2006 Advanced Simulation of Systems, Ostrava, CZ, MARQ, 2006, pp. 117-120, ISBN 80-86840-26-3

Mazal, Z., Zbořil, F., V.: Modelling Sensor Networks Using Multiagent Systems, In: NETSS 2006, Ostrava, CZ, MARQ, 2006, pp. 15-18, ISBN 80-86840-06-9

Mazal, Z.: Multiagent System for Searching in FOAF Networks, In: Proceedings of the 12th Conference and Competition STUDENT EEICT 2006 Volume 4, Brno, CZ, FIT BUT, 2006, pp. 481-485, ISBN 80-214-3163-6

Novosad, P.: Software Tool CESim for Graphical Design, Simulation and Analysis of C/E Petri Nets, In: Proceedings of the Junior Scientist Conference 2006, Vídeň, AT, TU-Wien, 2006, pp. 49-50, ISBN 3-902463-05-8

Novosad, P.: Learning Tool for Work with Petri Nets, In: Pedagogický software 2006, České Budějovice, CZ, ZF JU, 2006, pp. 247-249, ISBN 80-85645-56-4

Peringer, P.: Open Source Simulation and Data Analysis Tools, In: Proceedings of ASIS 2006, Ostrava, CZ, MARQ, 2006, pp. 109-112, ISBN 80-86840-26-3

Rábová, Z., Hanáček, P., Hrubý, M.: Environment for Modelling of Safe Systems, In: Proceedings of NETSS06, Ostrava, CZ, MARQ, 2006, pp. 39-42, ISBN 80-86840-06-9

Rogalewicz, A.: Abstract Regular Model Checking of Complex Dynamic Data Structures - Implementation Details, In: Second Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FIT BUT, 2006, pp. 198-205, ISBN 80-214-3287-X

Rozman, J.: Neural Network Toolbox, In: NETSS 2006, Ostrava, CZ, MARQ, 2006, pp. 19-23, ISBN 80-86840-06-9

Samek, J.: Information System Security, In: Proceedings of the 12th Conference STUDENT EEICT 2006, Volume 2, Brno, CZ, FEKT BUT, 2006, pp. 266-268, ISBN 80-214-3161-X

Samek, J.: Security Model of Information Systems, In: Proceedings of XXVIIIth International Autumn Colloquium ASIS 2006, Ostrava, CZ, MARQ, 2006, pp. 101-105, ISBN 80-86840-26-3

Smrčka, A., Řehák, V., Vojnar, T., Šafránek, D., Matoušek, P., Řehák, Z.: Verifying VHDL Design with Multiple Clocks in SMV, In: Proceedings of FMICS 2006, Bonn, DE, 2006, pp. 140-155

Zbořil, F., Zbořil, F., V.: Meta-interpretation of the t-Sapi Language, In: Proceedings of the Sevnth International Scientific Conference ECI 2006, Košice, SK, FEI TU v Košiciach, 2006, pp. 76-81, ISBN 80-8073-150-0

Zbořil, F.: A Petri Nets Approach to Rational Agent Development, In: Proceedings of XXVIIIth International Autumn Colloquium ASIS 2006, Ostrava, CZ, MARQ, 2006, pp. 170-175, ISBN 80-86840-26-3

Dissertations:

Arnošt, V.: Simulation of Spatial Sound Propagation, Brno, CZ, 2006, p. 94

Software:

Drahanský, M., Orság, F.: MagicGel, Brno, CZ, 2006

Janoušek, V., Kironský, E.: SmallDEVS-2006-07-18 (1st version with GUI), Bern, CH, SqF, 2006

Janoušek, V.: Czech Support for Squeak Smalltalk up to 3.7, Bern, CH, SqF, 2006

Janoušek, V.: SqOS 0.2, Brno, CZ, 2006

Abstracts:

Smrčka, A.: High-level Modelling, Analysis and Verification of Programmable Hardware Design, Proceedings of the Junior Scientist Conference 2006, Vienna, AT, TUV, 2006, pp. 93-94, ISBN 3-902463-05-8

Patents

Method and mechanism for acquirement of biometrical features, registration: 2005, approval: 2006, expiration: 2036
Authors: Drahanský Martin, Funk Wolfgang, Nötzel Ralf
Owner: Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e.V.

Seminars

23.3.	Kamil Malinka: Assessment of Biometric Systems
23.3.	Bohuslav Křena: Information about European Projects
30.3.	Pavel Jurka: Rough Sets Utilization in Datamining
30.3.	Zdeněk Mazal: Semantic Web from Multiagent Systems Perspective
6.4.	Pavel Erlebach: Pattern Based Verification
6.4.	Adam Rogalewicz: Verification of Programs with Dynamic Data Structures Using ARTMC
6.4.	Aleš Smrčka: Analysis, Modelling and Formal Verification of Hardware
13.4.	Elod Kironský: Simulation-Based Systems Development. Tools for Interactive Simulation Modelling
13.4.	Petr Polášek: Metalanguages for DEVS. Transformation of Models for Various Simulation Environments
13.4.	Jiří Vintera: Technological Process Simulation
13.4.	Roman Skřivánek: Simulation Data Processing
20.4.	Pavel Slavíček: Distributed Simulation Environment, DEVSM
25.5.	Jaroslav Rozman: Mobile Robot Navigation
25.5.	Lukáš Grulich: Socio-Economic Systems Modelling
1.6.	Petr Novosad: Hybrid Petri Nets Analysis
15.6.	Jana Flochová (FIIT STUBA): Design of model based fault diagnosis methods.
3.7.	Jonathan Billington (University of South Australia v Adelaide): Colored Petri Net based Distributed Systems Research
19.10.	Michal Kraus: Parallel Architectures Utilizing Numeric Integration Jiří Konvalina: Specialized Computer System Inputs and Outputs Milan Pindryč: Modern Methods for Electronic Circuits Modelling and Simulation Václav Šátek: Stiff Systems of Differential Equations
26.10.	Jiří Schafer: Distributed Credible Systems
2.11.	Lukáš Holík: Pointer Structure Manipulation Programs Verification Michal Cerhák: Modelling and Simulation Based Design of Adaptive and Evolving Systems Jakub Bednář: Optimization of Game State Space Generation

16.11.	Pavel Jurka: Dataminig from XML Using Rough Sets
23.11.	Zdeněk Mazal: Development of Rational Agents using Petri Nets Elöd Kironský: Interactive Tools for Model Based Design of Intelligent Systems - Systems Theoretic Approach Petr Polášek: Multiparadigm Modelling Integrated with Exploratory Programming - A New Approach to Simulation-Based Development
30.11.	Kamil Malinka: Security of Biometric Autentization in Information Systems Roman Skřivánek: Beta Language Extensions Jaroslav Rozman: Mobile Robot from FRVS project
7.12.	Pavel Erlebach: Pattern Based Verification Extended to Tree Structures Lukáš Grulich: Socio-Economic Systems Modelling
14.12.	Adam Rogalewicz: Verification of Programs with Dynamic Data Structures Aleš Smrčka: Formal Verification of Hardware Designs

III.3. Department of Computer Graphics and Multimedia

The **Department of Computer Graphics and Multimedia** is responsible for teaching courses in Computer Graphics and Multimedia, a MSc study programme specialization, which covers computer graphics and multimedia, speech processing, human-machine interfaces, image and sound processing and compression, application interfaces for computer graphics and multimedia, and basics of applied computer graphics disciplines, such as computer-aided design, geographic information systems, etc. The Department of Computer Graphics and Multimedia is also responsible for teaching **Signals and Systems**, **Computer Graphics Basics** and **Human-Machine Interface Design** courses in Information Technology Bc study programme.

Research activities of the department are mainly focused on general computer graphics algorithms, rendering, processing and recognition of speech signals, animation in three-dimensional space, modern methods of interaction in three-dimensional space, image and signal processing, medical data processing and applications. The main research topics from the above activities are:

- Computer graphics algorithms accelerated using DSP and FPGA,
- perceptually-based robust feature extraction for speech and speaker recognition
- very low bit rate coding
- realistic rendering of complex scenes and volume rendering,
- automatic determination of speech units
- large scale speech database collection
- animation of articulated structures, kinematics and dynamics,
- medical data processing and visualization and human body modelling reconstruction from VH data sets,
- parallel rendering implementation of signal processing and graphics algorithms.

The majority of courses consists of lectures supplemented with projects and laboratory lessons. The knowledge that students gain during the lectures is further developed in the laboratory lessons through practical experience and then practised in the individually assigned projects and/or team projects. Most of the laboratory lesson assignments and projects are platform-independent. Tasks that require special equipment can be solved with the use of available Silicon Graphics stations, high-performance computer systems, and specialized periferies.

Staff

Head of Department
    Zemčík Pavel, Doc. Dr. Ing.
Deputy Head of Department
    Černocký Jan, Doc. Dr. Ing.
Secretary
    Slámová Jana
Associate professor
    Černocký Jan, Doc. Dr. Ing.
    Smrž Pavel, Doc. RNDr., Ph.D.
    Zemčík Pavel, Doc. Dr. Ing.

Research worker

Matějka Pavel, Ing.
Schwarz Petr, Ing.

Assistant professor

Burget Lukáš, Ing., Ph.D.
Herout Adam, Ing., Ph.D.
Kršek Přemysl, Ing., Ph.D.
Motlíček Petr, Ing., Ph.D.
Sumec Stanislav, Ing., Ph.D.

Assistant lecturer

Grézl František, Ing.
Chalupníček Kamil, Ing.
Karafiát Martin, Ing.

Assistant

Potúček Igor, Ing., Ph.D.

Technical staff

Otáhalová Sylva

Ph.D. student

Beran Vítězslav, Ing.
Glembek Ondřej, Ing.
Granát Jiří, Ing.
Chudý Robert, MgA.
Kadlec Jaroslav, Ing.
Pečiva Jan, Ing.
Přibyl Jaroslav, Ing.
Seeman Michal, Ing.
Svojanovský Petr, Ing.
Szöke Igor, Ing.
Šiler Ondřej, Ing.
Šilhavá Jana, Ing.
Španěl Michal, Ing.
Štancl Vít, Ing.
Švub Miroslav, Ing.
Venera Jiří, Ing.
Vyskočil Michal, Ing.

Equipment

- 3D Minolta VIVID 800 scanner for automatic scanning of objects up to the size of 1x1x1m with a computer-controlled revolving table for manipulation with the scanned objects. The scanner is connected to the Silicon Graphics Octane workstation.
- Software called SPEL - Speech Processing Electronic Library specialized IEEE software for speech signal processing.
- CAMEA DX6 with DSP TI C6711 and FPGA Virtex E-300 for acceleration of graphical computing.
- CAMEA UNI1-P-BUT with DSP TI C6416 and FPGA Virtex II-500 for accerelation of raster image processing.
- Equipment for meeting recording with a camcorder, hyperbolic mirror (for 360 angle), four microphones, and a notebook.

- Rapid prototyping equipment (3D printer) Z310 by Z-corporation for making 3D models of human tissues based on medical diagnostic image systems (CT/MR)
- Stereo data video projector and two large-scale LCDs for demonstrations.

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
PGP	Advanced Computer Graphics	W	5	26-0-0-0-26	Zemčík Pavel, Doc. Dr. Ing.
MMD	Advanced Methods of 3D Scene Visualisation	W	0	39-0-0-0-0	Zemčík Pavel, Doc. Dr. Ing.
VIN	Computer Art	S	5	26-0-0-0-26	Zemčík Pavel, Doc. Dr. Ing.
PGR	Computer Graphics	W	5	39-0-0-6-7	Herout Adam, Ing., Ph.D.
PGD	Computer Graphics	W	0	39-0-0-0-0	Zemčík Pavel, Doc. Dr. Ing.
POG	Computer Graphics	S	7	39-0-0-18-21	Zemčík Pavel, Doc. Dr. Ing.
IZG	Computer Graphics Principles	S	6	39-0-0-13-13	Kršek Přemysl, Ing., Ph.D.
POV	Computer Vision	W	5	26-0-0-0-26	Zemčík Pavel, Doc. Dr. Ing.
KRG	Creative Art	W	4	13-0-0-0-26	Zemčík Pavel, Doc. Dr. Ing.
CZR	Digital Speech Processing	S	5	26-2-0-12-12	Černocký Jan, Doc. Dr. Ing.
GZN	Graphical and Sound Interfaces and Standards	W	5	26-0-0-0-26	Herout Adam, Ing., Ph.D.
SCS	Human-Machine Interfaces	W	6	26-0-0-18-21	Zemčík Pavel, Doc. Dr. Ing.
IJE	Java Programming Language	W	5	26-0-0-12-14	Sumec Stanislav, Ing., Ph.D.
MZD	Modern Methods of Speech Processing	W	0	39-0-0-0-0	Černocký Jan, Doc. Dr. Ing.
MZD	Modern Methods of Speech Processing	S	0	39-0-0-0-0	Černocký Jan, Doc. Dr. Ing.
MUL	Multimedia	S	5	26-0-0-13-13	Zemčík Pavel, Doc. Dr. Ing.
MUM	Multimedia	S	5	26-0-0-13-13	Zemčík Pavel, Doc. Dr. Ing.
ZPD	Natural Language Processing	W	0	39-0-0-0-0	Smrž Pavel, Doc. RNDr., Ph.D.
ZPJ	Natural Language Processing	W	5	26-0-0-0-26	Smrž Pavel, Doc. RNDr., Ph.D.

ZAGP	Rudiments of Computer Graphics	W	4	26-0-0-12-14	Kršek Přemysl, Ing., Ph.D.
ISS	Signals and Systems	W	6	39-0-0-12-14	Černocký Jan, Doc. Dr. Ing.
ISS	Signals and Systems	S	6	39-0-0-26-0	Černocký Jan, Doc. Dr. Ing.
SRE	Speech Processing Systems	W	5	39-0-0-0-13	Černocký Jan, Doc. Dr. Ing.
ZRE	Speech Signal Processing	S	5	26-2-0-12-12	Černocký Jan, Doc. Dr. Ing.
ITU	User Interface Programming	W	4	13-0-0-13-13	Zemčík Pavel, Doc. Dr. Ing.

Research Projects

Algorithms for Image Recognition, GAČR, GA201/06/1821, 2006-2008, running
Research leader: Zemčík Pavel

AMIDA - Augmented Multi-party Interaction with Distance Access, EU-6FP-IST, IST-033812-AMIDA, 2006-2009, running
Research leader: Zemčík Pavel
Team leader: Černocký Jan

CARETAKER - Content Analysis and Retrieval Technologies to Apply Knowledge Extraction to Massive Recording, EU-6FP-IST, 027231, 2006-2008, running
Research leader: Černocký Jan
Team leaders: Smrž Pavel, Zemčík Pavel

Centre of Computer Graphics, MSMT, CPG LC06008, 2006-2010, running
Research leader: Zemčík Pavel

An Interactive Keyword Detector, GAČR, GP102/06/P383, 2006-2008, running
Research leader: Burget Lukáš

Advancing the Automatic Language Recognition Using Streamed Audio Media, CESNET, 162/2005, 2006-2007, running
Research leader: Černocký Jan
Team leaders: Kašpárek Tomáš, Matějka Pavel, Schwarz Petr

Internationalisation – Preparatory Phase for the European Joint Degree, RP MSMT, 2006, running
Research leader: Honzík Jan M.
Team leader: Zemčík Pavel

Virtual Medical-Technological Laboratory for 3D Human Tissues Modelling, CESNET, 161/2005, 2006, running
Research leader: Kršek Přemysl
Team leaders: Černochová Pavlína, Kašpárek Tomáš, Krupa Petr, Pečiva Jan, Stoklas Jiří, Španěl Michal

Determination of Markers, Screening and Early Diagnostics of Cancer Diseases Using Highly Automated Processing of Multidimensional Biomedical Images, MSMT, 2B06052, 2006-2011, running
Research leader: Smrž Pavel
Team leader: Zemčík Pavel

Research and Development of Corpus and Speech Technologies in New Generation of Electronic Dictionaries, MPO ČR, FT-TA3/006, 2006-2009, running
Research leader: Černocký Jan

Integral Modul of Teriary Education for People with Sensory Perception Impairment, MSMT, CZ.04.1.03/3.2.15.1./0146, 2005-2007, running
Research leader: Smrž Pavel
Team leader: Sinopalniková Anna

New Trends in Research and Use of Voice Technologies, GAČR, GA102/05/0278, 2005-2007, running
Research leader:Černocký Jan
Team leaders: Burget Lukáš, Grézl František, Chalupníček Kamil, Karafiát Martin, Matějka Pavel, Motlíček Petr, Schwarz Petr, Szöke Igor

Augmented Multi-party Interaction, EU-6FP-IST, 506811-AMI, 2004-2006, running
Research leader: Heřmanský Hynek
Team leaders: Burget Lukáš, Černocký Jan, Grézl František, Kadlec Jaroslav, Karafiát Martin, Karafiát Martin, Matějka Pavel, Motlíček Petr, Pečiva Jan, Potúček Igor, Schwarz Petr, Sumec Stanislav, Španěl Michal, Zemčík Pavel

ECTS/DS - National Coordinator-Team, EC EUA ECTS, 2004-2007, running
Research leader: Honzík Jan M.
Team leader: Zemčík Pavel

Optical Network in National Research and its New Applications - Programmable Hardware, CESNET, MSM6383917201, 2004-2010, running
Research leader: Novotný Jiří
Spoluřešitelé: Čejka Rudolf, Fučík Otto, Kořenek Jan, Martínek Tomáš, Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Vojnar Tomáš, Zemčík Pavel

Rapid Prototyping Tools for Development of HW-Accelerated Embedded Image- and Video-processing Applications, GA AVČR, 1ET400750408, 2004-2008, running
Research leader: Zemčík Pavel

Recognition of Keywords and Actions in Audio Visual Data, CESNET, 119/2004, 2004-2006, running
Research leader: Motlíček Petr
Team leaders: Karafiát Martin, Kašpárek Tomáš, Sumec Stanislav

Co-operation

Co-operation the Czech Republic

- Faculty of Informatics MU Brno, Doc. Karel Pala, Dr. Ivan Kopeček, Doc. Jiří Sochor – co-operation in speech processing and computer graphics and natural language processing, http://www.fi.muni.cz
- VŠB-TU, Ostrava, Faculty of Electronics and Informatics, Dr. Arnošt Šarman – annual series of lectures given by the staff and Ph.D. students of DCGM, VŠB-TU – focused on computer graphics, http://www.vsb-tu.cz
- Department of Computers FELK ČVUT Praha, the group of computer graphics, Prof. Jiří Žára - co-operation in basic research, MSMT Centre of Computer Graphics, http://cs.felk.cvut.cz
- Centre for Machine Perception, FELK ČVUT Praha, Prof.Václav Hlaváč,Doc. Jiří Matas, Dr. Martin Urban – co-operation on image processing related to transport, http://cyber.felk.cvut.cz
- ÚTIA Praha, Dr. Jaroslav Kadlec, Ing. Jan Schier - co-operation in the field of algorithm implementation for image processing in FPGA, http://www.utia.cas.cz
- St. Anne Faculty Hospital, Brno, Clinic of Imaging Methods, Head of the Clinic Doc. MUDr. Petr Krupa and Clinic of Stomatology, Clinic of Plastic and Aesthetical Surgery, and Clinic of Traumatology – co-operation in the field of computer models of tissues, http://www.fnusa.cz
- Clinic of Traumatology, Faculty Hospital Bohunice, Brno, Head: Doc. MUDr. Michal Mašek, CSc – co-operation in the field of computer models of tissues, http://www.fnbrno.cz

International Co-operation

- University of Bristol, Bristol, UK, Department of Computer Science, Dr. Alan Chalmers – co-operation in the area of computer graphics, exchange of Ph.D. students, http://www.cs.bristol.ac.uk
- University of Surrey, Guildford, UK, Centre for Vision, Speech, and Signal Processing, Prof. Josef Kittler, Dr. William Christmas – image processing, exchange of Ph.D. students, www.ee.surrey.ac.uk/CVSSP/
- University of Helsinki, Helsinki, Finsko, Laboratory of Computational Engineering, Prof. Mikko Sams, Dr. Michael Frydrych – co-operation in the area of man-machine communication, exchange of Ph.D. students, http:// www.lce.hut.fi
- Lappeenranta University of Technology, Lappeenranta, Finsko, Prof. Heikki Kälviäinen, Prof. Jan Voráček – image processing, exchange of students, and MSc. Study in Finland within the framework of IMPIT Project (International Master's Programme in Information Technology), http://www.lut.fi
- University of Joensuu, Joensuu, Finsko, Department of Computer Science, Prof. Jussi Parkkinen, Dr. Markku Hauta-Kasari – multispectral colour image processing, exchange of students, http://www.joensuu.fi/joyindex.html
- Technische Universität Wien, Institut für Komputergrafik, Thomas Theußl – Annual international students' seminar (Central European Seminar on Computer Graphics), http:// www.cg.tuwien.ac.at/

- Technische Universität Graz, Institute for Computer Graphics and Vision, Markus Grabner – exchange of students and CESCG (Central European Seminar on Computer Graphics) - an annual international students' seminar, http://www.icg.tu-graz.ac.at
- ESIEE Paris, Paris, Francie, Prof. Genevieve Baudoin – speech processing, very low bit-rate speech coding, exchange of Ph.D. students, http://www.cge.asso.fr/ecoles/ECOLE128.phtml
- Department of Computer Graphics and Image Processing, Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovak Republic, Dr. Andrej Ferko – CESCG (Central European Seminar on Computer Graphics) - an annual international students' seminar, http://www.fmph.uniba.sk/

Visitors to the Department

Dr. Michael Frydrych, Helsinki University of Technology, Finland, 2 days, January 2006

Visits of Staff Members to Foreign Institutions

- Beran Vítězslav, Ing., CLEAR Evaluation Campaign and Workshop, Southampton, GB, 4 days
- Beran Vítězslav, Ing., University of Surrey Guildford, USG, Guildford, Surrey, GU2 7XH, Guildford, GB, 10 days
- Beran Vítězslav, Ing., Spring Conference on Computer Graphics, Častá- Papiernička, Slovakia, SK, 4 days
- Beran Vítězslav, Ing., Eurographics 2006, Vídeň, AT, 1 day
- Beran Vítězslav, Ing., Europe's Information Society, Helsinki, FI, 4 days
- Burget Lukáš, Ing., Ph.D., International Conference on Acoustics, Speech, and Signal Processing , Toulouse, France, FR, 14 days
- Burget Lukáš, Ing., Ph.D., NIST Workshop and The Speaker and Language Recognition Workshop, Puerto Rico, San Juan, US, 12 days
- Burget Lukáš, Ing., Ph.D., University of Edinburgh, UEDIN, Old College, South Bridge, EH8 9YL Edinburgh, GB, 5 days
- Černocký Jan, Doc. Dr. Ing., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, Cité Descartes BP 99, 93162 Nois-le-Grand, FR, 3 days
- Černocký Jan, Doc. Dr. Ing., European Comission EU, Paris, France, FR, 3 days
- Černocký Jan, Doc. Dr. Ing., International Conference on Acoustics, Speech, and Signal Processing, Toulouse, France, FR, 8 days
- Černocký Jan, Doc. Dr. Ing., CeBit 2006, Hannover, Germany, DE, 3 days
- Černocký Jan, Doc. Dr. Ing., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, IDIAP, Rue du Simplon 4, CH-1920 Martigny, CH, 3 days
- Černocký Jan, Doc. Dr. Ing., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, ESIEE, Noisy-le-Grand, FR, 6 days
- Černocký Jan, Doc. Dr. Ing., ATAC, ATAC, IT, 3 days
- Černocký Jan, Doc. Dr. Ing., Utrecht EMasters Summer School in Language and Speech 2006, Trans 10, 3512 JK Utrecht, The Netherlands, NL, 3 days
- Černocký Jan, Doc. Dr. Ing., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, IDIAP, Rue du Simplon 4, CH-1920 Martigny, CH, 2 days
- Černocký Jan, Doc. Dr. Ing., European Union, Amsterdam, The Netherlands, NL, 3 days

- Černocký Jan, Doc. Dr. Ing., INSTITUT NATIONAL DE RECHERCHE EN INFORMATIQUE ET EN, INRIA, Sophia Antipolis, FR, 3 days
- Černocký Jan, Doc. Dr. Ing., Europe's Information Society, Helsinki, FI, 4 days
- Glembek Ondřej, Ing., University of Joensuu, UJ, 80101 Joensuu, FI, +358 (13) 251 111, 4 days
- Grézl František, Ing., ATAC, IT, 4 days
- Herout Adam, Ing., Ph.D., 3nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Washington, US, 8 days
- Herout Adam, Ing., Ph.D., International Workshop on Embedded Systems, Crete, GR, 4 days
- Herout Adam, Ing., Ph.D., Digital Technologies 2006, Žilina, Slovakia, SK, 2 days
- Chudý Peter, Ing., Ph.D., University of Bristol, UBRIS, Woodland Road, BS8 1UB Bristol, GB, 5 days
- Kadlec Jaroslav, Ing., Spring Conference on Computer Graphics, Častá- Papiernička, Slovakia, SK, 4 days
- Karafiát Martin, Ing., 3nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Washington, US, 8 days
- Karafiát Martin, Ing., INFORMATION SOCIETY 2006, Ljubljana, SI, 7 days
- Kršek Přemysl, Ing., Ph.D., University of Surrey Guildford, USG, Guildford, Surrey, GU2 7XH, Guildford, GB, 5 days
- Kršek Přemysl, Ing., Ph.D., 3rd International Conference, BioMedical Visualization , London, England, GB, 4 days
- Matějka Pavel, Ing., International Conference on Acoustics, Speech, and Signal Processing , Toulouse, France, FR, 14 days
- Matějka Pavel, Ing., NIST Workshop and The Speaker and Language Recognition Workshop, Puerto Rico, San Juan, US, 12 days
- Matějka Pavel, Ing., Insitiut Dalle Molle d'Intelligence Artificielle Perceptive, IDIAP, Rue du Simplon 4, CH-1920 Martigny, CH, 3 days
- Matějka Pavel, Ing., NIST Spoken Term Detection Evaluation Workshop, Gaithersburg, MD, US, 7 days
- Pečiva Jan, Ing., ACM International Conference on Virtual Reality Continuum and Its Applications , Hong Kong, CN, HK, 9 days
- Potúček Igor, Ing., Ph.D., Wainhouse Research European Forum, Berlin, Germany, DE, 3 days
- Potúček Igor, Ing., Ph.D., 3nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Washington, US, 8 days
- Potúček Igor, Ing., Ph.D., University of Edinburgh, UEDIN, Old College, South Bridge, EH8 9YL Edinburgh, GB, 5 days
- Seeman Michal, Ing., University of Joensuu, UJ, 80101 Joensuu, FI, +358 (13) 251 111, FI, 2 months
- Schwarz Petr, Ing., International Conference on Acoustics, Speech, and Signal Processing , Toulouse, France, FR, 8 days
- Schwarz Petr, Ing., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, ESIEE, Noisy-le-Grand, FR, FR, 6 days
- Schwarz Petr, Ing., NIST Workshop and The Speaker and Language Recognition Workshop, Puerto Rico, San Juan,, US, 12 days
- Sinopalniková Anna, Mgr., 3rd International Global WordNet Conference, South Corea, Jeju, KR, 8 days
- Smrž Pavel, Doc. RNDr., Ph.D., Conference on Intelligent Text Processing and Computational Linguistics, Mexico City, Mexico, MX, 9 days

- Smrž Pavel, Doc. RNDr., Ph.D., European Comission EU, Paris, France, FR, 3 days
- Smrž Pavel, Doc. RNDr., Ph.D., 15th International Conference on Knowledge Engineering and Knowledge Management, Podebrady, CZ, 3 days
- Smrž Pavel, Doc. RNDr., Ph.D., International Conference on Semantics and Digital Media Technology, Athens, GR, 5 days
- Smrž Pavel, Doc. RNDr., Ph.D., Europe's Information Society, Helsinki, FI, 2 days
- Szöke Igor, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Paris, FR, 6 days
- Szöke Igor, Ing., Utrecht EMasters Summer School in Language and Speech 2006, Trans 10, 3512 JK Utrecht, The Netherlands, NL, 4 days
- Szöke Igor, Ing., NIST Spoken Term Detection Evaluation Workshop, Gaithersburg, MD, US, 7 days
- Šilhavá Jana, Ing., 14th Summer school on Image Processing, Szeged, Hungary, HU, 10 days
- Španěl Michal, Ing., University of Joensuu, UJ, 80101 Joensuu, FI, +358 (13) 251 111, FI, 4 days
- Španěl Michal, Ing., The Sixth IASTED International Conference on Visualization, Imaging, and Image Processing, Palma de Mallorca, ES, 7 days
- Zemčík Pavel, Doc. Dr. Ing., European Comission EU, Paris, France, FR, 3 days
- Zemčík Pavel, Doc. Dr. Ing., CeBit 2006, Hannover, Germany, DE, 3 days
- Zemčík Pavel, Doc. Dr. Ing., 3nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Washington, US, 8 days
- Zemčík Pavel, Doc. Dr. Ing., Spring Conference on Computer Graphics, Častá-Papiernička, Slovakia, SK, 2 days
- Zemčík Pavel, Doc. Dr. Ing., University of Joensuu, UJ, 80101 Joensuu, FI, +358 (13) 251 111, FI, 4 dny
- Zemčík Pavel, Doc. Dr. Ing., Technological Educational Institute of Crete, Heracleion, Greece, TEI of Crete, POB 1939, IRAKLIO, Crete, Greece, Heracleion, GR, 4 days
- Zemčík Pavel, Doc. Dr. Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, IDIAP, Rue du Simplon 4, CH-1920 Martigny, CH, 2 days
- Zemčík Pavel, Doc. Dr. Ing., European Union, Amsterdam, The Netherlands, NL, 3 days
- Zemčík Pavel, Doc. Dr. Ing., Europe's Information Society, Helsinki, FI, 4 days
- Zemčík Pavel, Doc. Dr. Ing., University of Bristol, UBRIS, Woodland Road, BS8 1UB Bristol, GB, 5 days

Agreements

- Katholieke Hogeschool Brugge Oostende, Faculty of Industrial Sciences, http://www.khbo.be/ , Belgium
- Katholieke Hogeschool Kempen, http://www.khk.be/khk04/, Belgium
- University of Southern Denmark, www.ouc.dk, Denmark
- Helsinki University of Technology, http://www.hut.fi/English/, Finland
- Lappeenrannan University of Technology, http://www.lut.fi/english/html, Finland
- University of Joensuu, http://www.joensuu.fi/englishindex.html, Finland
- Oulu Polytechnic Institute of Technology, http://www.oamk.fi, Finland
- École Supérieure d`Ingénieurs en Électrotechnique, http://www.esiee.fr/, France
- ESIEE Amiens, http://www.esiee-amiens.fr/, France
- Universite la Rochelle, http://www.univ-lr.fr/, France
- Utrecht University,http://www.uu.nl/uupublish/homeuu/homeenglish/1757main.html,

The Netherlands
- Universidade de Trás-os-Montes e Alto Douro, http://www.utad.pt, Portugal
- Technological Educational Institute of Crete, http://www.teiher.gr/, Greece
- University of Crete, http://www.cc.uch.gr/, Greece
- Slovak University of Technology in Bratislava
  http://www.stuba.sk/eng1/about/index.html, Slovak Republic
- Comenius University in Bratislava, http://www.uniba.sk, Slovak Republic
- Yildiz Technical University, Department of Mathematical Engineering,
  http://www.yildiz.edu.tr/english/index2.php, Turkey
- Graz University of Technology, http://www.tugraz.at/, Austria
- University of Surrey, http://www.surrey.ac.uk, UK
- University of Bristol, http://www.bris.ac.uk/, UK
- Coventry University, http://www.coventry.ac.uk/, UK

Membership in International Organizations and Societies

- Burget Lukáš, Ing., Ph.D.
  - o IEEE
- Černocký Jan, Doc. Dr. Ing.,
  - o IEEE (IT manager of the Czech and Slovak sections)
  - o ISCA (International speech communication assocation).
- Herout Adam, Ing., Ph.D.,
  - o ACM
- Matějka Pavel, Ing.
  - o IEEE
- Motlíček Petr, Ing., Ph.D.,
  - o IEEE
- Potúček Igor, Ing., Ph.D.,
  - o FGnet - IST-2000-26434 (Face and Gesture Recognition Working group)
- Schwarz Petr, Ing.
  - o IEEE
  - o ISCA
- Smrž Pavel, Doc. RNDr., Ph.D.,
  - o AAAI - American Association for Artificial Intelligence
  - o IEEE - Institute of Electrical and Electronics Engineers
  - o ACL - Association for Computational Linguistics
  - o EURALEX - European Association for Lexicography
- Zemčík Pavel, Doc. Dr. Ing.,
  - o IEEE
  - o ACM

Publications

Multimedia:

Černocký, J., Potúček, I., Sumec, S., Zemčík, P. et al: AMI Mobile Meeting Capture and Analysis System, Washington, US, 2006, p. 1

Abstracts:

Herout, A., Zemčík, P.: DSP/FPGA Embedded Image Processing Accelerator Harnessed in Traffic Monitoring, Proceedings of the IWES 2006 Workshop, Heraklion, GR, 2006, p. 1

Conference Papers:

Babič, F., Paralič, J., Smatana, P., Smrž, P.: Knowledge-Practices Laboratory, In: Proceedings of the International Conference on Information & Communication Technology in Education (ICTE 2006), Ostrava, OU, 2006, pp. 1-4

Beran, V., Gatica-Perez, D., Potúček, I., Rigoll, G., Schreiber, S., Smith, K.: Multi-Person Tracking in Meetings: A Comparative Study, In: Machine Learning for Multimodal Interaction, Washington DC, US, 2006, p. 12

Beran, V., Granát, J., Herout, A., Zemčík, P.: DSP and FPGA Based Raster Image Processing Architecture, In: Proceedings of the Digital Technologies 2007 Workshop, Žilina, 2006, p. 6

Burget, L., Černocký, J., Fapšo, M., Karafiát, M., Matějka, P., Schwarz, P., Smrž, P., Szöke, I.: Indexing and Search Methods for Spoken Documents, In: Proceedings of the Ninth International Conference on Text, Speech and Dialogue, TSD 2006, Berlin, DE, Springer, 2006, pp. 351-358, ISSN 0302-9743

Burget, L., Matějka, P., Černocký, J.: Discriminative Training Techniques for Acoustic Language Identification, In: Proceedings of ICASSP 2006, Toulouse, FR, 2006, pp. 209-212

Černocký, J., Gatica-Perez, D., Hain, T., Janin, A., Motlíček, P., Renals, S., Rigoll, G., Schreiber, S., Smith, K., Zemčík, P.: Audio-Visual Processing in Meetings: Seven Questions and Current AMI Answers, In: Proc. 3nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms (MLMI 2006), Washington D.C., US, 2006, p. 12

Černocký, J., Matějka, P., Burget, L., Schwarz, P.: Automatic Language Identification System, In: Sborník příspěvků z odborného semináře "Nové technologie v radiokomunikacích", Brno, CZ, UNOB, 2006, pp. 1-6

Fapšo, M., Schwarz, P., Szöke, I., Smrž, P., Schwarz, M., Černocký, J., Karafiát, M., Burget, L.: Search Engine for Information Retrieval from Speech Records, In: Proceedings of the Third International Seminar on Computer Treatment of Slavic and East European Languages, Bratislava, SK, 2006, pp. 100-101

Fapšo, M., Smrž, P., Schwarz, P., Szöke, I., Schwarz, M., Černocký, J., Karafiát, M., Burget, L.: Information Retrieval from Spoken Documents, In: Proceedings of the Seventh International Conference on Intelligent Text Processing and Computational Linguistics (CICLING 2006), Mexico City, MX, Springer, 2006, pp. 410-416, ISBN 3-540-32205-1

Gatica-Perez, D., Rigoll, G., Schreiber, S., Smith, K., Potúček, I., Beran, V.: 2D Multi-Person Tracking: A Comparative Study in AMI Meetings, In: Multimodal Technologies for Perception of Humans, GB, 2006, p. 12, ISBN 978-3-540-69567

Glembek, O., Karafiát, M., Burget, L., Černocký, J.: Czech Speech Recognizer for Multiple Environments, In: Radioeletronika 2006, Bratislava, SK, 2006, pp. 1-4

Hain, T., Burget, L., Dines, J., Garau, G., Karafiát, M., Lincoln, M., Wan, V.: The AMI Meeting Transcription System, In: Proc. NIST Rich Transcription 2006 Spring Meeting Recognition Evaluation Worskhop, Washington D.C., US, NIST, 2006, p. 12

Hubeika, V.: Estimation of Gender and Age from Recorded Speech, In: Proc. ACM Student Research competition 2006, Prague, CZ, ČVUT, 2006, pp. 25-32, ISBN 80-01-03595-6

Chudý, R., Kadlec, J.: FOXI - Hierarchical Structure Visualization, In: Proceedings of the International Conference on Systems, Computing Sciences and Software Engineering (SCSS05), Bridgeport, US, 2006, p. 5

Kadlec, J.: Steps In Automated User Interface Generation, In: Proceedings of Spring Conference on Computer Graphics 2006, Bratislava, 2006, pp. 25-28, ISSN 1335-5694

Karafiát, M., Grézl, F., Schwarz, P., Burget, L., Černocký, J.: Robust heteroscedastic linear discriminant analysis and LCRC posterior features in large vocabulary continuous speech recognition, In: Proc. Fifth Slovenian and First International Language Technologies Conference, Ljubljana, SI, 2006, pp. 1-4

Kontár, S.: Parallel training of neural networks for speech recognition, In: Proc. 12th International Conference on Soft Computing MENDEL'06, Brno, CZ, 2006, p. 6

Kopecký, J., Szöke, I., Fapšo, M., Karafiát, M., Burget, L., Oparin, I., Grézl, F., Schwarz, P., Glembek, O., Matějka, P., Černocký, J.: BUT System for NIST STD 2006 - Arabic, In: Proc. NIST SPoken Term Detection Evaluation workshop (STD 2006), Washington D.C., US, NIST, 2006, p. 15

Kršek, P., Španěl, M., Černochová, P., Kaňovská, K., Krupa, P., Stoklas, J., Molitor, M.: 3D Human Tissues Modelling In Clinical Applications, In: Medical Information Visualisation, London, GB, IEEE CS, 2006, p. 1, ISBN 0-7695-2603-9

Matějka, P., Burget, L., Schwarz, P., Černocký, J.: Brno University of Technology System for NIST 2005 Language Recognition Evaluation, In: Proceedings of Odyssey 2006: The Speaker and Language Recognition Workshop, San Juan, PR, 2006, pp. 57-64, ISBN 1-4244-0472-X

Matějka, P., Burget, L., Schwarz, P., Černocký, J.: NIST Speaker Recognition Evaluation 2006, In: Proceedings of NIST Speaker Recognition Evaluation 2006, San Juan, PR, 2006, pp. 1-40

Matějka, P., Burget, L., Schwarz, P., Černocký, J.: NIST 2005 Language Recognition Evaluation, In: Proceedings of NIST LRE 2005, Washington DC, US, 2006, pp. 1-37

Matějka, P., Schwarz, P., Burget, L., Černocký, J.: Use of anti-models to furher improve state-of-the-art PRLM language recognition system, In: Proceedings of ICASSP 2006, Toulouse, FR, 2006, pp. 197-200

Nováček, V., Smrž, P., Pomikálek, J.: Text Mining for Semantic Relations as a Support Base of a Scientific Portal Generator, In: Proceedings of the 5th International Conference on Language Resources and Evaluation, Paris, FR, ELRA, 2006, pp. 1338-1343, ISBN 2-9517408-2-4

Nováček, V., Smrž, P.: Empirical Merging of Ontologies A Proposal of Universal Uncertainty Representation Framework, In: The Semantic Web: Research and Applications, Berlin, DE, Springer, 2006, pp. 65-79, ISBN 3-540-34544-2

Pečiva, J.: Active Transaction Approach for Collaborative Virtual Environments, In: ACM International Conference on Virtual Reality Continuum and its Applications (VRCIA), Chinese University of Hong Kong, HK, ACM, 2006, pp. 171-178, ISBN 1-59593-324-7

Schwarz, P., Matějka, P., Černocký, J.: Hierarchical structures of neural networks for phoneme recognition, In: Proceedings of ICASSP 2006, Toulouse, FR, 2006, pp. 325-328

Sinopalniková, A., Smrž, P.: Intelligent Dictionary Interfaces: Usability Evaluation of Access-Supporting Enhancements, In: Proceedings of the 5th International Conference on Language Resources and Evaluation, Paris, FR, ELRA, 2006, pp. 1-4, ISBN 2-9517408-2-4

Sinopalniková, A., Smrž, P.: Knowing a Word vs. Accessing a Word: Wordnet and Word Association Norms as Interfaces to Electronic Dictionaries, In: Proceedings of the Third International WordNet Conference, GWC 2006, Brno, CZ, MUNI, 2006, pp. 265-272, ISBN 80-210-3915-9

Smrž, P., Kadlec, V.: How Many Dots Are Really Needed for Head-Driven Chart Parsing?, In: SOFSEM 2006: Theory and Practice of Computer Science: 32nd Conference on Current Trends in Theory and Practice of Computer Science, Berlin, DE, Springer, 2006, pp. 483-492, ISBN 3-540-31198-X

Smrž, P., Nováček, V.: Ontology Acquisition for Automatic Building of Scientific Portals, In: SOFSEM 2006: Theory and Practice of Computer Science: 32nd Conference on Current Trends in Theory and Practice of Computer Science, Berlin, DE, Springer, 2006, pp. 493-500, ISBN 3-540-31198-X

Smrž, P., Paralič, J.: Technologická podpora v projektu KP-Lab (Technological Support in KP-Lab Project), In: Sborník semináře Technologie pro e-vzdělávání, Praha, ČVUT, 2006, pp. 1-4

Smrž, P.: Automatic Acquisition of Semantics-Extraction Patterns, In: Proceedings of the 5th International Conference on Language Resources and Evaluation, Paris, FR, ELRA, 2006, pp. 1-4, ISBN 2-9517408-2-4

Smrž, P.: Automatické generování vědeckých portálů (Automatic Generation of Scientific Portals), In: Sborník příspěvků 5. ročníku konference Znalosti 2006, Ostrava, CZ, VŠB-Technical University of Ostr, 2006, pp. 252-255, ISBN 80-248-1001-8

Smrž, P.: Uncertainty Extensions to Ontologies as a Tool for Semantic Interpretation in Audiovisual Systems, In: Proceedings of the 1st International Conference on Semantic and Digital Media Technologies, Poster and Demo, Athens, GR, 2006, pp. 27-28

Smrž, P.: Using WordNet for Opinion Mining, In: Proceedings of the Third International WordNet Conference, GWC 2006, Brno, CZ, MUNI, 2006, pp. 333-335, ISBN 80-210-3915-9

Stolcke, A., Grézl, F., Morgan, N.: Cross-domain and Cross-language Portability of Acoustic Features Estimated by Multilayer Perceptrons, In: Proceedings of ICASSP 2006, Toulouse, FR, 2006, pp. 321-324, ISBN 1-4244-0469-X

Szöke, I., Fapšo, M., Karafiát, M., Burget, L., Grézl, F., Schwarz, P., Glembek, O., Matějka, P., Kontár, S., Černocký, J.: BUT System for NIST STD 2006 - English, In: Proc. NIST SPoken Term Detection Evaluation workshop (STD 2006), Washington D.C., US, NIST, 2006, p. 26

Szöke, I.: Keyword Spotting in Meeting Data, In: Proceedings of the 12th Conference Student EEICT 2006 Volume 4, Brno, CZ, FEKT BUT, 2006, p. 440-444, ISBN 80-214-3163-6

Španěl, M., Kršek, P.: Vector-based Medical Image Segmentation using Adaptive Delaunay Triangulation, In: Proceedings of the Sixth IASTED International Conference on Visualization, Imaging, and Image Procesing, Palma de Mallorca, ES, ACTA Press, 2006, p. 6, ISBN 0-88986-600-7

Zemčík, P., Herout, A., Beran, V., Granát, J.: Hardware Accelerated Image Analysis in FPGA, In: Proceedings of SCCG, Častá-Papiernička, SK, 2006, p. 4

Zemčík, P., Herout, A., Beran, V., Sumec, S., Potúček, I.: Real-Time Visual Processing Using "Views", In: Poster, MLMI Conference, Washington, DC, US, 2006, p. 1

Journal Articles:

Karafiát, M., Grézl, F., Schwarz, P., Burget, L., Černocký, J.: Robust heteroscedastic linear discriminant analysis and LCRC posterior features in meeting data recognition, In: Lecture Notes in Computer Science, Vol. 2006, No. 4299, DE, pp. 275-284, ISSN 0302-9743

Vyskočil, M.: Novinky v Python 2.5 - 2 (korutiny, konstrukce with), In: ABC Linuxu, Vol. 2006, No. 12, Praha, CZ, p. 3, ISSN 1214-1267

Vyskočil, M.: Novinky v Python 2.5 - 3, In: ABC Linuxu, Vol. 2006, No. 12, Praha, CZ, p. 3, ISSN 1214-1267

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Seminars

13. 1. 2006	Multi-object tracking evaluation for AMI video data, V. Beran
13. 1. 2006	Overview of 1D and 2D linear filtering using fast convolution, Joao Tavares Silva
27. 1. 2006	Tracking of participants in meeting videos, Michal Hradiš
27. 1. 2006	Automatic grapheme to phoneme conversion, Stanislav Kontár
17. 2. 2006	Evaluation of tracking methods, Igor Potúček
17. 2. 2006	Initial work on multi-modal browser, Petr Schwarz
3. 3. 2006	Aurelius atomic ray tracer & Mindjet MindManager, Adam Herout
14. 4. 2006	Text to sérech synthesi, Jakub Oczko
14. 4. 2006	SNet – software for paralel training of neural nets, Stanislav Kontár
12. 5. 2006	Recognition of handwriting for mobile phones, Jan Tichý
12. 5. 2006	Neural networks based image segmentation, Miroslav Švub
12. 5. 2006	3D Graphics engine with light-maps, Leoš Zelníček
12. 5. 2006	Detection of fundamental frequency in time domain, Dalibor Pernica
12. 5. 2006	Gender and age estimation from speech, Valiantsina Hubeika
2. 6. 2006	PRAY software for ray-tracing, Pavel Zemčík
2. 6. 2006	Experiments in Czech language modelling, Ilya Oparin
16. 6. 2006	NIST speaker verification and evaluation system, Pavel Matějka, Lukáš Burget, Petr Schwarz, Ondřej Glembek, Martin Karafiát a František Grézl
23. 6. 2006	Framework for AdaBoost experiments, Michal Hradiš
23. 6. 2006	Hardware implementation of AdaBoost classifier, Jiří Granát
23. 6. 2006	Supporting tools developed for AdaBoost experiments, Yannick Schwarz, Maxime Baracco
14. 9. 2006	Group presentation, POS tagging transcriptions, phonetic landmarks in sérech recognition, Stephane Huet, Guillaume Gravier
6. 10. 2006	DigILib and ImageStruct, Adam Herout
13. 10. 2006	Affine invariant region detectors based on corners, Vítězslav Beran
13. 10. 2006	Omni-directional image processing for human detection and tracking, Igor Potúček

13. 10. 2006	BUT system for NIST spoken term detection evaluations 2006, Igor Szöke, Michal Fapšo
10. 11. 2006	Interactive, auditive information system for the mobility of blind people in public transports, Olivier Venard
8. 12. 2006	Language modelling in Czech, Ilya Oparin

III.4. Department of Computer Systems

The **Department of Computer Systems** is responsible for teaching courses in MSc specialisation **Computer Systems and Networks**, which covers processor and computer architecture, data communication, communication protocols and computer networks, development of network-based, Internet, parallel and embedded applications, design of hybrid hw/sw systems and their specification, digital signal processing, design of specialised interfaces including interfaces to Internet. Besides, the Department is also in charge of teaching several courses in the Bc programme called **Information Technology**.

Scientific and research activities of the Department are focused on architecture of hardware and software of embedded systems, parallel performance prediction and tuning, specification and design of computer-based systems, and embedded systems and their mutual communication. Other research topics are image processing and applied genetic and evolutionary algorithms, including evolvable hardware. The main areas of interest are the following:

- Application-specific architectures: high-performance embedded systems, multiprocessor systems on a chip (MPSoC) and re-configurable systems,
- performance prediction and tuning of parallel applications (neural networks, large systems of linear equations, signal processing algorithms)
- evolvable digital architectures,
- formal approaches to digital circuit diagnostics,
- applied evolutionary algorithms,
- diagnostics, testability, and safety.

The lectures in most of the courses are supplemented with projects or laboratory sessions, where students acquire hands-on experience and skills with the latest software packages and hardware units (workstations, multiprocessor systems, workstation clusters, RT OS, design systems for FPGA and the like), learn basics of a teamwork and project management. For the most demanding projects IBM BladeServer clusters are used.

Staff

Head of Department
> Kotásek Zdeněk, Doc. Ing., CSc.

Deputy Head of Department
> Sekanina Lukáš, Doc. Ing., Ph.D.

Professor
> Dvořák Václav, Prof. Ing., DrSc.

Associate professor
> Drábek Vladimír, Doc. Ing., CSc.
> Kotásek Zdeněk, Doc. Ing., CSc.
> Linhart Miroslav, Doc. Ing., CSc.
> Sekanina Lukáš, Doc. Ing., Ph.D.
> Schwarz Josef, Doc. Ing., CSc.

Assistant professor
> Eysselt Miloš, Ing., CSc.
> Fučík Otto, Dr. Ing.

Růžička Richard, Ing., Ph.D.
Strnadel Josef, Ing., Ph.D.

Ph.D. student

Bidlo Michal, Ing.
Gajda Zbyšek, Ing.
Herrman Tomáš, Ing.
Jaroš Jiří, Ing.
Kobliha Miloš, Ing.
Kořenek Jan, Ing.
Kubek Ján, Ing.
Martínek Tomáš, Ing.
Ohlídal Miloš, Ing.
Pečenka Tomáš, Ing.
Slaný Karel, Ing.
Stareček Lukáš, Ing.
Straka Martin, Ing.
Šimek Václav, Ing.
Škarvada Jaroslav, Ing.
Vašíček Zdeněk, Ing.

Equipment

Laboratory of network architectures and applications

10 benches for development of advanced network architectures and applications, each equipped with a PC and a COMBO-PTM card. Further equipment: 4 Agilent oscilloscopes and 4 Textronix oscilloscopes (able to sample on 100MHz, 1G samples/channel), 1 logical analyser, 2 laboratory power sources, 5 digital multimetres, an MBT 250 soldering station, and a Bernstein tool kit.

Laboratory of Embedded Systems

6 benches equipped with FUJITSU DevKit16 for the development of advanced embedded applications including special peripheries in FPGA, and use of modern design systems "Processor Expert", UNIS.
.
8 benches equipped with HC11 EVBU development kits for the development of simple embedded applications with the use of the most widely spread MCU Motorola.

20 benches equipped with development kits with HC08 microcontroller, FPGA, basic peripheries and interfaces for HW applications with Metrowerks CodeWarrior and Xilinx ISE Webpack - modern programmable support. Each bench contains an EZ Digital OS 5020 oscilloscope that enables two-channel waveform display in the frequency range up to 20 MHz.

1 bench with COMBO6 PCI card (Xilinx FPGA Virtex II Pro) for evolutionary circuit design.

Laboratory of DSP Systems

1 bench for developing DSP applications with DSP56000 processors, Motorola.

8 benches equipped with DSK6414 kits, Texas Instruments, for work with high-performance VLIW DSP processors TMS320C6414.
.

Computer Peripheral Laboratory

A bench for tuition support and development of PC fieldbuses – a special adapter (developed at the FIT), PCI Spartan fieldbus development kit with FPGA, Agilent 32-channel logic analyser.

An input peripheral devices bench – a keyboard and its controller (a special-purpose set-up for demonstration), a Genius NewSketch tablet, and a HP 5300C desktop scanner.

An output peripheral graphical devices bench – an ink printer HP DesignJet 488CA with HPGL and PCL graphic languages, Roland x/y plotter with HPGL language.

A digital computer/analog environment interface – Cards with Advantech PCI 1710 A/D converters, Advantech switching network, a digital oscilloscope Agilent 54622A, and MS 9160 – a function generator and counter.

A digital interface bench - cards for PC / devices with RS-232, RS-485, RS-422, GPIB.

An external memory bench - interface and IDE a SCSI, SCSI-2 discs.

A bench for teaching kits development – memory programmer, programmable logic and processors Elnec LabProg 48LV, soldering station, measuring instruments and power sources.

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
NCS	Advanced Digital Design	W	5	26-0-0-10-16	Fučík Otto, Dr. Ing.
PCS	Advanced Digital Systems	W	5	26-0-0-10-16	Fučík Otto, Dr. Ing.
PDD	Applications of Parallel Computers	W	0	39-0-0-0-0	Dvořák Václav, Prof. Ing., DrSc.
EVO	Applied Evolutionary Algorithms	S	5	26-0-0-12-14	Schwarz Josef, Doc. Ing., CSc.
EVA	Applied Evolutionary Algorithms	S	5	26-0-0-12-14	Schwarz Josef, Doc. Ing., CSc.
AMC	Applied Microcomputers	S	6	26-0-26-0-13	Schwarz Josef, Doc. Ing., CSc.
IBP	BSc Thesis	W	6	0-0-0-0-78	Eysselt Miloš, Ing., CSc.
IBX	BSc Thesis	S	9	0-0-0-0-78	Eysselt Miloš, Ing., CSc.

IBX	BSc Thesis (abroad)	W	9	0-0-0-0-78	Eysselt Miloš, Ing., CSc.
IPN	Computer Aided Design	W	5	26-0-0-10-16	Schwarz Josef, Doc. Ing., CSc.
KKO	Data Coding and Compression	S	5	26-0-0-0-26	Drábek Vladimír, Doc. Ing., CSc.
INP	Design of Computer Systems	W	5	39-13-0-0-8	Drábek Vladimír, Doc. Ing., CSc.
NAV	Design of External Adapters and Embedded Systems	S	5	26-0-16-0-10	Kotásek Zdeněk, Doc. Ing., CSc.
DBS	Diagnosis and Safe Systems	W	5	39-0-0-8-5	Drábek Vladimír, Doc. Ing., CSc.
DIA	Diagnosis and Safe Systems	S	6	39-10-6-0-10	Drábek Vladimír, Doc. Ing., CSc.
CZS	Digital Signal Processing	W	5	26-0-0-10-16	Fučík Otto, Dr. Ing.
SIG	Digital Signal Processing	W	5	26-0-0-10-16	Fučík Otto, Dr. Ing.
INC	Digital Systems Design	S	5	39-10-0-0-3	Fučík Otto, Dr. Ing.
EVD	Evolutionary Computation	S	0	39-0-0-4-0	Schwarz Josef, Doc. Ing., CSc.
SOD	Fault Tolerant Systems	S	0	39-0-0-0-0	Drábek Vladimír, Doc. Ing., CSc.
SOP	Fault-Tolerant Systems	S	6	39-0-0-12-14	Drábek Vladimír, Doc. Ing., CSc.
GMU	Graphic and Multimedia Processors	W	5	39-0-0-8-5	Drábek Vladimír, Doc. Ing., CSc.
GMP	Graphic Processors	W	5	39-0-0-8-5	Drábek Vladimír, Doc. Ing., CSc.
HSC	Hardware/Software Codesign	W	5	39-0-0-0-13	Fučík Otto, Dr. Ing.
ZPX	International Activities	S	5	0-0-0-0-0	Drábek Vladimír, Doc. Ing., CSc.
IMP	Microprocessors and Embedded Systems	W	6	39-0-8-6-12	Schwarz Josef, Doc. Ing., CSc.
DPI	MSc Thesis Project	W	10	0-0-0-0-130	Eysselt Miloš, Ing., CSc.
DPX	MSc Thesis Project (abroad)	W	15	0-0-0-0-130	Eysselt Miloš, Ing., CSc.
DPX	MSc Thesis Project (in the World)	S	15	0-0-0-0-130	Eysselt Miloš, Ing., CSc.
ARC	Parallel System Architecture and Programming	S	5	39-0-0-0-13	Dvořák Václav, Prof. Ing., DrSc.
IPZ	Peripheral Devices	W	4	35-0-2-0-2	Kotásek Zdeněk, Doc. Ing., CSc.
PZ2	Peripheral Devices 2	W	4	35-0-2-0-2	Kotásek Zdeněk, Doc. Ing., CSc.

ITP	Personal Computers	S	5	26-0-26-0-0	Kotásek Zdeněk, Doc. Ing., CSc.
PTP	Personal Computers - Technical Maintenance	S	6	26-0-0-39-0	Kotásek Zdeněk, Doc. Ing., CSc.
VPC	Personal Computers Architecture	S	6	26-0-13-0-0	Růžička Richard, Ing., Ph.D.
ACH	Processor Architecture	W	5	39-0-0-0-13	Dvořák Václav, Prof. Ing., DrSc.
ROS	Real-Time Operating Systems	W	5	39-0-0-8-5	Strnadel Josef, Ing., Ph.D.
SES	Service Sciences	S	3	26-0-0-0-0	Eysselt Miloš, Ing., CSc.
ISZ	State Final Examination	W	0	0-1-0-0-0	Eysselt Miloš, Ing., CSc.
SZZ	State Final Examination	W	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.
ISZ	State Final Examination	S	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.
SZZ	State Final Examination	S	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.
SZB	State Final Examination	S	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.
ZPX	Study Stay and Professional Practice, Abroad	W	5	0-0-0-0-0	Drábek Vladimír, Doc. Ing., CSc.
SEP	Term Project	W	3	0-0-0-0-39	Eysselt Miloš, Ing., CSc.
PI3	Term Project	W	3	0-8-0-0-31	Eysselt Miloš, Ing., CSc.
ISP	Term Project	W	2	0-6-0-0-20	Eysselt Miloš, Ing., CSc.
SEX	Term Project (abroad)	W	5	0-0-0-0-39	Eysselt Miloš, Ing., CSc.
P3X	Term Project (abroad)	W	5	0-0-0-0-39	Eysselt Miloš, Ing., CSc.
ISX	Term Project (abroad)	W	4	0-0-0-0-26	Eysselt Miloš, Ing., CSc.
PTD	The Principles of Testable Design Synthesis	W	0	39-0-0-0-0	Kotásek Zdeněk, Doc. Ing., CSc.
IVH	VHDL Seminar	S	4	0-26-0-0-13	Fučík Otto, Dr. Ing.
YPRX	Year Project	S	15	0-0-0-0-200	Eysselt Miloš, Ing., CSc.
P2X	Year Project 2/2	S	6	0-0-0-0-26	Eysselt Miloš, Ing., CSc.

Research Projects

Evolutionary Algorithms Applied to Dynamic Problems, FRVŠ MSMT, FR0136/2006/G1, 2006, running
Research leader: Kobliha Miloš
Team leader: Schwarz Josef

Memetic Evolutional Algorithms Applied to Communication Scheduling, FRVŠ MSMT, FR2848/2006/G1, 2006-2007, running
Research leader: Ohlídal Miloš
Team leader: Schwarz Josef

Methods of Polymorphic Digital Circuit Design, GAČR, GA102/06/0599, 2006-2008, running
Research leader: Sekanina Lukáš
Team leaders: Bidlo Michal, Drábek Vladimír, Gajda Zbyšek, Kotásek Zdeněk, Musil Vladislav, Prokop Roman, Růžička Richard, Stareček Lukáš, Vašíček Zdeněk

EDA Evolutionary Design of Group Communication Schedules, FRVŠ MSMT, FR2983/2006/G1, 2006, running
Research leader: Jaroš Jiří
Team leader: Dvořák Václav

Test Scheduling for Embedded Systems under Power Constraints, FRVŠ MSMT, FR3383/2006/G1, 2006, running
Research leader: Škarvada Jaroslav
Team leader: Kotásek Zdeněk

Biology-inspired Hardware Teaching Support, FRVŠ MSMT, FR825/2006/G1, 2006, completed
Research leader: Bidlo Michal
Team leader: Sekanina Lukáš

Testing of Embedded Systems, FRVŠ MSMT, FR3198/2006/G1, 2006, running
Research leader: Kubek Ján
Team leader: Kotásek Zdeněk

Toward International Learning Environment for Real-Time Safety-Critical Control Systems, EC EU, ATLANTIS-ILERT, 2006-2008, running
Research leader: Švéda Miroslav
Team leader: Ryšavý Ondřej

IT Professionals – Graduates Competitiveness Increase for European Labour Market, MSMT, CZ.04.1.03/3.2.15.1/0003, 2006-2007, running
Research leader: Hruška Tomáš
Team leader: Růžička Richard

Network Architectures for Embedded Systems, GAČR, GA102/05/0467, 2005-2007, running
Research leader: Srovnal Vilém
Team leaders: Bílek Jan, Švéda Miroslav

Integrated Approach to Education of DSP Students in the Field of Parallel and Distributed Systems, GAČR, GD102/05/H050, 2005-2008, running
Research leader: Gruska Jozef
Team leader: Češka Milan

Optimization Processes in Diagnostics of Digital Systems, GAČR, GP102/05/P193, 2005-2007, running
Research leader: Strnadel Josef

IST Requalification of Disabled Persons CZ/04/B/F/NT-168025, CEVAPO BUT, 2004-2007, running
Research leader: Holec Petr
Team leader: Drábek Vladimír

Modern Methods of Digital System Synthesis, GAČR, GA102/04/0737, 2004-2006, running
Research leader: Kotásek Zdeněk
Team leaders: Drábek Vladimír, Růžička Richard, Sekanina Lukáš, Strnadel Josef

Optical Network in National Research and its New Applications - Programmable Hardware, CESNET, MSM6383917201, 2004-2010, running
Research leader: Novotný Jiří
Team leaders: Čejka Rudolf, Fučík Otto, Kořenek Jan, Kršek Přemysl, Martínek Tomáš, Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Smrž Pavel, Vojnar Tomáš, Zemčík Pavel

Rapid Prototyping Tools for Development of HW-Accelerated Embedded Image- and Video-Processing Applications, GA AVČR, 1ET400750408, 2004-2008, running
Research leader: Zemčík Pavel

Co-operation

Co-operation the Czech Republic

- Beta Control, s.r.o., Brno, J. Gutman – co-operation in the field of embedded systems, http://www.betacontrol.cz/
- Camea, s.r.o., Brno, ing. P. Valenta – co-operation in the field of design, development and implementation of electronic systems, http://www.camea.cz/
- UNIS, s.r.o., Brno, Ing. Stanislav Černý – co-operation in the GACR project "Modern methods of digital systems synthesis", http://www.unis.cz/
- ASICentrum, Praha, A. Pleštil, P. Matějka – co-operation in the higher education programme (HEP) , Mentor Graphics, http://www.asicentrum.cz/
- Institute of Informatics and Automation, AV ČR, Dr. Ing. J. Schier – co-operation in the field of design of electronic systems, http://www.utia.cas.cz/

- Department of Informatics FEI, Technical University of Mining and Metallurgy, Ostrava, Prof. ing. Karel Vlček, CSc.- co-operation in the GACR project ''Modern methods of digital systems synthesis", http://www.fei.vsb.cz/okruhy/katedry-a-pracoviste/katedra-informatiky

- Computer Department FEL, Czech Technical University, Prague, Doc. Ing. Hana Kubátová, CSc. – co-operation in the GACR project ''Modern methods of digital systems synthesis", Prof. Ing. Ondřej Novák, CSc., preparing of the bilateral project „Reconfiguration and Self Repair for SoCs in Nanoelectronic Technologies", http://cs.felk.cvut.cz/

- Faculty of Applied Sciences, University of West Bohemia, Plzeň, Doc. Ing. Stanislav Racec, CSc. – co-organization of seminars for doctoral students PAD, http://www.fav.zcu.cz/

- Faculty of Mechatronics, Liberec University of Technology, Doc. Ing. Zdeněk Plíva, CSc. – co-operation, IST-2000-30193 REASON project (completed in spring 2006), http://www.fm.vslib.cz/
- Department of Computer Science, Masaryk University in Brno– co-operation in the development of a device for monitoring high-speed network and use of FPGA-based technology for net applications, Ing. J. Novotný, http://www.muni.cz/ics
- Faculty of Informatics Masaryk University in Brno, Ing. Matej Lexa PhD. – co-operation in the field of accelerated algorithm analysis in biological sequences, http://www.fi.muni.cz
- Cesnet, Ing. J. Gruntorád, CSc. – co-operation in the development of a device for monitoring high-speed network and use of FPGA-based technology for net applications, http://www.cesnet.cz/

International Co-operation

- Institute of Informatics, Slovak Academy of Sciences, SR, Doc. RNDr. Elena Gramatová, CSc. – co-organization of seminars for doctoral students PAD, http://www.ui.sav.sk/
- Technical University in Tallin, Estonia, Prof. Raimund Ubar – co-operation, IST-2000-30193 REASON project (completed in spring 2006), http://www.tlu.ee/
- Norwegian University of Science and Technology, Trondheim, P. Haddow – co-operation in the field of evolvable hardware, http://www.idi.ntnu.no/~pauline/
- Pennsylvania State University, The Behrend College, Erie, USA, Dr. R. Ford – co-operation in the field of computing platform design, http://www.pserie.psu.edu/
- Univerzita v Aveiru, Portugal, Prof. Antonio Ferrari – co-operation in the field of embedded systems, http://www.ua.pt/deti/
- Univesity of Wyoming, USA, Dr. J. Cupal – co-operation in the field of electronic system design, http://www.uwyo.edu/
- Dept. of Statistics, Operational Research and Computing, La Laguna University, Tenerife, Spain, Prof. Casiano Rodriguez Leon – co-operation in the field of parallel computing, http://nereida.deioc.ull.es/
- NASA Jet Propulsion Laboratory, Pasadena, USA, A. Stoica – co-operation in the field of evolutionary circuit design, http://www.jpl.nasa.gov/
- University of York, J. Miller – co-operation in the field of evolutionary design http://www.york.ac.uk/
- Frauenhofer-Institute IIS/EAS, Dresden, Prof. Dr. Bernd Straube, Německo, preparation of the bilateral project "Reconfiguration and Self Repair for SoCs in Nanoelectronic Technologies", http://www.eas.iis.fraunhofer.de/
- Brandenburg University of Technology at Cottbus, Germany, Prof. Dr.-Ing. Heinrich Theodor Vierhaus, preparation of the bilateral project ''Reconfiguration and Self Repair for SoCs in Nanoelectronic Technologies", http://www.informatik.tu-cottbus.de

Visitors to the Department

- Dr. Julian Miller, University of York , a lecture on Evolution in materio: On the evolution of computation in materials
- Ing. Jiří Kubalík, Ph.D., FEL ČVUT, Praha a lecture on robust evolutionary algorithms

Visits of Staff Members to Foreign Institutions

- Bidlo Michal, Ing., Pedagogický software 2006, České Budějovice, CZ, 3 days
- Bidlo Michal, Ing., Parallel Problem Solving From Nature, Reykjavik, IS, 9 days
- Bidlo Michal, Ing., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Bidlo Michal, Ing., Third International Conference on Computational Intelligence, Barcelona, ES, 6 days
- Bidlo Michal, Ing., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, 4 days
- Bidlo Michal, Ing., Norwegian University of Science and Technology, Geelmuydens gate 1, Trondheim, NO, 10 days
- Drábek Vladimír, Doc. Ing., CSc., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Drábek Vladimír, Doc. Ing., CSc., Computer Science Education Workshop, Gabčíkovo, Slovensko, SK, 2 days
- Dvořák Václav, Prof. Ing., DrSc., 5th International Conference on Networking ICN 2006, IARIA, Indian Hotel, Morne, Mauritius, MU, 10 days
- Eysselt Miloš, Ing., CSc., Computer Science Education Workshop, Gabčíkovo, Slovensko, SK, 2 days
- Gajda Zbyšek, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 3 days
- Gajda Zbyšek, Ing., 1st NASA/ESA Conference on Adaptive Hardware and Systems , Bahcesehir University, Istanbul, TR, 6 days
- Gajda Zbyšek, Ing., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Herrman Tomáš, Ing., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Herrman Tomáš, Ing., 7TH International Scientific Conference Electronic Computers and Informatics 2006, Herľany, SK, 3 days
- Jaroš Jiří, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 2 days
- Jaroš Jiří, Ing., 5-th International Symposium on Parallel Computing in Electrical Engineering, Bialystok, PL, 5 days
- Jaroš Jiří, Ing., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Jaroš Jiří, Ing., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, 3 days
- Jaroš Jiří, Ing., Université de Lausanne, UNIL, Batiment Unicentre, CH-1015 Lausanne, CH, +41 21 692 20 11, CH, 7 days
- Kobliha Miloš, Ing., 3rd European Workshop on Evolutionary Algorithms in Stochastic and Dynamic Environments, Europa Congress Center, Hárshegyi str. 5-7, 1021 Budapest, HU, 4 days
- Kobliha Miloš, Ing., Computer Architecture & Diagnostics 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Kořenek Jan, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 4 days
- Kořenek Jan, Ing., Faculty of Information Technology BUT v Brně, Hotel Skalský Dvůr, Lísek 52, 593 01, CZ, 2 days

- Kotásek Zdeněk, Doc. Ing., CSc., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, 4 days
- Kotásek Zdeněk, Doc. Ing., CSc., 9th EUROMICRO Conference on Digital System Design, Hotel Croatia, Cavtat, HR, 5 days
- Kotásek Zdeněk, Doc. Ing., CSc., Computer Architecture & Diagnostics 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Kotásek Zdeněk, Doc. Ing., CSc., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, CZ, 4 days
- Kubek Ján, Ing., Computer Architecture & Diagnostics 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Kubek Ján, Ing., 7TH International Scientific Conference Electronic Computers and Informatics 2006, Herľany, SK, 4 days
- Kubek Ján, Ing., Bio-Inspired models of NEtwork, Information and Computing Systems, Cavalese, IT, 5 days
- Martínek Tomáš, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 4 days
- Ohlídal Miloš, Ing., 3rd European Workshop on Evolutionary Computation in Communication, Networks and Connected Systems, Europa Congress Center, Hárshegyi str. 5-7, 1021 Budapest, HU, 4 days
- Ohlídal Miloš, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 3 days
- Ohlídal Miloš, Ing., 5-th International Symposium on Parallel Computing in Electrical Engineering, Bialystok, PL, 5 days
- Ohlídal Miloš, Ing., Computer Architecture & Diagnostics 2006 , Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Ohlídal Miloš, Ing., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science -- MEMICS'06, Mikulov, CZ, 3 days
- Pečenka Tomáš, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 4 dny
- Pečenka Tomáš, Ing., 9th EUROMICRO Conference on Digital System Design, Hotel Croatia, Cavtat, HR, 5 days
- Pečenka Tomáš, Ing., Computer Architecture & Diagnostics 2006 , Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Pečenka Tomáš, Ing., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, 3 days
- Růžička Richard, Ing., Ph.D., Mikulov, CZ, 1 day
- Růžička Richard, Ing., Ph.D., 7TH International Scientific Conference Electronic Computers and Informatics 2006, Herľany, SK, 4 days
- Růžička Richard, Ing., Ph.D., The IASTED International Conference on Computational Inteligence, San Francisco, US, 9 days
- Sekanina Lukáš, Doc. Ing., Ph.D., 3rd European Workshop on Evolutionary Computation in Hardware Optimisation, Europa Congress Center, Hárshegyi str. 5-7, 1021 Budapest, HU, 4 days
- Sekanina Lukáš, Doc. Ing., Ph.D., ACM Computing Frontiers 2006 - Special Session on Dependability Issues in Emerging Technologies, HOTEL CONTINENTAL TERME, Via M. Mazzallela, 74, 80077 Ischia (Neapol), IT, 5 days
- Sekanina Lukáš, Doc. Ing., Ph.D., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 3 days
- Sekanina Lukáš, Doc. Ing., Ph.D., IEEE Congress on Evolutionary Computation, Sheraton Vancouver Wall Centre Hotel, 1088 Burrard Street, Vancouver, CA, 8 days

- Sekanina Lukáš, Doc. Ing., Ph.D., 1st NASA/ESA Conference on Adaptive Hardware and Systems, Bahcesehir University, Istanbul, TR, 6 days
- Sekanina Lukáš, Doc. Ing., Ph.D., Parallel Problem Solving From Nature, Reykjavik, IS, IS, 8 days
- Sekanina Lukáš, Doc. Ing., Ph.D., Computer Architecture & Diagnostics 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Sekanina Lukáš, Doc. Ing., Ph.D., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, 4 days
- Schwarz Josef, Doc. Ing., CSc., 3rd European Workshop on Evolutionary Algorithms in Stochastic and Dynamic Environments, Europa Congress Center, Hárshegyi str. 5-7, 1021 Budapest, HU, 4 days
- Schwarz Josef, Doc. Ing., CSc., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, 3 days
- Schwarz Josef, Doc. Ing., CSc., 12th International Mendel Conference on Soft Computing, FME, BUT BRNO, CZ, 3 days
- Stareček Lukáš, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 3 days
- Stareček Lukáš, Ing., Computer Architecture & Diagnostics 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Straka Martin, Ing., Proceedings of the Computer and Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Straka Martin, Ing., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, 3 days
- Strnadel Josef, Ing., Ph.D., 13th Annual IEEE International Conference and Workshop on the Engineering of Computer Based Systems (ECBS), University of Potsdam, Potsdam, Germany, DE, 5 days
- Strnadel Josef, Ing., Ph.D., 7TH International Scientific Conference Electronic Computers and Informatics 2006, Herľany, SK, 4 days
- Šimek Václav, Ing., Proceedings of the Computer and Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Škarvada Jaroslav, Ing., IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Masarykova kolej, Thákurova 1, Praha 6 - Dejvice, CZ, 3 days
- Škarvada Jaroslav, Ing., 1st International Workshop on Formal Models (WFM'06), Přerov, CZ, 2 days
- Škarvada Jaroslav, Ing., Pedagogický software 2006, České Budějovice, CZ, 3 dny
- Škarvada Jaroslav, Ing., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days
- Škarvada Jaroslav, Ing., 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science - MEMICS'06, Mikulov, CZ, 3 days
- Vašíček Zdeněk, Ing., Computer Architecture & Diagnostics, 2006, Hotel Podjavorník, Papradno, Považská Bystrica, SK, 3 days

Membership in International Organizations and Societies

- Drábek Vladimír, Doc. Ing., CSc.,
  - Czech and Slovak Simulation Society

- Dvořák Václav, Prof. Ing., DrSc.,
  - IEEE - Computer Society, 1991 -
  - JUCS editorial board, Journal of Universal Computer Science, 1994 -
  - JEE editorial board, Journal of Electrical Engineering (Bratislava, Slovakia), 1996 -
- Eysselt Miloš, Ing., CSc.,
  - IGIP
- Fučík Otto, Dr. Ing.,
  - IEEE Computer Society, 2006
- Kotásek Zdeněk, Doc. Ing., CSc.,
  - IEEE Computer Society, 2003 –
- Růžička Richard, Ing., Ph.D.,
  - IEEE Computer Society, 2004 –
- Sekanina Lukáš, Doc. Ing., Ph.D.,
  - IEEE Computer Society, 2004 –
- Schwarz Josef, Doc. Ing., CSc.,
  - Evonet
  - Czech and Slovak Simulation Society
  - IEEE – Computational Intelligence Society, 2004 -
- Strnadel Josef, Ing., Ph.D.,
  - Czech and Slovak Simulation Society (CSSS), 2000 –
  - IEEE Computer Society, 2004 –
  - IEEE Technical Council, 2005 –

Publications

Journal Articles

Bidlo, M., Bidlo, R., Sekanina, L.: Designing a Novel General Sorting Network Constructor Using Artificial Evolution, In: Enformatika, Vol. 15, No. 1, 2006, Barcelona, ES, pp. 85-90, ISBN 975-00803-4-3, ISSN 1503-5313

Ohlídal, M., Jaroš, J., Dvořák, V., Schwarz, J.: Evolutionary Design of OAB and AAB Communication Schedules for Interconnection Networks, In: Lecture Notes in Computer Science, Vol. 2006, No. 3907, DE, pp. 267-278, ISSN 0302-9743

Sekanina, L., Vašíček, Z.: On the Practical Limits of the Evolutionary Digital Filter Design at the Gate Level, In: Lecture Notes in Computer Science, Vol. 2006, No. 3907, DE, pp. 344-355, ISSN 0302-9743

Strnadel, J.: Testability Analysis and Improvements of Register-Transfer Level Digital Circuits, In: Computing and Informatics, Vol. 25, No. 5, 2006, Bratislava, SK, pp. 441-464, ISSN 1335-9150

Conference Papers:

Bidlo, M., Sekanina, L.: Biology-inspired Computing Systems Education Support, In: Pedagogický software 2006, České Budějovice, CZ, spp, 2006, pp. 81-83, ISBN 80-8545-56-4

Bidlo, M.: Evolutionary Design Using Development, In: Proceedings of the Computer and Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, pp. 119-124, ISBN 80-969202-2-7

Bidlo, M.: Introducing New Fundamental Classification of Development for Evolutionary Design: Theory and Applications, In: Proc. of the 9th International Conference on Parallel Problem Solving from Nature - Workshop on Evolutionary Algorithms, Reykjavík, IS, 2006, pp. 1-12

Černý, S., Stružka, P., Kořenek, J., Martínek, T., Kotásek, Z.: FPGA Components in Simulink, In: Proceedings of XXVIIIth International Autumn Colloquium ASIS 2006, Ostrava, CZ, MARQ, 2006, pp. 158-163, ISBN 80-86840-26-3

Gajda, Z.: A Core Generator for Multi-ALU Processors Utilized in Genetic Parallel Programming, In: Proc. of 2006 IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, IEEE CS, 2006, pp. 238-240, ISBN 1424401844

Gajda, Z.: Design of Polymorphic Digital Circuits, In: Proceedings of the Computer Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, pp. 55-60, ISBN 80-969202-2-7

Herrman, T.: Formal Model of Testable Block, In: Proceedings of 12th Conference Student EEICT 2006, Volume 4, Brno, CZ, FEKT BUT, 2006, pp. 451-455, ISBN 80-214-3163-6

Herrman, T.: Method of Circuit Testing Based on Testable Blocks, In: Proceedings of the Computer Architecture & Diagnostics, Bratislava, SK, UI SAV, 2006, pp. 131-136, ISBN 80-969202-2-7

Herrman, T.: Testability Analysis Based on Formal Model, In: Proceedings of the Seventh International Scientific Conference ECI 2006, Košice, SK, FEI TU v Košiciach, 2006, pp. 243-248, ISBN 80-8073-598-0

Jaroš, J., Dvořák, V.: Evolutionary Design of OAB and AAB Communication Schedules for Networking Systems on Chips, In: Proc. of 2006 IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, IEEE CS, 2006, pp. 222-223, ISBN 1-4244-0184-4

Jaroš, J., Dvořák, V.: Evolutionary Design of OAB and AAB Communication Schedules for Networking Systems on Chips, In: MEMICS 2006 Second Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Mikulov, CZ, 2006, pp. 63-68, ISBN 80-214-3287-X

Jaroš, J., Ohlídal, M., Dvořák, V.: Complexity of Collective Communications on NoCs, In: Proc. of 5th International Symposium on Parallel Computing in Electrical Engineering, Los Alamitos, CA 90720-1314, US, IEEE CS, 2006, pp. 127-132, ISBN 0-7695-2554-7

Jaroš, J.: Evolutionary Optimization of Collective Communication Patterns, In: Proceedings of the Computer Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, pp. 31-36, ISBN 80-969202-2-7

Kobliha, M., Schwarz, J., Očenášek, J.: Bayesian Optimization Algorithms for Dynamic Problems, In: Applications of Evolutionary Computing, Budapest, HU, Springer, 2006, pp. 800-804, ISBN 3-540-33237-5, ISSN 0302-9743

Kobliha, M.: Evolutionary Algorithms for Dynamic Problems, In: Proceedings of the Computer Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, p. 5, ISBN 80-969202-2-7

Kotásek, Z., Strnadel, J.: SET: Interactive Tool for Learning and Training Scan-Based DFT Principles and Their Consequences to Parameters of Embedded System, In: Proceedings of the 13th IEEE International Symposium and Workshop on the Engineering of Computer-Based Systems (ECBS), Los Alamitos, CA, US, IEEE CS, 2006, pp. 497-498, ISBN 0-7695-2546-6

Kubek, J.: FSM-based IP Cores Analysis, In: Proceedings of the Seventh International Scientific Conference ECI 2006, Košice, SK, FEI TU v Košiciach, 2006, pp. 238-241, ISBN 80-8073-598-0

Kubek, J.: Localisation of the Finite State Control in the IP Cores, In: Proceedings of the 12th Conference STUDENT EEICT 2006 Volume 4, Brno, CZ, BUT v Brně, 2006, pp. 456-461, ISBN 80-214-3163-6

Kubek, J.: Localisation of the Finite State Control in the IP Cores, In: Proceedings of the Computer Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, pp. 126-130, ISBN 80-969202-2-7

Martínek, T., Kořenek, J., Novotný, J.: Network Monitoring Adaptor for 10Gbps Technology using FPGA, In: CESNET Conference 2006 Proceedings, Prague: CESNET, z. s. p. o., CZ, 2006, pp. 143-151, ISBN 80-239-6533-6

Martínek, T., Lexa, M., Kořenek, J., Fučík, O.: A Flexible Technique for the Automatic Design of Approximate String Matching Architectures, In: Proc. of 2006 IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, IEEE CS, 2006, pp. 83-84, ISBN 1424401844

Očenášek, P., Očenášek, J.: Designing Secure Communications Using Evolutionary Approach, In: Genetic and Evolutionary Computation Conference GECCO 2006, Seattle, WA, US, ACM, 2006, p. 3

Ohlídal, M., Jaroš, J., Dvořák, V.: Performance of Collective Communications on Interconnection Networks with Fat nodes and Edges, In: Proceedings of the Fifth International

Conference on Networking ICN 2006, Los Alamitos, US, IEEE CS, 2006, pp. 619-624, ISBN 0-7695-2570-9

Ohlídal, M., Schwarz, J.: Collective Communication AAB for Regular and Irregular Topology Based on Prediction of Conflicts, In: Proc. of 2006 IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, IEEE CS, 2006, pp. 224-225, ISBN 1-4244-0184-4

Ohlídal, M.: Scheduling of Collective Communication All-to-All Broadcast Based on Prediction of Conflicts in Interconnection Networks, In: Proceedings of the Computer Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, pp. 25-30, ISBN 80-969202-2-7

Pečenka, T., Kotásek, Z., Sekanina, L.: FITTest_BENCH06: A New Set of Benchmark Circuits Reflecting Testability Properties, In: Proc. of 2006 IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, IEEE CS, 2006, pp. 285-289, ISBN 1424401844

Pečenka, T., Kotásek, Z.: I-path Scheduling Algorithm for RT Level Circuits, In: MEMICS 2006 2nd Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Mikulov, CZ, 2006, pp. 174-181, ISBN 80-214-3287-X

Pečenka, T., Strnadel, J., Kotásek, Z., Sekanina, L.: Testability Estimation Based on Controllability and Observability Parameters, In: Proceedings of the 9th EUROMICRO Conference on Digital System Design (DSD'06), Cavtat, HR, IEEE CS, 2006, pp. 504-514, ISBN 0-7695-2609-8

Pečenka, T.: Tools and methods for automatic benchmark circuit generation, In: Proceedings of the Computer Architecture & Diagnostics, for doctoral students, Bratislava, SK, UI SAV, 2006, pp. 13-18, ISBN 80-969202-2-7

Růžička, R., Sekanina, L.: Evolutionary Circuit Design in REPOMO - Reconfigurable Polymorphic Module, In: Proceedings of the Second IASTED International Conference on Computational Intelligence, Anaheim, US, ACTA Press, 2006, pp. 237-241, ISBN 0-88986-602-3

Růžička, R.: DFT Flow for RT Level Digital Circuits Using iFCoRT System, In: Proceedings of the Seventh International Scientific Conference Electronic Computers and Informatics ECI 2006, Košice, SK, 2006, pp. 292-297, ISBN 80-8073-598-0

Sekanina, L., Martínek, T., Gajda, Z.: Extrinsic and Intrinsic Evolution of Multifunctional Combinational Modules, In: 2006 IEEE World Congress on Computational Intelligence, CA, US, IEEE CIS, 2006, pp. 9676-9683, ISBN 0-7803-9489-5

Sekanina, L., Stareček, L., Gajda, Z., Kotásek, Z.: Evolution of Multifunctional Combinational Modules Controlled by the Power Supply Voltage, In: Proc. of the 1st NASA/ESA Conference on Adaptive Hardware and Systems, Piscataway, US, IEEE CS, 2006, pp. 186-193, ISBN 0-7695-2614-4

Sekanina, L., Stareček, L., Kotásek, Z.: Novel Logic Circuits Controlled by Vdd, In: Proc. of 2006 IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Praha, CZ, IEEE CS, 2006, pp. 85-86, ISBN 1424401844

Sekanina, L.: Evolutionary Design of Digital Circuits: Where Are Current Limits?, In: Proc. of the 1st NASA/ESA Conference on Adaptive Hardware and Systems, Piscataway, US, IEEE CS, 2006, pp. 171-178, ISBN 0-7695-2614-4

Sekanina, L.: On Dependability of FPGA-Based Evolvable Hardware Systems That Utilize Virtual Reconfigurable Circuits, In: Computing Frontiers 2006 Conference, New York, US, ACM, 2006, pp. 221-228, ISBN 1595933026

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Zemčík, P., Herout, A., Beran, V., Granát, J.: Hardware Accelerated Image Analysis in FPGA, In: Proceedings of SCCG, Častá-Papiernička, SK, 2006, p. 4

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Eysselt, M.: A Study Programme at the Faculty of Information Technology, IT - Information Technology: A New Follow-Up Master Study Programme, in 2006/2007, MJ servis s.r.o., Brno, CZ, FIT BUT, 2006, p. 64

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Eysselt, M.: Study Programmes at the Faculty of Information Technology: IT – Information Technology, in 2006/2007, MJ servis, spol. s r.o., Brno, CZ, FIT BUT, 2006, p. 56

Eysselt, M.: Study Programmes at the Faculty of Information Technology: IT - Information Technology, A Survey, MJ servis s.r.o., Brno, CZ, FIT BUT, 2006, p. 20

Chapters in Books:

Zebulum, R., S., Keymeulen, D., Ramesham, R., Sekanina, L., Mao, J., Kumar, N., Stoica, A.: Characterization and Synthesis of Circuits at Extreme Low Temperatures, Evolvable Hardware, Berlin, DE, Springer, 2006, pp. 161-172, ISBN 0-387-24386-0

Seminars

6.1.2006	Evolutionary design of digital circuits by means of cellular automata and York in words and pictures, Michal Bidlo
20.1.2006	Modelling of polymorphic gates, Lukáš Stareček. FITKit Presentation, Otto Fučík
27.1.2006	FSM-based IP Core Analysis, Ján Kubek. Testability Analysis Based on Formal Model, Tomáš Herrman
3.2.2006	Test Scheduling for SOC under Power Constraints, Jaroslav Škarvada
3.3.2006	Evolutionary Design of Polymorphic Digital Circuits, Zbyšek Gajda
10.3.2006	Evolutionary digital circuit design: Current limits, Lukáš Sekanina

17.3.2006	Schedulling of group communications in crossbar networks with SF and WH switching, Miloš Ohlídal and Jiří Jaroš
31.3.2006	FITTest_BENCH06, Tomáš Pečenka
7.4.2006	Evolutionary Design of OAB and AAB Communication Schedules for Interconnection Networks, Miloš Ohlídal. Test Scheduling for SOC under Power Constraints, Jaroslav Škarvada. A Core Generator for Multi-ALU Processors Utilized in Genetic Parallel Programming, Zbyšek Gajda
17.5.2006	Novel and efficient evaluation of sequence and structure similarity in bioinformatics using programmable hardware, Tomáš Martínek. Fast regular expression matching using FPGA, Jan Kořenek. Tools and methods for automatic benchmark circuit generation, Tomáš Pečenka
23.5.2006	Evolutionary design using development, Michal Bidlo. Modelling of polymorphic gates and circuits, Lukáš Stareček. Polymorphic circuit design, Zbyšek Gajda. Optimization of group communications on wormhole networks, Jiří Jaroš. Group communication scheduling based on conflict prediction, Miloš Ohlídal
30.5.2006	Test Scheduling Optimization for Digital Systems, Jaroslav Škarvada. Test Application Methods Based on Testable Blocks, Tomáš Herrman. Large Digital Circuits test Methodology, Ján Kubek. Bayesian optimization algorithms for dynamic problems, Miloš Kobliha
6.10.2006	Compression algorithms for reconfigurable platforms, Václav Šimek. Design methodology for highly reliable FPGA-based systems, Martin Straka
13.10.2006	The Usage of Evolution in the Construction of Predictors, Karel Slaný. Hardware implementation of evolvable systems and evolutionary filter design, Zdeněk Vašíček
26.10.2006	Evolution in materio: On the evolution of computation in materials, Julian Miller, University of York
3.11.2006	PhD study in words and pictures: How it works at foreign conferences, Michal Bidlo, Jiří Jaroš, Miloš Ohlídal, Václav Šimek
10.11.2006	Robust Evolutionary Algorithms, Jiří Kubalík, FEL ČVUT, Praha.
24.11.2006	Development of digital systems testing, Zdeněk Kotásek
1.12.2006	Probabilistic models – modelling of non-stationary functions and dynamic systems, Miloš Kobliha
8.12.2006	Polymorphic gates and their electric characteristics, Lukáš Stareček. A Conventional Method for Design of Multifunctional Polymorphic Circuits and Design of Unifunctional Polymorphic Circuits, Zbyšek Gajda
15.12.2006	Power Consumption and Testable Blocks, Jaroslav Škarvada and Tomáš Herrman

Other activities

- Sekanina, Lukáš:
  Member of the editorial board of International Journal of Innovative Computing and Applications (Inderscience Publishers)
  Member of programme committee in:

NASA/ESA Conference on Adaptive Hardware and Systems - AHS 2006 (Istanbul)
Complexity through Development and Self-Organizing Representations - GECCO
Workshop CODESOAR 2006 (Seattle, USA)
ACM International Conference on Computing Frontiers - Special session on
Dependability Issues in Emerging Technologies 2006 (Ischia, Italy)
European Modelling and Simulation Conference 2006 (Toulouse, France)
IEEE Congress on Evolutionary Computation 2006 (Vancouver, CA)
European Conference on Genetic Programming 2006 (Budapest, Hungary)
European Workshop on Hardware Optimisation EvoHOT 2006 (Budapest, Hungary)
IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop DDECS 2006
(Praha)
ECSIS Symposium on Intelligent Systems for Defense and Security ISDS (Iasi, 2006)
A programme of the Czech TV on artificial intelligence and psyche of machines. Good
Morning with Czech Television Ostrava (24.11.2006).,
Evolvable Computational Machines, a tutorial, Parallel Problem Solving from Nature, an
international conference, and Evolvable hardware in the view of theoretical computer
science, a tutorial, 1st International NASA/ESA Conference on Adaptive Hardware and
Systems

- Kotásek Zdeněk:
  Deputy chairman of the programme committee of IEEE Design and Diagnostics of
  Electronic Circuits and Systems Workshop DDECS 2006
  Member of the programme committee of the MEMICS 2006 seminar, Mikulov
  Chairman of the organizing committee of the MEMICS 2006 seminar, Mikulov
  Member of Expert Sub-Committee No 102: "Electrical Engineering and Cybernetics"
  (podoborová komise 102 „Elektrotechnika a kybernetika"), Grant Agency, CR
  Member of Expert Committee Section A, Higher Education Development Fund
  Co-editor of the Proceedings of IEEE DDECS 2006
  Co-editor of the Proceedings of MEMICS 2006
  Member of the programme committee of PAD 2006 seminar
- Drábek Vladimír: member of the programme committee of PAD 2006 seminar
- Růžička Richard: member of the organizing committee of the MEMICS 2006 seminar,
- Ohlídal Miloš: Prof. Hlavička Prize for an excellent paper given at PAD 2006 seminar on
  the dissertation topic of Scheduling of collective communication All-to-All Broadcast
  based on prediction of conflicts in interconnection networks,
- Bidlo Michal: Prof. Hlavička Prize for an excellent paper given at PAD 2006 seminar on
  the dissertation topic of Evolutionary design using development ,
- Bidlo Michal, Bidlo Radek, Sekanina Lukáš: Achievement Award Certificate,
- Stareček Lukáš: Prof. Hlavička Prize for an excellent paper given at PAD 2006 seminar,
- Vašíček Zdeněk: Josef Hlávka Prize 2006 for achievements in his research work,
- Schwarz, Josef:
  o member of programme committee of the international GECCO 2006 Conference,
    Washington, USA,
  o member of programme committee of the international CEC 2006 Conference, UK,
  o member of programme committee of the international MENDEL 2006 Conference,
    Brno,
  o Member of Expert Committee Section F1, Higher Education Development Fund
- preparatory work related to new forms of teaching: creation of study materials for Bc.,
  MSc. and a new combined study programme in Czech and English,
- expert opinion on grant projects, conference papers, journal articles and students work.

III.5. Computer Centre

The Computer Centre is an integral part of the Faculty of Information Technology. The centre guarantees the operation of computer laboratories, local and faculty computer network, servers and information systems. The computer laboratories in the Centre are utilised both for the scheduled teaching hours and working on projects, diploma projects and research projects. Apart from the scheduled teaching hours the laboratories are open to all students of the FIT.

Staff
Head of the Centre
> Lampa Petr, Ing.

Deputy Head
> Čejka Rudolf, Ing.

Computer Centre Operation
> Dupalová Helena

System Integrator
> Gaďorek Petr, Ing.

Information System Administrator
> Michal Bohumil, Ing.

Computer Network Administrator
> Lampa Petr, Ing.

OS Administrators
> Čejka Rudolf, Ing.
> Kašpárek Tomáš, Ing.

Technical Staff
> Kappler Karel
> Kreslík František, Ing.

Programmer
> Skokanová Jana, Mgr.

Computer Centre Service
> Cvrčková Pavla
> Habrdová Stella
> Nečasová Milena
> Pagová Ywetta
> Samsonová Radomíra

Audio/Video Devices Maintenance
> Juříček Zdeněk

Equipment

As for the operation of servers and computer network, 2006 was a milestone. Due to the establishment of the faculty in 2002 and its fast development, the number of servers in operation went up and the room of computer node in section D of Božetěchova 2 premises became insufficient as far as power demand and cooling were concerned. Provisional measures such as closing down the A015 computer laboratory and converting it into a computing node room was a makeshift solution of the situation. In 2006, a radical change occurred: the whole network and computing node was transferred into the new L building in

Božetěchova 1 area. The new node has been designed and built in view of further development and future increase in computing capacity. The room is cooled from a central redundant source, it is backed up from a 60kVA central back-up source, and it has its own supply generator in case of a long power failure. The servers are placed in nine open 19´´ cabinet. Each cabinet contains a distributed KVM switch, patch panel of structured cabling and three independently fused 230V sockets. All servers are linked through a gigabit Ethernet technology directly to the active backbone element.

Teaching and Research Laboratories

- Laboratories with PCs and Windows XP/Linux systems (120 workstations)
- Six unscheduled computer laboratories open to all students of the faculty (120 workstations)

Special Instrumentation and Computers

- IBM BladeCenter server with 12 modules each with two Intel Xeon 2,8 GHz processors, 1 GB RAM and 40 GB system disk. The modules are linked to an internal gigabit switch and each of them has a capacity of a server.
- IBM BladeCenter server with 14 modules each with two Intel Xeon 3,2 GHz processors, 2 GB RAM and 36 GB disk.
- A HP DL385G1 computing server, 2 AMD Opteron 2,8 GHz processors, 8 GB RAM, 280 GB HDD.
- A Supermicro 7043P research server, 2 Intel Xeon processors, 3,06 GHz, 2 GB oper. memory.
- Three SuperMicro SC933 file servers with RAID-5 disk arrays with a total capacity of 6,4 TB for speech signal storing and processing
- Four SuperMicro SC933 video servers , 2 Intel Xeon processors, 3,6 GHz, 2 GB RAM, each with a RAID-5 disk array with a 3,6 TB capacity´
- A students´ server (Web, e-mail, file server), 2 two-core Intel Xeon/Core2 processors, 4 GB RAM, RAID-5 dick array with a capacity of 700 GB.
- Novell NetWare students and staff server with 2 Intel Xeon processors, 2 GB RAM and RAID-5 disk arrays of 1,6 TB and 700 GB capacity.
- FTP archive with a RAID-5 disk array, 1,2 TB capacity.
- Data distributive server with an Intel Xeon processor, 2 GB RAM and a RAID-5 disk array, 600 GB capacity.
- A SuperMicro 6023P server of the faculty information system, 2 Intel Xeon processors, 3 GB RAM, a RAID-1 disk array, 280 GB.
- A SuperMicro 6024H faculty web server, 2 Intel Xeon processors, 2 GB RAM, a RAID-5 disk array, 300 GB.
- A Overland Neo 4200 back-up library with two LTO3 drives and a total back-up capacity of 48 TB (96 TB with compression).
- A3 HP LaserJet 8150 and A4 HP LaserJet 4300 high performance network printers, and a Xerox Phaser 6300 colour printer.

Software

- systems and Microsoft application software in Campus 3 licence.
- Sun Grid Engine for computations in clusters.
- A database server and Oracle 9i/10i development tools (within the academic programme of Oracle).
- Microsoft Operating Visual Studio and Microsoft Project development environments within the licence of MSDN Academic Alliance.
- Caché post-relational database system (a gift from InterSystems Corporation within the 'Caché Campus Program').
- Object-oriented CASE system Paradigm Plus by Computer Associates.
- OrCAD Caddence design system.
- FPGA and ASIC MentorGraphics ModlSim design system.
- Adobe Photoshop, Acrobat Distiller and Premiere, Autodesk 3D studio, Caligari TrueSpace.
- GNU Open Software, Mozilla, Tex, Linux, FreeBSD, MySQL, Apache, PHP5,etc.

Tuition

Zkr.	Název	Sem	Kr.	Rozsah	Garant
POS	Advanced Operating Systems	S	5	39-0-0-0-13	Lampa Petr, Ing.
OS2	Operating Systems 2	S	6	39-0-0-8-18	Lampa Petr, Ing.
GUX	X Window Graphical User Interfaces	W	5	26-0-0-8-18	Lampa Petr, Ing.

Research Projects

Advancing the Automatic Language Recognition Using Streamed Audio Media,
CESNET, 162/2005, 2006-2007, running
Research leader: Černocký Jan
Team leaders: Kašpárek Tomáš, Matějka Pavel, Schwarz Petr

Faculty Open Computer Laboratories, FRVŠ MSMT, FR2031/2006/Ac, 2006, completed
Research leader: Lampa Petr
Team leaders: Kašpárek Tomáš, Michal Bohumil

Toward International Learning Environment for Real-Time Safety-Critical Control Systems, EC EU, ATLANTIS-ILERT, 2006-2008, running
Research leader: Švéda Miroslav
Team leader: Ryšavý Ondřej

Virtual Medical -Technological Laboratory for 3D Human Tissue Modelling, CESNET, 161/2005, 2006, running
Research leader: Kršek Přemysl
Team leaders: Černochová Pavlína, Kašpárek Tomáš, Krupa Petr, Pečiva Jan, Stoklas Jiří, Španěl Michal

Increasing of Qualification in the Area of Network Security and Wireless Technologies,
CESNET, CESNET 2006, 2006-2007, running
Research leader: Matoušek Petr
Team leaders: Čejka Rudolf, Ščuglík František

Optical Network in National Research and its New Applications, CESNET,
MSM6383917201, 2004-2010, running
Research leader: Novotný Jiří
Team leaders: Čejka Rudolf, Fučík Otto, Kořenek Jan, Kršek Přemysl, Martínek Tomáš,
Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Smrž Pavel, Vojnar Tomáš, Zemčík Pavel

Recognition of Keywords and Actions in Audio Visual Data, CESNET, 119/2004, 2004-
2006, running
Research leader: Motlíček Petr
Team leaders: Karafiát Martin, Kašpárek Tomáš, Sumec Stanislav

Co-operation

Co-operation the Czech Republic

Common operation of a mirror server for FreeBSD operating system (www.FreeBSD.cz,
www.cz.FreeBSD.org), located at MFF U K in Prague.

International Co-operation

Operation of a non-public European data distribution server for FreeBSD operating system
(ftp-master.eu.FreeBSD.org), serving as primary data source for national mirror servers

Membership in International Organizations and Societies

- Čejka Rudolf, Ing.,
  - Czech and Slovak Simulation Society
- Lampa Petr, Ing.,
  - ,
  - ,

Publications

Conference Papers:

Skokanová, J.: On-line streaming and lecture recording at the FIT BUT, In: Pedagogický
software 2006, České Budějovice, CZ, spp, 2006, s. 431-433, ISBN 80-8545-56-4

Other Activities

Čejka Rudolf, Ing., Cisco Networking Academy CCNA 1-4, instructor