BRNO
UNIVERSITY
OF TECHNOLOGY

FIT

FACULTY
OF INFORMATION
TECHNOLOGY

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ANNUAL REPORT 2005

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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 third year of the second three-year office, BUT was directed by p**rof. Ing. RNDr. Jan Vrbka, DrSc.**, **Dr.h.c**.. **Doc. Ing. František Zbořil, CSc.,** a member 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), **doc. Dr.Ing. Petr Hanáček,** Head of the Department of Intelligent Systems, worked as a member of the Economic Committee of the AS BUT and since 25th October 2005 as the Chairman of the Chamber of Academic Staff and Vice-Chairman of the AS BUT. **Ing. Jaroslav Švec,** a student of postgraduate doctoral study at the FIT, worked as a Vice-Chairman and the Chairman of the Students' Chamber of the Academic Senate of BUT up to 25th October 2005.

In 2005, p**rof. Ing. Tomáš Hruška, CSc.**, the Dean, directed the FIT together with five Vice-Deans. The Vice-Deans are 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 Scientific Board, the Pedagogical Council and the Disciplinary Board are the Dean's advisory bodies. The Faculty Secretary is responsible for faculty organization, development and economic issues, which are carried out by the relevant Dean's Office Departments. In 2005, there was a teaching staff of 48 members and 1916 students in all state-supported study programmes.

The faculty management in 2005:

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.

Zdeněk Letko, 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 fourth year, the faculty consisted of four departments and the Computer Centre:
- Department of Information Systems
- Department of Intelligent Systems
- Department of Computer Graphics and Multimedia
- Department of Computer Systems
- Computer Centre

In 2005, 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 2005, the FIT also provided tuition in the **Ph.D. study programme Information Technology** (DIT). 2005 was the fourth year of the existence of the three-year **Bachelor's study programme Information Technology,** which was introduced to the faculty in 2002/2003. In 2005/2006, a two-year follow-up **Master's study programme Information Technology (MIT)** was launched with 206 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 2005:

Bachelor's study programme Electrical Engineering and Computer Science, nominal length of study: 3,5 years, line of study:
- Computer Science and Engineering

Follow-up Master's study programme Electrical Engineering and Computer Science, nominal length of study: 3 years, line of study:
- Computer Science and Engineering

Master's study programme Electrical Engineering and Computer Science,   nominal length of study: 5 years, line of study:
- Computer Science and Engineering

Bachelor's study programme Information Technology, nominal length of study: 3 years, line of study:
- Information Technology (BIT)

A new follow-up Master's 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) or
7 years (combined form), *line of study:*
- Information Technology (DIT)

In 2005, 187 Bachelors, and 92 students of the five-year Master's study programme graduated at the FIT and 14 students completed the Ph.D. study programme. 601 new students entered the first year of the regular Bachelor's study programme, 206 students entered the follow-up Master's study programme, and 26 students entered the postgraduate doctoral study, 24 of them in the internal form, and 2 of them in the combined form of study.

Four foreign students were provided tuition in English.

In 2005, four habilitation proceedings for the title of "Docent" (Associate Professor) were initiated. prof.RNDr. Alexandr Meduna successfully completed the professorship procedure and doc.Dr.Ing.Dušan Kolář the habilitation proceedings for the title of "Docent" (Associate Professor).

The most significant events and activities that influenced the life at the faculty in 2005 were the following:
- Open Day at the FIT BUT, on 14th January, 2005,
- The traditional FIT/FEEC ball, a high-level and well-organized event which took place in Voroněž Hotel, on 28th January 2005,
- Work on the innovation of the "Long-Term Plan of Development of BUT",
- Open Day for those interested in the Doctoral study programme at the FIT BUT, on 27th April, 2005,
- The beginning of construction work related to the project of ''Reconstruction and building of Božetěchova 1 and Božetěchova 2 campuses'',
- Activities of the pedagogical staff of the FIT related to the new study programmes,
- 6 new GACR (Grant Agency of the Czech Republic) projects were accepted in 2005, the total number of GACR projects at the faculty being 14 (8 standard, 1 doctoral and 5 postdoctoral projects),
- 10 new FRVS (University Development Fund) projects were accepted,
- 5 MSMT (Ministry of Education) projects were worked on,
- Three EU projects were worked on - the first one – Augmented Multiparty Interaction (AMI) Project, (with prof.Ing. Hynek Heřmanský, doc. Dr. Ing. Jan Černocký, and doc. Dr. Ing. Pavel Zemčík as fellow-researchers and heads of the FIT teams), the second one – IST Multi Modal Meeting Manager, and the third one – Design and implementation of embedded formal verification assistants in the NET framework (Microsoft Grant,GB),
- Two CESNET projects were worked on ,
- Engineering products: Ing. Ondřej Ryšavý, Ph.D.: Vutbrmsr.NET class library. This software project implements the elements of open-ended infrastructure for the development and implementation of verification algorithms and data structures in ROTOR/.NET Microsoft environment, the method of generic programming has been used to achieve algorithm efficiency and maximum re-usability.
- prof. RNDr. Alexandr Meduna, CSc., Ing.Martin Švec, Ph.D.: Grammars with Context Conditions and Their Applications, published by Wiley, New York, US, May 2005,
- Participation of the Speech@FIT group (Ing. Pavel Matějka, Ing. Lukáš Burget, Ph.D., and Ing. Petr Schwarz) in NIST – evaluation of systems for automated language identification: won the first place in two categories, and one second place in another category, all in a strong competition of 13 academic and industrial laboratories from the whole world,

- Experts from the FIT participated in the evaluation of exhibits for the "Cristal Disc" award at INVEX trade fair,
- Co-organization of the NETSS 2005 international conference, Přerov, 22nd-23rd February 2005,
- Co-organization of the MOSIS 05´ conference (Modelling and Simulation of Systems), Brno, 19th to 21th April 2005,
- Organization of the ISIM´05 conference (Information Systems Implementation and Modelling), Hradec nad Moravicí , 19th to 21th April 2005,
- 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 2005 conference, the main organizer being the Faculty of Electrical Engineering and Communications, Brno University of Technology,
- Participation in the GAUDEAMUS 2005 trade fair and presentation of the FIT and its study programmes,
- Elections to the Academic Senate of BUT, on 11th October 2005,
- Computer Science Education Workshop (CSEW) of Czech and Slovak depatments and faculties concerned with computer science, Býkov Hotel, Plzeň, 20th to 21st October 2005,
- Activities of the AS FIT BUT members, namely doc. Ing. Jaroslav Zendulka, CSc., Ing. Petr Lampa, Ing. Bohuslav Křena, Ph.D., and Zdeněk Letko, focused on faculty interests in the areas of organization, development and economy,
- Opening ceremony of the Cisco Academy at the FIT, on 11th November 2005,
- Lectures and discussions with IBM researchers, organized by the FIT BUT within the IBM Innovator´s Tour, on 1st December 2005,
- Activities of prof.Ing. Jan M. Honzík, CSc., Vice-Dean for Public Relations, in Socrates/Erasmus, and other European programmes,
- Activities of prof. Ing. Jan M. Honzík, CSc., concerned with preparing the Bachelor's "Information Technology" programme and its distance form for accreditation, with relation to the development programmes of the Ministry of Education,
- Improvements in the student section of the FIT information system.

Significant Awards in 2005

The **Rector's Award** was conferred to **Ing. Lukáš Sekanina, Ph.D.** for his outstanding results in teaching and science.

Ing. Lukáš Sekanina, Ph.D. and Ing. Michal Bidlo were awarded the **Certificate of Merit** for their evolutionary design of arbitrarily large sorting networks in the Human-Competitive Awards in Genetic and Evolutionary Computation held within the framework of 2005 Genetic and Evolutionary Computation Conference (GECCO-2005) in Washington DC,USA.

Ing. Lukáš Sekanina, Ph.D. was awarded **EvoHOT – Prize for the best article -** for the research results published in his article called Evolutionary Design of Gate-Level

Polymorphic Digital Circuits and presented at the 2nd European Workshop on Evolutionary Computation in Hardware Optimisation, Lausanne, Switzerland 2005.

Ing. Lukáš Sekanina, Ph.D. received the **Siemens Award** for his prestige scientific publication.

Ing. Martin Drahanský received the **Siemens Award** for Ph.D. students for his excellent doctoral dissertation awarded by the Industry and Higher Education Forum.

Ing. Martin Švec was awarded **Josef Hlávka Prize** for his excellent dissertation called Grammars with Context Conditions and Their Applications.

Three 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 21st – 23rd September 2005 in Sedmihorky: **Ing.Michal Bidlo** in the category of the first year, and **Ing. Jiří Jaroš** in the category of the second year. Ing. Tomáš Pečenka was placed second in the category of the 2nd year.

Ing. Pavel Matějka won the 2nd place in a competition for the best poster within the 6th European Masters in Language and Speech summer school, 11th-15th July 2005, Edinburgh.

Placement in the finals of **ACM Student Research Competition 2006** in the field of information and communication technologies, namely the award-winning work done by **Petr Boháček, Bc., Ivo Řezníček, Bc.,** and **Jan Pazdera, Bc.** from the FIT BUT.

Excellent results in the 8th International Student Competition and Conference **Honeywell EMI 2005,** section of Electronic and Information Technologies:

BSc.
1st place:, **Martin Žádník, Bc**.
2nd place: **Jan Pazdera, Bc.**
3rd place: **Petr Boháček, Bc.**

MSc.
3rd place: **Stanislav Kontár**

Ph.D.
1st place: **Ing. Pavel Matějka**

General Electric Award in the form of 15 grants was awarded at the US Embassy to Czech students, among others to the following students of the FIT: **Jiří Tobola, Bc., Marek Žídek, Bc., and Ladislav Ruttkay, Bc.**

In 2005, FIT BUT continued co-operating with the following significant partners:
- ANF Siemens Austria
- ApS Brno
- AutoCont CZ
- CAMEA
- CESNET

- Cisco Systems
- GRISOFT
- Honeywell
- IBM Czech Republic
- MEDITRONIC
- Microsoft
- MP-Soft Brno
- VEMA

2005 was the fourth year of the existence of the FIT. The main goal was the introduction of the 1st year of a completely new follow-up Master´s study programme with 206 students admitted. The completion of restructuring the management personnel at the Dean's office and gaining and training new high-quality staff were also highly significant.

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 fourth 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

The rising number of applicants for the study programme „Information Technology" can be seen in the last four lines of the following table in connection with the numbers of applicants for CSE – Computer Science and Engineering in the previous years. As the new Bachelor´s study programme (Information Technology) is linking up well to the tradition of the running out study programme Electrical Engineering and Computer Science with the specialization Computer Science and Engineering (CSE), we can compare the numbers of students interested in the specialization in the following table:

Academic year	Applicants	Admitted
1996/97	229	120
1997/98	251	130
1998/99	245	140
1999/00	212	120
2000/01	200	129
2001/02	468	280
2002/03	2145[*)]	340
2003/04	1718[*)]	463
2004/05	1870[*)]	651
2005/06	2135[*)]	835

Numbers with [*)] show the number of applications. Until the academic year 2001/2002 the students had not been specialized before the end of the first semester, in fact, only students who had already been admitted to the faculty were specialized.

2135 applications for admission to the Information Technology study programme for Bachelors were sent to the FIT BUT by the 31st March 2005. The entrance examinations took place on 9th and 10th June 2005 (with a back-up term on 4th July 2005). **1518** applicants turned up to sit for the entrance examinations, which makes 71.1% of the total number. **95** applicants were exempted from the examination (i.e. admitted without the entrance examination).There was a total of **835** positive acceptance decisions in the Bachelor´s study programme, and **600** students commenced the study. There are **200** students in the follow-up Master´s study programme.

The main written exam took place in 7 turns, each of them consisted of 9 groups with the same set of tasks, and there was only one group on the back-up date.

There was only one written examination in mathematics (60 minutes, 20 tasks, 1000 points max.).
The number of points necessary for admission was 508 out of 1000.
The limit for "pass" was the total of 250 points minimum.

The Answer Sheets were scanned and processed by computer to avoid errors in point counting. The scanning of one turn took 30 to 40 minutes and the results of the entrance examination were published on the official notice board and on the FIT BUT Web page about one hour later. The applicants received a notice about whether they had been admitted or not by a post-office special delivery.

Admitted: 835
Refused (due to lack of capacity): 548
Admission conditions satisfied by: 1278
Failed: 240
Absent: 523
Admitted without the entrance examination: 95
Matriculation: 23th and 24th June, 2005
601 students enrolled in the 1st year of Bachelors´ study programme IT by 31st October 2005.

Applicants for admission to the FIT were successful by 39.1 % (34.2%, 37.3%, and 21% in the previous years).

Graduates
The structure of the oral part of the Masters´ **Final State Examination** was based on the relevant obligatory study subjects. Besides the defence of the thesis each student had to answer two questions from selected topics.

First students of the three-year Bachelor's study programme graduated in 2005. The topics for the Bachelor's Final State Examination were created on basis of all obligatory subjects of the Bachelor's study programme.

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

Specialization	1999	2000	2001	2002	2003	2004	2005
CSE	77	96	107	99	87	91	90
CSEB				5	6	5	23
IT-BC-3							164

doc. Ing. Vladimír Drábek, CSc.
Vice-Dean, Education

II.2 Creative Activities, Science, Research and 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 2005 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

In addition to the events mentioned in the introduction, let us mention some important events here which could give evidence of the faculty activities and which are likely to influence its development in the years to come:

- Activities of the co-ordination group that helps to increase the number of grants and projects the faculty will be involved in, including the EU ones.
- Acquisition of MSMT Fund resources for young researchers
- Participation in two new significant research intentions at BUT (New trends in microelectronic systems and nanotechnologies MICROSYN and Environment friendly and energy controlled system of waste and biomass recycling).
- Preparation of three projects of the Centre of Basic Research (Centre of Diagnostics and Reliability, Centre of Computer Modelling and Simulations, and Centre of Computer Graphics) and one project of the Research Centre (Czech Centre for Multimodal Data Processing)
- Preparation of the design of a new research intention of the faculty
- Publication activities of the faculty (2 monographs, 26 articles in journals and 168 contributions in conference proceedings).
- Work of the faculty members in international scientific and research organizations, editing boards of journals and programme committees of conferences (see paragraphs "Membership in Organizations and Societies" in chapters of this Annual Report which deal with the individual departments).
- 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 2005

Agency	Theme	Project Code	Name of the Project	Total in thous. CZK
EU	AMI	506811	Augmented Multi-party Interaction	1502
EU-HLT	IST	2001-34485	Multi Modal Meeting Manager	1040
		MS1412001	Grant Microsoft, GB-Design and implementation of embedded formal verification assistants in the NET framework	118
Total				**2660**

Grant Agency of Czech Republic (GACR) Projects at the FIT in 2005

GACR	Name of the Project	Total thous. CZK
102/05/P193	Optimization in diagnostics of digital systems	138
102/05/0278	New trends in research and application of voice technology	220
102/05/HO50	Integrated approach to education of PhD students in the area of parallel and distributed systems	1084
102/05/0467	Architectures for embedded systems networks	342
102/05/0723	Framework for formal specifications and prototyping of network applications of information systems	580
102/02/D108	Data-driven and anthropic coding and recognition of speech	132
102/03/P176	Formal approach to planning tests of digital circuits	185
102/03/P004	Evolvable hardware based applications design methods	181
102/03/D211	Advanced methods of automatic verification of parametric and infinite-state systems	193
102/04/0737	Modern methods of digital system synthesis	944
102/04/0780	Automated methods and tools for the development of reliable parallel and distributed systems	707
102/04/0871	Information system security – research on attacks against tamper-resistant cryptographic hardware	828
408/04/1370	Research on interactive media – a project	27
201/04/0441	Optimally integrated models of modern information technologies	331
Total		**5892**

Higher Education Development Fund (FRVS) Projects at the FIT in 2005

FRVS MSMT	Theme	Name of the Project	Total Thous. CZK
59	G1	Application of image segmentation technologies for reconstruction of 3D models of objects from image	144
200	G1	User interface of hierarchic structures	109
1246	F1a	Innovation of the subjects – Functional and logic programming and Postrelational databases	46
1567	Aa	A specialized laboratory for teaching computer networks and distributed systems	1112
2192	G1	Recognition and tracking of human body parts	90
2987	G1	Utilization of evolutionary algorithms for implementation of adaptive image filters in FPGA	77
3041	G1	Evolutionary design of benchmark circuits	83
3042	G1	Evolutionary design of sorting and median networks using FPGA	78
3449	G1	Analysis and recognition of multi-modal meeting data	84
3521	Ab	Laboratory for image and sound	1014
Total			**2837**

Survey of Other Research Projects at the FIT in 2005

Agency	Project Code	Name of the project	Total
MSMT	MSM 21630505 Fond M	Modelling and optimization of application specific computer based systems	4890
MSMT	MSM 21630503	New trends in microelectronic systems and nanotechnologies (MICROSYN)	505
MSMT	MSMT 613	Support of new structure and modularity of study programmes at BUT	1312
MSMT	MSMT 614	Integration project of development of tuition in English, improving the language competence including the internationalization of study programmes	500
MSMT	MSMT 615	Integration project of development of distant and combined forms of education at Brno University of Technology	1977
MSMT	MSMT 618	Pilot joint international education programme	299
MSMT	1K04106	Reputation-based security in information systems	454
AVCR	1ET400750408	Rapid prototyping tools for development of HW-accelerated embedded image- and video-processing applications	495
Total			**10432**

Survey of external sources in funding creative activities at the FIT in 2005

Source	Project	Number of Projects	Total Thous. CZK
MSMT	Research projects	2	5395
MSMT	Higher education developmet fund (FRVS) projects	10	2837
MSMT	Other MSMT projects	5	4542
GACR	Grant agency of CR projects	14	5892
AVCR	Academy of Science of CR project	1	495
EU	Projects of the 5th and 6th framework programme of the EU	3	2660
Total			**21821**

Funding creative activities at the FIT BUT from external sources in 2005
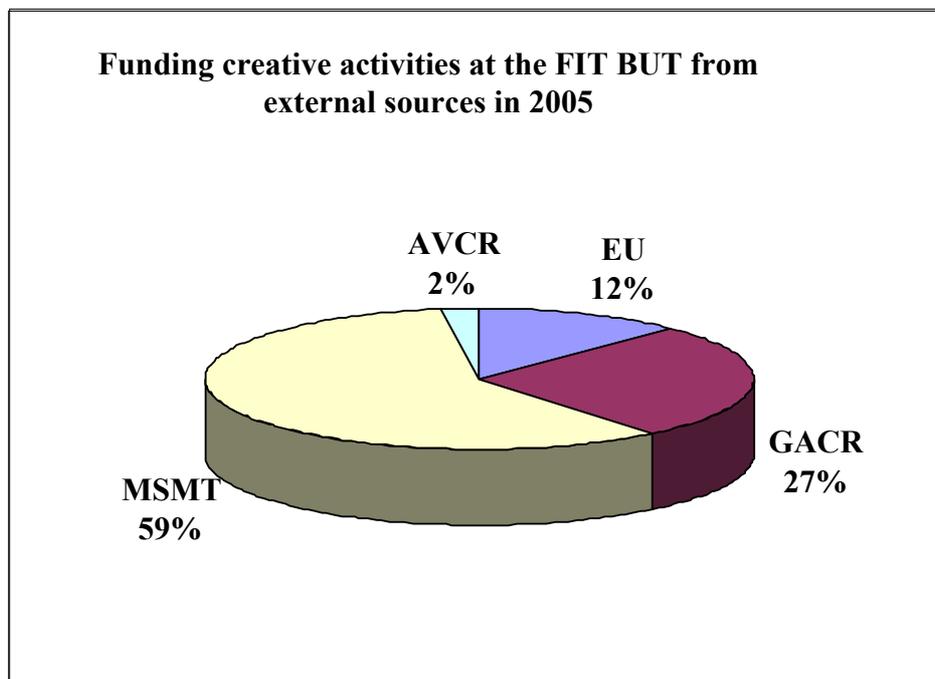
II.2.2 Doctoral Study Programme

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 2005 were the following:

- Offer of a wide choice of courses at a high professional level, a well-balanced combination of theory and applications of IT, and availability of detailed descriptions of the individual courses (in Czech and English) on the Internet for both present and future students.
- Co-operation with the Faculty of Electrical Engineering and Communications, BUT, Faculty of Business and Management, 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.
- 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science – MEMICS 2005 - in co-operation with the Faculty of Informatics, Masaryk University in Brno
- Consistent checking of the individual study plans of Ph.D. students followed by differentiated payment of extra scholarship money.
- Introduction of a system encouraging students to complete their dissertations during the 3rd and 4th years of study with the use of scholarship money "stimulus".
- Creation of a new concept of organization and content of doctoral examinations to achieve a more efficient closing of this important phase of the doctoral study.
- Record of dissertation theses and offer of new themes through the Faculty Information System.
- Participation of Ph.D. students in regular professional seminars held at the departments and at the faculty.

PhD. study statistics

Year	Type of study	Number of students
1.	internal	24
	combined	2
2.	internal	17
	combined	2
3.	internal	25
	combined	3
4.	prolonged internal	4
	combined	7
5.	combined	13
6.	combined	3
7.	combined	9
Total		**109**

Ph.D. theses defended in 2005

Ph.D. student:	Martin Švec
Study area:	Information technology
Thesis:	Grammars with Context Conditions and Their Applications
Supervisor:	doc. RNDr. Alexandr Meduna, CSc.
Defended on:	25th March 2005

Ph.D. student:	Martin Drahanský
Study area:	Information technology
Thesis:	Biometric Security Systems – Fingerprint Recognition Technology
Supervisor:	doc. Ing. František Zbořil, CSc.
Defended on:	3rd June 2005

Ph.D. student:	Vladimír Bartík
Study area:	Information technology
Thesis:	Association rule discovery in databases
Supervisor:	doc. Ing. Jaroslav Zendulka, CSc.
Defended on:	16th June 2005

Ph.D. student:	Vladimír Kutálek
Study area:	Information technology
Thesis:	Modelling and performance prediction of application-specific multiprocessor systems
Supervisor:	prof. Ing. Václav Dvořák ,DrSc.
Defended on:	13th September 2005

Ph.D. student:	Daniel Mika
Study area:	Information technology
Thesis:	Application of formal approaches for the design of digital circuit test controller
Supervisor:	doc. Ing. Zdeněk Kotásek, CSc.
Defended on:	20th September 2005

Ph.D. student:	Martin Heckel
Study area:	Information technology
Thesis:	Application of knowledge discovery methods in texture analysis
Supervisor:	doc. Ing. Jaroslav Zendulka, CSc.
Defended on:	13th October 2005

Ph.D. student:	Ondřej Ryšavý
Study area:	Information technology
Thesis:	Specifying and reasoning in the calculus of objects
Supervisor:	prof. Ing. Miroslav Švéda, CSc.
Defended on:	12th October 2005

Ph.D. student: Petr Matoušek
Study area: Information technology
Thesis: Symbolic data structures for parametric verification
Supervisor: doc. Ing. František Zbořil, CSc.
Defended on: 14th October 2005

Ph.D. student: Pavel Tišnovský
Study area: Information technology
Thesis: Hybrid particle systems
Supervisor: doc. Dr. Ing. Pavel Zemčík
Defended on: 11th November 2005

Ph.D. student: Stanislav Sumec
Study area: Information technology
Thesis: Automatic video editing
Supervisor: doc. Dr. Ing. Pavel Zemčík
Defended on: 11th November 2005

Ph.D. student: Martin Dobšík
Study area: Information technology
Thesis: Computer animation of soft tissues
Supervisor: doc. Dr. Ing. Pavel Zemčík
Defended on: 11th November 2005

Ph.D. student: Martin Fědor
Study area: Information technology
Thesis: Algorithms for interactive real-time character animation
Supervisor: doc. Dr. Ing. Pavel Zemčík
Defended on: 25th November 2005

Ph.D. student: Tomáš Ondráček
Study area: Information technology
Thesis: Adaptive multilayer neural networks
Supervisor: doc. Ing.František Zbořil,CSc.
Defended on: 16th December 2005

prof. RNDr. Milan Češka, CSc.
Vice-Dean, Science and Research

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.

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

In 2005, the student conference took place on 28nd April 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 academic approach, attractiveness for industry and students' viewpoint were incompassed. There were 20 competitors from the Bachelor's study programme, 36 students of the Master's study programme, and 31 doctoral students of the FIT present. All contributions were successfully reviewed and published in a shortened version in the Proceedings of the Conference. 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.

doc. Ing. Zdeňka Rábová, 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 reference service. In 2005, there were bilateral agreements between the faculty and **25** foreign universities in the framework of SOCRATES/ERASMUS Programme and **37** students spent some time at study stays abroad.

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
Denmark	Ingeniorhojskolen i Arhus – University College of Arhus www.iha.dk	DK ARHUS08
..	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 LAPPEEN 01
	University of Joensuu http://www.joensuu.fi/englishindex.html	SF JOENSUU 01
	Oulu Polytechnic Institute of Technology www.oamk.fi	SF OULU11
France	Ecole Superieure d`Ingenieurs en Electrotechnique http://www.esiee.fr	F NOISY 02
	Université de la Rochelle http://www.univ-lr.fr	F LA-ROCH08
	Université de Paris 7-Denis Diderot http://www.sigu7.jussieu.fr	F PARIS 007
	ESIEE Amiens http://www.esiee-amiens.fr	F AMIENS 18
The Netherlands	Utrecht University, Julius School of Physics and Astronomy http://www1.phys.uu.nl/home eng.htm	NLUTRECHT01
	Utrecht University, Faculty of Mathematics and Computer Science http://www.math.uu.nl	NLUTRECHT01

Germany	Universität Siegen, IMT http://www.uni-siegen.de	D SIEGEN 01
	Fachhochschule Wiesbaden http://fh-web1.informatik.fh-wiesbaden.de/go.cfm	D WIESBAD 01
Portugal	Universidade de Trás-os-Montes e Alto Douro http://www.utad.pt	P VILA-RE 01
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
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 Engng 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

Student mobilities at the FIT in 2005 - ERASMUS and others

Stays abroad:

Name	Stay	University
Jakub Bednář.	09/05 – 12/05	Greece,Krete, TEI Heraklion
Petr Blahak	09/05 – 12/05	Greece,Krete, TEI Heraklion
Michal Butek	09/05 – 12/05	France, ESIEE Amiens
Tomáš Cipr	08/05 – 12/05	Finland, Lappeenranta University of Technology
Adam Dostál	09/05 – 12/05	Spain, Universidad de Valladolid
Pavel Gunia	10/05 – 12/05	Portugal,UTAD
Radek Hlaváček	10/05 – 12/05	Germany, Universität Siegen
Adam Husár	09/05 – 12/05	France, ESIEE Amiens
Matej Konečný	09/05 – 12/05	Finland, Helsinki University of Technology
Miroslav Koval	09/05 – 12/05	Austria, Graz University of Technology
Aleš Kovářík	09/05 – 12/05	Finland, Helsinki University of Technology
Jan Kryštof	09/05 – 12/05	Finland, Oulu Polytechnic Institute of Technology
Richard Latislav	09/05 – 12/05	Greece, Crete, TEI Heraklion
Zdeněk Letko	08/05 – 12/05	Finland, Lappeenranta University of Technology
Lukáš Obrdlík	09/05 – 12/05	Finland, University of Joensuu
Ondřej Peterka	09/05 – 12/05	Finland, Oulu Polytechnic Institute of Technology
Petr Pokorný	10/05 – 12/05	Belgium, Katholieke Hogeschool Brugge Oostende
Ladislav Ruttkay	10/05 – 12/05	UK, University of Bristol
Peter Trebula	08/05 – 12/05	Denmark, Odense University College of Engineering
Michal Vrána	09/05 – 12/05	Spain, Universidad de Valladolid
Marek Winkler	09/05 – 12/05	Finland, University of Joensuu
Jan Bartůšek	01/05 – 05/05	Finland, University of Joensuu
Stanislav Holenda	01/05 – 03/05	Germany, Universität Siegen
Jan Hrouza	01/05 – 01/05	Spain, Universidad de Valladolid
Petr Hýl	01/05 – 08/05	Sweden, Uppsala University School of Engineering
Janusz Jezowicz	01/05 – 01/05	UK, University of Bristol
Aleš Macek	01/05 – 01/05	Spain, Universidad de Valladolid
Miroslav Pavelka	01/05 – 01/05	UK, University of Bristol
Adam Rogalewicz	01/05 – 02/05	France, ESIEE Paris
Jan Tichý	01/05 – 02/05	Austria, Graz University of Technology
Tomáš Walek	01/05 – 07/05	Germany, Universität Siegen
Jiří Janeček	02/05 – 07/05	Germany, Fachhochschule Wiesbaden
Leoš Jiřík	01/05 – 04/05	Spain, Universidad de Valladolid
Tomáš Král	02/05 – 06/05	Finland, Helsinki University of Technology
Jozerf Mlích	02/05 – 07/05	Germany, Fachhochschule Wiesbaden
Jiří Slavík	02/05 – 06/05	Portugal,UTAD
Petr Vlach	02/05 – 06/05	The Netherlands, Utrecht University
Leoš Jiřík	09/05 – 12/05	Spain, Universidad de Valladolid (apart from ERASMUS)
Václav Šimek	10/05 – 12/05	Belgium, KHBO, Oostende (apart from ERASMUS)
Martin Vítek	10/05 – 12/05	Island, University of Island (apart from ERASMUS)
Vítězslav Beran	10/05 – 12/05	Germany, TU München
Jan Pečiva	05/05 – 11/05	The Netherlands, Univ. Twente (apart from ERASMUS)
František Grézl	01/05 – 08/05	USA, IDIAP Research Institute (apart from ERASMUS)

Unlabelled stays: Finance SOCRATES/ERASMUS, MSMT CR and the BUT mobility fund

Visiting students:

Name	Stay	University
Olga Rola Monteiro	01/05 – 01/05	Portugal,UTAD
Efrain Pardo	01/05 – 06/05	México, graduated from TEC de Monterrey (apart from ERASMUS)
Asko Alhoniemi	02/05 – 06/05	Finland, LUT Lappeenranta
Carlos Fresno	02/05 – 07/05	Spain, Universidad de Valladolid
Carlos Toquero	02/05 – 07/05	Spain, Universidad de Valladolid
George Pavlidis	02/05 – 07/05	Greece, TEI Crete
Raphaël Escure	05/05 – 08/05	France, ESIEE Paris
Benjamin Sebbah	05/05 – 08/05	France, ESIEE Paris
Nikos Kontakis	01/05 – 05/05	Greece, TEI Crete (LEONARDO)
Manos Lidakis	01/05 – 05/05	Greece, TEI Crete (LEONARDO)
Andreas Hatzisimeon	01/05 – 05/05	Greece, TEI Crete (LEONARDO)
Gaurav Pandey	01/05 – 06/05	India, Indian Institute of Technology Allahabad (INTERNSHIP)
Arghya Dhali	05/05– 08/05	India, Indian Institute of Technology New Delhi (INTERNSHIP)
Ahmet Buyuran	09/05– 12/05	Turkey, Yildiz Technical University
Alper Taha Yuce	09/05– 12/05	Turkey, Yildiz Technical University
José Lorenzo Escudero	10/05– 12/05	Spain, Universidad Politécnica de Madrid
Joao Silva	09/05– 12/05	Portugal, UTAD
Joao Tavares Silva	09/05– 12/05	Portugal,UTAD
Paulo Machado	09/05– 12/05	Portugal,UTAD
Bruno Morais	09/05– 12/05	Portugal,UTAD
Samuel Freire Alves	10/05– 12/05	Portugal,UTAD
Joana Alexandra Oliveira	10/05– 12/05	Portugal,UTAD
Amaro Antunes	09/05– 12/05	Portugal,UTAD
Rui Miguel Lamas Alferes	09/05– 12/05	Portugal,UTAD

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.

A follow-up 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 technologies and can also be used for lifelong education in the future.

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, operation systems – fundamentals of Unix/Linux systems (basics of control, script programming), and work with the Internet, (information retrieval, fundamentals of HTML, and Java).

Within the Government Policy on IT in Education, the FIT organized several training courses in close co-operation with ApS Brno s.r.o. In 2005, the content of the courses was specialized in the area of P1 modules, a continuation of basic Z and P modules. A total of 46 teachers from four primary and secondary schools were trained in them.

In the academic year 2005/06, the capacity of optional courses oriented on Microsoft technologies, which occupy a considerable part of the market in the area of server and development tools, was raised. The courses are unique in the academic sphere. Each of them prepares students for an international exam and for achieving the MCP Certificate – Microsoft Certified Professional, an internationally recognized certificate. Last year more than 30 students of the FIT received the certificate. Though the demand still surpasses the offered capacity, the number of students was raised and further increase has been planned due to incorporation of e-learningg into the courses in the future.

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

II.5 Dislocation, Modernization, and Development in 2005

In 2005, the managements of BUT and FIT concentrated on the realization of the strategic investment intention of dislocation and stabilization of the FIT in Božetěchova 2 and Božetěchova 1 premises. A special attention was paid to the 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. Two extra control days at the MSMT level took place in 2005 dealing with the lack of financial resources for the completion of the whole work in the anticipated extent.

The investment intention 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. At present, the reconstruction of the former small castle in Božetěchova 1 premises, of the northern seclusion and of the indoor and outdoor sports fields have not been included due to lack of finance. Both premises were linked by a bridge and a bulding permit was applied for.

The operating documentation of the first stage of the construction was completed and a separate project on the mobile interior 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 2005, the library of the FIT aimed at providing high-quality library and information service and thus supporting the study and research activities at the faculty.

The acquisition activities were traditionally focused on supplementing the information documents through purchase and gifts. In 2005, 150 requirements for the purchase of professional literature or journals were met worth **1, 264, 213 CZK**. **1, 111** new library items were processed and the library stock of the faculty was enlarged up to **8, 300** library items and **55** journals.

The opening hours of the library, study room and computer study room were **43 hours a week. 8079 items were borrowed** from the FIT library and 88 items were provided to the FIT employees through inter-library lending or international loan service.

In 2005, several important events occurred. In January 2005, the library started a fully automated operation Aleph500 library system. All books were provided with bar codes. On-line prolongation of borrowings was introduced for Aleph500 users. The library was equipped with Gateway EM 700 plexi - electromagnetic security system for books and all books were also provided with security labels.

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.

In September 2005, new regulations of the FIT Library - the rules of the library and the list of prices for services - were agreed on, followed by collecting fines for late returns of books.

During the whole 2005, negotiations with arquitects took place concerning the reconstruction and enlargement of the library areas, which is planned for the period between June 2006 and October 2007.

Finance for purchase of books in 2005 (in CZK)

Czech books	130,837
Foreign books	628,083
Financed from grants	285, 614
Total	**1, 044, 534**

Finance for purchase of periodicals in 2005 (in CZK)

Czech periodicals	10,714
Foreign periodicals	208,962
Total	**219,679**

Loans in 2005

Number of registered loans	8,079
Number of inter-library and international inter-library loans	88

Mgr. Barbora Selingerová
Head of the Library

II.7 Annual Report - the Academic Senate of the FIT BUT in 2005

In 2005, the Academic Senate comprised:

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

Chamber of Academic Staff

Dr. Ing. Otto Fučík (ÚPSY)
Ing. Radek Kočí, Ph.D. (ÚITS)
Ing. Bohuslav Křena, Ph.D. (ÚITS)
doc. Ing. Jiří Kunovský, CSc. (ÚITS)
Ing. Petr Lampa (CVT)
prof. RNDr. Alexander Meduna, CSc. (ÚIFS)
Ing. Tomáš Vojnar, Ph.D. (ÚITS)
doc. Ing. Jaroslav Zendulka (ÚIFS)

Student Chamber

Ing. Vítězslav Beran (Ph.D.programme IT)
Michal Hejč (Bachelor's programme IT)
Jaroslav Kapoun (Master's programme EI, CSE specialization)
Zdeněk Letko (Bachelor's programme IT)
Jana Melicheríková (Master's programme EI, CSE specialization)

AS FIT Committees

Legislative Committee

Ing. Vítězslav Beran
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

Activities of the AS FIT

The Academic Senate gathered at one unscheduled and eight regular meetings in 2005 with an average attendance of 88%. All meetings had a quorum. The extra meeting was held to discuss and agree on some of the Dean's suggestions after his election for another term of office.

With regard to the election of the Dean which took place in December 2004 the AS of the FIT discussed the Dean's suggestions for nomination of Vice-Deans, Heads of Departments and CVT FIT, and agreed on the composition of the Scientific Board of the faculty.

As the accreditations of some of the study programmes ended in 2005, the Academic Senate of the FIT discussed the prolongation of their accreditations and a proposal of accreditation of a new follow-up Master's study programme *Information Technology*.

As far as the internal regulations are concerned, some amendments of the Dean's Regulations completing the Study and Examination Regulations of BUT were agreed on.

In the parts related to the Bachelor's and Master's study programmes some formal adjustments were made, some conditions for subject registration in the final stage of study were defined more precisely, as well as conditions for recognition of a part of the study. In the Ph.D. study programme, the Study Branch Board agreed on a shortening of compulsory teaching period by one semester for the new Ph.D. students and consequently on the number of subjects to be completed. As a result, the date of the State Ph.D. Examination was shifted by one semester. The 5-year validity limit of the State Ph.D. Examination was also cancelled.

The AS FIT also advanced a proposal to amend the Electoral Rules and Rules of Procedure of the FIT. It should enable the electronic form of elections to the AS FIT. At the end of the year, the AS FIT discussed and advanced for approval some amendments of the Scholarship Rules of BUT, especially these related to scholarships. Students should be motivated to achieve better study results by an increase of the maximum limit of scholarship and by the possibility of achieving it even in the first year of the follow-up MSc. study, or even BSc. study programme.

As for internal standards, a Dean's regulation concerning the Instructions for counting the pedagogical load for internal needs of the FIT BUT was discussed and approved. Some minor amendments were also made in the Internal Regulations for Admission and in the requirements for admission to the Bachelor's study programme called Information Technology at the FIT BUT.

In the economic field, the Academic Senate agreed on the annual report on financial management of the FIT in 2004 and approved the FIT budget for 2005. In its meetings in October and November, the senate discussed the drawing the funds and agreed on the division of the financial reserves.

The Academic Senate also discussed and approved the Annual Report on the Activities of the FIT in 2004 and the Annual Report on the Activities of the AS FIT in 2005.

An important event took place in 2005: the elections for the Academic Senate of BUT and a nomination of a candidate for the position of Rector. The AS FIT participated in both events according to the law and school regulations. The fact that the elections for the Academic Senate of BUT were successfully completed in the first round must be highly appreciated.

A total of 32 decisions, out of which 16 concerned internal regulations and 4 economic issues, were approved. The other decisions referred to the new faculty officers and members of the Scientific Board of the FIT after the election of the Dean, to the elections for the Academic Senate of BUT, and to the nomination of a candidate for the position of Rector.

The Legislative Committee met only once, on 31st May 2005 to discuss the changes in the Electoral Rules and Rules of Procedure of the AS FIT (the possibility of electronic elections) and the FIT Dean's Amendments to the Study and Examination Rules of Brno University of Technology (subjects recognition). The other proposals were dealt by the Legislative Committee through correspondence.
The Economic Committee of the AS FIT met twice to discuss the FIT budget for 2005 and to discuss the division of incurred financial reserves.

Doc. Ing. Zdeňka Rábová, CSc. worked as the FIT Deputy in the Czech Council of Higher Education (CHE). In 2005 she worked as the Chairperson of the Commission for Student Creativity and a member of the Commission for Information Technologies in higher education. For the new term of office, the AS FIT proposed and the AS BUT approved Ing. Bohuslav Křena, Ph.D. to be the faculty Deputy in the Czech Council of 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 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 co-operates closely with the Student Union of the FIT.

The Student Union of the FIT is an interest group of the FIT students. 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 of the FIT in 2005

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

Activities of the Student Union (SU) FIT in 2005

The members of the SU participated in the FIT Open Day 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 and lifelong 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: a meeting with representatives of IBM, a meeting of students with candidates for the Rector s position, EEICT International competition, etc. The Student Union distributed their own T-shirts promoting the study at the FIT among the students. The SU representatives worked in the committees of the Students´ Creativity Conference.   .

For the third time, the SU prepared a brochure containing useful information on the study start-up for the first-year students. For the first time, the SU organized an event called *A drop of FIT blood,* i.e. a blood donation event. The SU also contributed to the organization of Majáles and provided several lectures on the Linux OS to show the first-year students interesting tips how to install and use this alternative OS.

Jan Kubíček
Chairman SCAS FIT

III. DEPARTMENTS AT THE FIT BUT IN 2005

III.1 Department of Information Systems

The Department of Information Systems provides tuition in the Master's study programme with the specialization **Information Systems**, which covers programming, formal languages and translators, database and information systems, computer nets, formal specifications, and internet and distributed applications. The aim is to inform students about theory, technology and methods of information systems development and teach them to develop such systems based on modern tools, methods and technologies. Apart from that the Department also provides tuition in a large number of basics in the Bachelor's study programme **Information Technology** and offers subjects in the Ph.D. study programme **Information Technology**.

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

- Object-oriented modelling, object-oriented database systems, database design
- Knowledge discovery in databases
- Formal specifications of reactive systems and real-time systems
- Computer networks and communication protocols
- Information system implementation
- Software metrics and control of software projects
- Formal languages and
- Functional languages

The lectures in most courses are accompanied by projects or laboratory sessions, where students acquire necessary skills and useful experience with the latest SW packages, and with solving SW projects, and where they learn team work and project management.

Staff

Head of Department
Zendulka Jaroslav, doc. Ing., CSc.
Deputy Head of Department
Meduna Alexander, prof. RNDr., CSc.
Professors
Honzík Jan M., prof. Ing., CSc.
Hruška Tomáš, prof. Ing., CSc.
Meduna Alexander, prof. RNDr., CSc
Švéda Miroslav, prof. Ing., CSc.
Associate Professors
Kolář Dušan, doc. Dr. Ing.
Zendulka Jaroslav, doc. Ing., CSc.
Assistant Professors
Burget Radek, Ing., Ph.D.
Kreslíková Jitka, RNDr., CSc.

Matoušek Petr, Ing., Ph.D.

Ryšavý Ondřej, Ing., Ph.D.

Assisstant Lecturers

Bartík Vladimír, Ing., Ph.D.

Ráb Jaroslav, Ing.

Ščuglík František, Ing.

Expert Technician

Kurečka Radomír, Ing.

Postgraduate Students

Bidlo Radek, Ing.

Blatný Petr, Ing.

Čech Vladimír, Ing.

Holčapek Jan, Mgr.

Hrouzek Jan, Ing.

Chmelař Petr, Ing.

Kopeček Tomáš, Ing.

Křivka Zbyněk, Ing.

Kubát Lubomír, Ing.

Květoňová Šárka, Ing.

Lorenc Luboš, Ing.

Lukáš Roman, Ing.

Martínek Zdeněk, Mgr.

Masařík Karel, Ing.

Masopust Tomáš, Mgr.

Očenášek Pavel, Ing.

Petrucha Roman, Ing.

Rudolfová Ivana, Ing.

Rychlý Marek, Mgr.

Schönecker Rudolf, Ing.

Stryka Lukáš, Ing.

Techet Jiří, Ing.

Trchalík Roman, Mgr.

Vítek Martin, Ing.

Weiss Petr, Ing.

Zeman David, Ing.

Equipment

The Department uses the equipment of the Computer Centre. A new HW laboratory was built at the DIFS for practical teaching of computer nets and communication technologies within a FRVS (Higher Education Fund) project. Apart from the computer equipment the laboratory comprises active network elements (6 Cisco 2620 routers, 3 WS-29250-T switches, 2 Belkin Gigabit port switches, 2 HP Pro Curve switches, WiFi access points AP Belkin and Linksys), then net testers (5x Fluke Micromapper, 1x MicroScanner Pro, 1xCable IQ), high-performance HW analysers (2x NetTool Pro VoIP, 1x EtherScope, 1x OptiView WGA/GIG), and a WiFi analyser (Airmagnet Laptop Trio& Surveyor). Students of IPK and ISA courses had laboratory sessions to gain practice in cable connection, computer routing and local network forming, network service configuration (DHCP, DNS, a secure web, IPsec) and routing (static and dynamic – RIP).

The laboratory equipment will be used for tuition in further courses on networking in the MSc. study programme and courses of Cisco Network Academy.

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
IAL	Algorithms	Z	5	39-0-0-0-13	Honzík Jan M., prof. Ing., CSc.
AIS	Analysis and Design of Information Systems	L	7	39-0-0-12-14	Zendulka Jaroslav, doc. Ing., CSc.
IDS	Database Systems	L	5	39-0-0-0-13	Zendulka Jaroslav, doc. Ing., CSc.
DSK	Data Warehouses	Z	6	13-0-0-26-0	Bartík Vladimír, Ing., Ph.D.
MW1	Desktop MS Windows	Z	5	26-0-0-26-0	Kurečka Radomír, Ing.
IFJ	Formal Languages and Compilers	Z	5	39-0-0-0-13	Meduna Alexander, prof. RNDr., CSc.
IFJ	Formal Languages and Compilers	L	5	39-13-0-0-0	Meduna Alexander, prof. RNDr., CSc.
SSD	Formal Specifications of Computer-Based Systems	L	0	39-0-0-0-0	Švéda Miroslav, prof. Ing., CSc.
IIS	Information Systems	Z	4	26-0-0-0-13	Hruška Tomáš, prof. Ing., CSc.
INS	Information Systems	Z	6	39-0-12-0-14	Hruška Tomáš, prof. Ing., CSc.
KPA	Communications in Computer Applications	L	8	39-0-0-0-26	Švéda Miroslav, prof. Ing., CSc.
TID	Modern Theoretical Computer Science	Z	0	39-0-0-0-13	Meduna Alexander, prof. RNDr., CSc.
MW4	MS Windows ISA and SQL Server	L	5	0-0-0-52-0	Kurečka Radomír, Ing.
MW2	MS Windows 2003 Server	L	5	26-0-0-26-0	Kurečka Radomír, Ing.
IPK	Computer Communication and Networks	Z	5	39-0-6-0-7	Šféda Miroslav, prof. Ing., CSc.
IPK	Computer Communication and Networks	L	5	39-0-4-0-9	Šféda Miroslav, prof. Ing., CSc.
PSI	Computer Networks and Communication Protocols	Z	6	39-0-0-12-14	Šféda Miroslav, prof. Ing., CSc.
PSI	Computer Networks and Communication Protocols	L	8	39-0-0-26-0	Šféda Miroslav, prof. Ing., CSc.
PDB	Advanced Database Systems	Z	5	26-0-0-12-14	Kolář Dušan, doc. Dr. Ing.
PKS	Advanced Communication Systems	L	7	39-0-0-0-13	Šféda Miroslav, prof. Ing., CSc.
PRD	Post-Relational Databases	Z	5	26-0-0-12-14	Kolář Dušan, doc. Dr. Ing.
PRD	Post-Relational Databases	L	6	26-0-0-26-13	Kolář Dušan, doc. Dr. Ing.

IPP	Principles of Programming Languages and OOP	L	5	39-0-0-0-13	Kolář Dušan, doc. Dr. Ing.
PRJ	Programming Languages	L	6	39-12-0-0-14	Hruška Tomáš, prof. Ing., CSc.
MW5	Programming in .NET and C#	L	5	26-0-0-26-0	Kurečka Radomír, Ing.
PDT	Data Transmission and Computer Networks	L	6	39-8-0-10-8	Švéda Miroslav, prof. Ing., CSc.
CRJ	Quality Control	Z	3	26-13-0-0-0	Kubát Lubomír, Ing.
IRP	Project Management of Information Systems	L	4	26-4-0-0-9	Kreslíková Jitka, RNDr., CSc.
RPS	Project Management of Computer-Based Systems	L	6	39-6-0-0-20	Kreslíková Jitka, RNDr., CSc.
IPM	Pascal and Modula Languages	L	4	0-26-0-0-13	Honzík Jan M., prof. Ing., CSc.
ISA	Network Applications and Network Administration	Z	5	26-0-6-0-20	Švéda Miroslav, prof. Ing., CSc.
MW3	MS Windows Network Technologies	Z	5	0-0-0-52-0	Kurečka Radomír, Ing.
SVD	Specification of Embedded Systems	Z	0	39-0-0-0-0	Švéda Miroslav, prof. Ing., CSc.
TJD	Programming Language Theory	Z	0	39-0-0-0-0	Hruška Tomáš, prof. Ing., CSc.
ITW	Web page design	Z	5	26-0-0-26-0	Burget Radek, Ing.,Ph.D.
ITW	Web page design	L	5	26-0-0-12-14	Burget Radek, Ing.,Ph.D.
VKA	Selected Chapters on Algorithms	L	0	39-0-0-0-0	Honzík Jan M., prof. Ing., CSc.
VPD	Selected OOM Topics in Persistent Systems	L	0	39-0-0-0-0	Hruška Tomáš, prof. Ing., CSc.
VYP	Translators (in English)	Z	5	39-0-0-0-13	Meduna Alexander, prof. RNDr., CSc.
IZP	Fundamentals of Programming	Z	7	39-0-0-12-14	Kreslíková Jitka, RNDr., CSc.
ZZD	Knowledge Discovery in Databases	Z	0	39-0-0-0-13	Zendulka Jaroslav, doc. Ing., CSc.

Research Projects

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

Hitech Laboratory of Student's Applied Projects, FRVS MSMT, FR 3380/2005/A, 2005
Research leader: Marušinec Jaromír
Team leader: Hruška Tomáš

Innovation of Two Courses: Functional and Logical Programming and Post-Relational Databases, FRVS MSMT, FR 1246/2005/F1,2005
Research leader: Kolář Dušan

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

Research Project in Interactive Media, GACR, GA408/04/1370,2005
Research leader: Gajdoš Július
Team leader: Zendulka Jaroslav

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

Specialized Laboratory for Teaching Computer Networks and Distributed Systems, FRVS MSMT, FR 1567/2005/A,2005
Research leader: Zendulka Jaroslav
Team leader: Matoušek Petr

Gaudeamus 2005 – 12th Fair of Higher Education, RP MSMT, MSMT 623/1 - 2005, 2005
Research leader: Honzík Jan M.
Team leader: Křena Bohuslav

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

Design and implementation of embedded formal verification assistants in the NET framework, MSR, MS1412001, 2004-2005
Research leader: Švéda Miroslav
Team leaders: Bureš František, Ryšavý Ondřej, Ščuglík František

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

Optical network in national research and its new applications - Programmable hardware, CESNET, MSM6383917201, 2004-2010
Research leader: Novotný Jiří
Team leaders: 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, GACR, GA 201/04/0441, 2004-2006
Research leader: Meduna Alexander
Team leader: Kolář Dušan

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

Co-operation

Co-operation in 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
- FAYN.CZ,s r.o., Dalibor Kaláb – IP telephonie testing, www.fayn.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, prof. Jozef Gruska – co-operation in the field of formal specifications and education of doctoral students, http://www.fi.muni.cz
- 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
- Webia, s.r.o., Ing. Martin Woznica, topics of BSc. and diploma theses and consultations, http://www.webia.cz
- Department of Informatics FEI, VŠB – Technical University Ostrava, doc. RNDr. Petr Šaloun, Ph.D. - co-operation in the field of research and education, http://www.fei.vsb.cz/www/katedry/456/profil_kat.html
- 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.seznam.cz/65/13/12.html
- 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
- 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 the quality management, http://www.stavcert.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/
- 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/
- Congress Centre Brno, a.s., Mgr. Gabriela Sochnová – co-organizer, voting in the Cristal Disc competition in 2005, http://www.kcbrno.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.
- Cisco Network Academy, Karol Kniewald – co-operation in the implemetation of CCNA courses into the programme of tuition, http://cisco.netacad.net.

Visits to the Department

- Dr. Tomoyuki Yamakami (invited to lecture on: Quantum Public-Key Cryptosystems and Quantum Hardcore Functions), Japan Science and Technology Agency, JP, 1 day.
- James Breen (Director of Learning Services), InterSystems Corporation, Cambridge, USA, 1 day.
- Sebastian Huber (Senior Marketing Coordinator), InterSystems GmbH, Darmstadt, Germany, 1 day.

Visits of Staff Members to Foreign Institutions

- Burger Tomáš, Mgr., American Association for Artificial Intelligence, Hyatt Regency Crystal City, Arlington, Virginia, US, 5 days
- Honzík Jan M., prof. Ing., CSc., Ministry of Education, Youth and Sports, Osnabrueck, DE, 4 days
- Honzík Jan M., prof. Ing., CSc., EUROPEAN COMMISSION, Bonn, DE, 4 days
- Honzík Jan M., prof. Ing., CSc., EUROPEAN COMMISSION, Glasgow, GB, 4 days
- Honzík Jan M., prof. Ing., CSc., New Horizons In Business and Industry, Korfu, GR, 6 days
- Honzík Jan M., prof. Ing., CSc., EUROPEAN COMMISSION, Halden, Harstad – Norway, NO, 8 days
- Honzík Jan M., prof. Ing., CSc., EUROPEAN COMMISSION, Istanbul, TR, 4 days
- Honzík Jan M., prof. Ing., CSc., Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, SK, 1 day
- Hruška Tomáš, prof. Ing., CSc., Faculty of Informatics and Information Technology, STU, Ilkovičova 3, Bratislava, SK, 1 day
- Hruška Tomáš, prof. Ing., CSc., Faculty of Informatics and Information Technology, STU, Ilkovičova 3, Bratislava, SK, 1 day

- Hruška Tomáš, prof. Ing., CSc., Siemens, Corporate Research and Development, Berlín, Germany, DE, 4 days
- Matoušek Petr, Ing., Ph.D., CHARME2005, Saarbrucken, DE, 7 days
- Matoušek Petr, Ing., Ph.D., Universidad Politécnica de Valencia, Valencie, ES, 5 days
- Meduna Alexander, prof. RNDr., CSc., Universidad de Valladolid, Valladolid, Spain, ES, 8 days
- Meduna Alexander, prof. RNDr., CSc., The 12th International Conference on Artificial Intelligence in Education , Amsterdam, NL, 7 days
- Meduna Alexander, prof. RNDr., CSc., 7th International Colloquium on Graph Theory , Hyeres, FR, 8 days
- Očenášek Pavel, Ing., Katholieke Universiteit Leuven, KU Leuven, BE, 26 days
- Očenášek Pavel, Ing., 1st European Conference on Computer Network Defence, Pontypridd, GB, 4 days
- Ryšavý Ondřej, Ing., Ph.D., Department of Computer Science and Engineering, Chalmers University of Technology, Gothenburg, SE, 15 days
- Ryšavý Ondřej, Ing., Ph.D., Microsoft Research Redmond, One Microsoft Way, Redmond, WA 98052, US, 6 days
- Ryšavý Ondřej, Ing., Ph.D., The 17th Nordic Workshop on Programming Theory, Copenhagen, DK, 4 days
- Ščuglík František, Ing., WSEAS Internat. Conference on Simulation, Modeling and Optimisation, Kanoni, Korfu, Greece, GR, 12 days
- Švéda Miroslav, prof. Ing., CSc., IEEE Computer Society, Greenbelt, Maryland, USA, US, 8 days
- Švéda Miroslav, prof. Ing., CSc., IEEE Computer Society, Cairo, EG, 9 days
- Vítek Martin, Ing., University of Iceland, Reykjavík, IS, 4 months
- Zendulka Jaroslav, doc. Ing., CSc., Faculty of Electrical Engineering and Informatics, Technical University of Košice, Košice, Letná 9, SK, 3 days

Agreements
- Kreslíková Jitka, RNDr., CSc., Agreement on Professional Aid, STAVCERT Praha, spol s r.o.
- 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).
- An Agreement with ApS Brno, spol., s. r.o. from 2002.
- An Agreement with Vema a.s. from 2002.

Membership in Organizations and Societies
- Honzík Jan M., prof. Ing., CSc.,
    - IGIP
    - IFIP
    - EUA-ECTS/DS National Coordinator
    - Member of the "National Council for Research and Development" Ministry of Education of the Slovak Republic
- Hruška Tomáš, prof. Ing., CSc.,
    - ACM
    - Czech and Slovak Simulation Society (CSSS)

- Kolář Dušan, doc. Dr. Ing.
  - ACM
- Kreslíková Jitka, RNDr., CSc.,
  - Czech Society for Quality
  - Project Management Association
  - Czech Electrotechnical Society
- Křivka Zbyněk, Ing.
  - CSSUG - Czech and Slovak Smalltalk Users Group
- Masopust Tomáš, Mgr.,
  - Union of Czech Mathematicians and Physicists
- Ryšavý Ondřej, Ing., Ph.D.,
  - IEEE Computer society
  - Formal Methods Europe (FME)
- Ščuglík František, Ing.,
  - IEEE
- Švec Jaroslav, Ing.,
  - The European Higher Education Society
- Švéda Miroslav, prof. Ing., CSc.,
  - IEEE Computer Society
  - IFIP
- Zendulka Jaroslav, doc. Ing., CSc.,
  - ACM
  - Czech and Slovak Simulation Society (CSSS)

Publications

Software:

Ryšavý, O., Ščuglík, F.: Vutbrmsr .NET class library, Brno, CZ, 2005

Lecture:

Matoušek, P.: Symbolic Data Structure Based on Intervals for Parametric Verification, Seminary UIFS, FIT BUT Brno, CZ, 2005, p. 30

Matoušek, P.: TReX and IF, ParaDiSe seminary, FI MU Brno, CZ, 2005, p. 38

Conference Proceedings:

Zendulka, J. (editors): Proceedings of 8th Spring International Conference ISIM'05, Ostrava, CZ, MARQ, 2005, p. 303, ISBN 80-86840-09-02

Books:

Hruška, T.: DATAKON 2005 -Proceedings of the Annual Database Conference (ed. Tomáš Hruška), Brno, CZ, MUNI, 2005, p. 413, ISBN 80-210-3813-6

Meduna, A., Švec, M.: Grammars with Context Conditions and Their Applications (Wiley, 2004), Wiley, New York, US, WILEY, 2005, p. 225, ISBN 0-471-71831-9

Book Chapters:

Švéda, M., Beneš, P., Vrba, R., Zezulka, F.: Introduction to Industrial Sensor Networking, Handbook of Sensor Networks: Compact Wireless and Wired Sensing Systems, Boca Raton, Florida, US, CRC Press, 2005, p. 25, ISBN 0-8493-1968-4

Švéda, M., Vrba, R.: Embedded Systems with IEEE 1451.1 on Internet, Enabling Technologies for the New Knowledge Society, Cairo, EG, IEEE CS, 2005, pp. 539-550, ISBN 0-7803-9270-1

Vrba, R., Sajdl, O., Švéda, M.: Smart Sensors in Wireless Network System, Enabling Technologies for the New Knowledge Society, Cairo, EG, IEEE CS, 2005, pp. 343-353, ISBN 0-7803-9270-1

Zendulka, J.: API Standardization Efforts for Data Mining, Encyclopedia of Data Warehousing and Mining, Hershey, US, IDEA, 2005, pp. 39-43, ISBN 1-59140-557-2

Zendulka, J.: Object-Relational Modeling in the UML, Encyclopedia of Database Technologies and Applications, Hershey, US, IDEA, 2005, pp. 421-426, ISBN 1-59140-560-2

Zendulka, J.: Using Standard APIs for Data Mining in Prediction, Encyclopedia of Data Warehousing and Mining, Hershey, US, IDEA, 2005, pp.1171-1174, ISBN 1-59140-557-2

Conference Articles:

Bidlo, M., Bidlo, R.: An Evolved General Construction Method for the Sorting Networks, In: PRE-PROCEEDINGS of the 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FI MUNI, 2005, pp. 88-95

Bidlo, R., Blatný, P., Meduna, A.: Formal Models over Free Groups, In: PRE-PROCEEDINGS of the 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FI MUNI, 2005, pp. 193-199

Bidlo, R., Blatný, P.: How to Generate Recursively Enumerable Languages Using Only Context-free Productions and Eight Nonterminals, In: Proceedings of 11th Conference and Competition Student EEICT 2005, Volume 3, Brno, CZ, FEKT BUT, 2005, pp. 536-541, ISBN 80-214-2890-2

Bidlo, R.: Context-Free Grammars over Free Groups, In: Proceedings of 8th International Conference ISIM'05 Information System Implementation and Modeling, Ostrava, CZ, MARQ, 2005, p. 6, ISBN 80-86840-09-3

Blatný, P., Bidlo, R.: The Parallel Generation of Recursively Enumerable Languages Using Only Context-free Productions and Six Nonterminals, In: Proceedings of 11th Conference and Competition Student EEICT 2005, Volume 3, Brno, CZ, FEKT BUT, 2005, pp. 541-546, ISBN 80-214-2890-2

Blatný, P.: E0L Grammars on Free Groups, In: Proceedings of 8th International Conference ISIM'05 Information System Implementation and Modeling, Ostrava, CZ, MARQ, 2005, p. 6, ISBN 80-86840-09-3

Bureš, F., Ryšavý, O., Ščuglík, F., Švéda, M.: A Framework for Formal Specification of Embedded Systems, In: Proceedings of the 12th IEEE International Conference and Workshop on the Engineering of Computer-Based Systems, Los Alamitos, California, US, IEEE CS, 2005, pp. 323-330, ISBN 0-7695-2308-0

Burger, T., Hruška, T.: Formalism for the Systems with Roles, In: Proceedings of 8th International Conference ISIM'05 Information, Ostrava, CZ, MARQ, 2005, pp. 227-234, ISBN 80-86840-09-3

Burger, T., Hruška, T.: Formalism for the Systems with Roles, In: papers from the AAAI Fall Symposium, Menlo Park, California, US, AAAI, 2005, pp. 26-30, ISBN 978-1-57735-2549

Burget, R.: Visual HTML Document Modeling for Information Extraction, In: RAWS 2005, Ostrava, CZ, FEI VŠB, 2005, pp. 17-24, ISBN 80-248-0864-1

Čech, V.: Statistical Evaluation of Students Projects in the Project Management Course, In: EDU 2004 PM, Brno, CZ, 2005, p. 8, ISBN 80-214-2720-5

Honzík, J., M., Lampa, P.: Computer aided QA process of accreditation of "Information technology" study programme at the FIT BUT in the Czech Republic, In: Proceedings of New Horizons In Bussines and Industry, Corfu, Greece, GR, 2005, pp. 84-89, ISBN 55555555

Chmelař, P.: Mining of Association Rules from Texture Databases, In: Proceedings of the 11th Conference STUDENT EEICT 2005, Brno, CZ, FIT VUT, 2005, pp. 253-255, ISBN 80-214-2888-0

Kaláb, P.: Two-Way Linear PC Grammar Systems and Their Descriptional Complexity, In: Proceedings of the 11th Conference Student EEICT 2005, Brno, CZ, VUTIUM, 2005, pp. 546-550, ISBN 80-214-2890-2

Kaláb, P.: Two-Way Linear PC Grammar Systems, In: Proceedings of 8th Spring International Conference ISIM'05 Information Systems Implementation and Modelling, Ostrava, CZ, MARQ, 2005, pp. 87-94, ISBN 80-86840-09-3

Kolář, D., Meduna, A.: Regulated Automata: From Theory towards Applications, In: Proceeding of 8th International Conference on Information Systems Implementation and Modelling ISIM'05, Ostrava, CZ, MARQ, 2005, pp. 33-48, ISBN 80-86840-09-3

Kopeček, T., Meduna, A., Švec, M.: Simulation of Scattered Context Grammars and Phrase-Structured Grammars by Symbiotic E0L Grammars, In: Proceeding of 8th International Conference on Information Systems Implementation and Modelling ISIM'05, Brno, CZ, MARQ, 2005, p. 8, ISBN 80-86840-09-3

Křivka, Z., Meduna, A.: Random Context and Programmed Grammars of Finite Index Have The Same Generative Power, In: Proceedings of 8th International Conference ISIM'05 Information Systems Implementation and Modelling, Ostrava, CZ, MARQ, 2005, pp. 67-72, ISBN 80-86840-09-3

Křivka, Z.: Recursive Erasing in Programmed Grammars, In: Pre-Proceedings MEMICS 2005, Znojmo, CZ, 2005, pp. 139-144

Křivka, Z.: String-partitioning Systems, In: Proceedings of 11th Conference and Competition STUDENT EEICT 2005 Volume 3, Brno, CZ, FEKT BUT, 2005, pp. 556-560, ISBN 80-214-2890-2

Křivka, Z.: String-partitioning Systems, In: Proceedings of International Interdisciplinary HONEYWELL EMI 2005, Brno, CZ, FEKT BUT, 2005, pp. 217-221, ISBN 80-214-2942-9

Kubát, L., Kreslíková, J.: Quality Control in Project Management, In: PRONT 05, Plzeň, CZ, EVIDA, 2005, p. 14, ISBN 80-86596-65-6

Kuchta, R., Vrba, R., Švéda, M.: Wireless Temperature Data Logger, In: IEEE Proceedings AsiaSens 2005, Kuala Lumpur, MY, IEEE CS, 2005, p. 5, ISBN 0-7803-9371-6

Kunovský, J., Zeman, D.: Experimental Simulation Computations, In: ASIS 2005, Ostrava, CZ, MARQ, 2005, pp. 211-215, ISBN 80-86840-16-6

Květoňová, Š., Kreslíková, J.: Processes of Project Commmunication Management, In: PRONT 05, Plzeň, CZ, EVIDA, 2005, p. 11, ISBN 80-86596-65-6

Lorenc, L., Meduna, A.: A Rigorous Approach to Self-Reproducing Pushdown Translation, In: Proceedings of 8th Spring International Conference ISIM'05 Information Systems Implementation and Modelling, Ostrava, CZ, MARQ, 2005, pp.51-58, ISBN 80-86840-09-3

Lorenc, L., Meduna, A.: Self-Reproducing Translation Made by Pushdown Transducers, In: PRE-PROCEEDINGS of the 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FI MUNI, 2005, pp. 59-67

Lukáš, R., Hruška, T., Kolář, D., Masařík, K.: Two-Way Deterministic Translation and Its Usage in Practice, In: Proceedings of 8th Spring International Conference - ISIM'05, Ostrava, CZ, MARQ, 2005, pp. 101-107, ISBN 80-86840-09-3

Lukáš, R., Meduna, A.: Multigenerative Grammar Systems, In: Pre-proceedings 1st Doctoral Workshop on Mathematical and Engineering Methods in Comupter Science (MEMICS 2005), Brno, CZ, FI MUNI, 2005, pp. 85-87

Martínek, Z., Kreslíková, J.: How to utilise algebra of Communicating Sequential Processes in modelling of software product development, In: New Trends in System Simulation, Ostrava, CZ, VSB, 2005, pp. 1-6, ISBN 80-86840-07-7

Martínek, Z.: Fewer Faults Due to Requirements Engineering, In: Proceedings of the 11th Conference and Competition STUDENT EEICT 2005, Brno, CZ, 2005, pp. 35-40, ISBN 80-214-2890-2

Masařík, K., Hruška, T., Kolář, D., Lukáš, R.: System for design and simulation of microprocessors, In: Proceedings of 8th Spring International Conference - ISIM'05, Ostrava, CZ, MARQ, 2005, p. 8, ISBN 80-86840-09-3

Očenášek, P., Toufarová, J.: Making the Internet content available to visually disabled users, In: INFORUM 2005: 11. ročník konference o profesionálních informačních zdrojích, Praha, CZ, 2005, p. 8, ISSN 1801-2213

Očenášek, P.: Evolutionary Approach in the Security Protocols Design, In: Proceedings of the First European Conference on Computer Network Defence, University of Glamorgan, GB, Springer, 2005, pp. 147-156, ISBN 1-84628-311-6

Očenášek, P.: The Security Protocol Design Using Genetic Algorithms Paradigms, In: Proceedings of the 11th Conference and Competition STUDENT EEICT 2005, Brno, CZ, FEKT BUT, 2005, pp. 576-580, ISBN 80-214-2890-2

Očenášek, P.: Towards Selected Problems in the Security Protocol Design and Verification, In: MEMICS 2005, Znojmo, CZ, 2005, pp. 1-9

Polák, V., Kreslíková, J.: Risk Management in Poject Management, In: PRONT 05, Plzeň, CZ, EVIDA, 2005, p. 7, ISBN 80-86596-65-6

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Schönecker, R.: Linear n-parallel automata, In: Proceedings of 11th Conference and Competition STUDENT EEICT 2005 Volume 1, Brno, CZ, FIT BUT, 2005, pp. 274-276, ISBN 80-214-2888-0

Ščuglík, F.: Relation Between UML2 Activity Diagrams and CSP algebra, In: Proceedings of the 5th Int. Conf. on Simulation, Modeling and Optimization, Kerkyra, GR, WSEAS, 2005, p. 6, ISBN 960-8457-32-7

Ščuglík, F.: Time Synchronization Possibilities in Wireless networks for Embedded Systems, In: Proceedings of the 5th Int. Conf. on Applied Electromagnetics, Wireless and Optical Communications, Kerkyra, GR, WSEAS, 2005, pp. 1215-1219, ISBN 960-8457-34-3

Švéda, M., Vrba, R.: An Approach to the Design of Networked Embedded Systems, In: Proceedings of the 16th IFAC WORLD CONGRESS, 2005, Kidlington, Oxford, GB, Elsevier, 2005, p. 6, ISBN 0-08-144130-1

Švéda, M., Vrba, R.: Sensor Networks with IEEE 1451.1 Embedded Systems on Internet, In: IEEE Proceedings AsiaSens 2005, Kuala Lumpur, MY, IEEE CS, 2005, p. 5, ISBN 0-7803-9371-6

Švéda, M.: Computer Networks with Smart Sensors: the IEEE 1451 Approach, In: Proceedings IMAPS CS International Conference EDS'05, Brno, CZ, BUT, 2005, pp. 107-110, ISBN 80-214-2990-9
Techet, J.: Canonical Scattered Context Generators of Sentences with Their Parses, In: HONEYWELL EMI 2005 Proceedings of the International Interdisciplinary Student Competition and Conference, Brno, CZ, FEEC BUT, 2005, pp. 80-84, ISBN 80-214-2942-9

Techet, J.: Canonical Scattered Context Generators of Sentences with Their Parses, In: Proceedings of the 11th Conference and Competition STUDENT EEICT 2005 Volume 1, Brno, CZ, FEEC BUT, 2005, pp. 280-282, ISBN 80-214-2888-0

Techet, J.: Scattered Context Generators of Sentences with Their Parses, In: PRE-PROCEEDINGS of the 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FI MUNI, 2005, pp. 68-77

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Vítek, M.: Insertion and Deletion Operations in Formal Language Theory, In: Proceedings of 8th Spring International Conference ISIM '05, Ostrava, CZ, MARQ, 2005, pp. 73-80, ISBN 80-86840-09-3

Zeman, D.: Discovering New Techniques in Association Rule Mining, In: Proceedings of the 11th conference Student EEICT 2005, Brno, CZ, FIT BUT, 2005, pp. 591-595, ISBN 80-214-2890-2

Zemčík, P., Hruška, T.: Recorded lectures in higher education - technology and experience, In: Proceedings of New Horizons in Industry, Business, and Education, Heracleion, Crete, GR, TEI Heracleion, 2005, pp. 222-227, ISBN 960-85316-9-1

Journals:

Bednář, D., Kreslíková, J.: Vol.2005, No. 7, CZ, pp. 10-12, ISSN 1210-9592

Burget, R.: JDO – persistent objects and Java, In: Interval.Hz - Webdesign and e-commerce, Vol. 2005, No. 155, Brno, CZ, p. 25, ISSN 1212-8651

Lorenc, L., Meduna, A.: Self-Reproducing Pushdown Transducers, In: Kybernetika, Vol. 2005, No. 4, CZ, pp.533-539, ISSN 0023-5954

Matoušek, P., Smrčka, A., Vojnar, T.: High-Level Modelling, Analysis, and Verification on FPGA-Based Hardware Design, In: Lecture Notes in Computer Science, Vol. 2005, No. 3725, DE, pp. 371-375, ISSN 0302-9743

Matoušek, P.: How to analyse throughput of a network?, In: CONNECT!, Vol. 2005, No. 11, Brno, CZ, pp. 7-8, ISSN 1211-3085

Meduna, A., Lukáš, R.: A Note on Iteratively Extendable Strings, In: Rostocker mathematisches kolloquium, Vol. 2005, No. 59, Rostock, DE, pp. 71-73, ISSN 0138-3248

Meduna, A., Techet, J.: Generation of Sentences with Their Parses: the Case of Propagating Scattered Context Grammars, In: Acta Cybernetica, Vol. 2005, No. 17, US, s. 11-20, ISSN 0324-721X

Ščuglík, F.: Relation between UML2 Activity Diagrams and CSP algebra, In: WSEAS Transactions on Computers, Vol. 4, No. 10, Athens, GR, pp. 1234-1240, ISSN 1109-2750

Ščuglík, F.: Time Synchronization Possibilities in Wireless networks for Embedded Systems, In: WSEAS Transactions on Communications, Vol. 4, No. 11, Athens, GR, pp. 1215-1219, ISSN 1109-2742

Research Projects:

Matoušek, P., Smrčka, A., Vojnar, T.: High-level Modelling, Analysis, and Verification on FPGA-based Hardware Design, Brno, CZ, CESNET, 2005, p. 17

Ryšavý, O., Ščuglík, F.: Design and Development of a Library for Formal Verification: an Overview, Brno, CZ, FIT BUT, 2005, p. 7

Dissertations:

Bartík, V.: Discovery of Association Rules from Relational Data, Brno, CZ, 2005, p. 89

Matoušek, P.: Symbolic Data Structure Based on Intervals for Parametric Verification, Brno, CZ, 2005, p. 99

Ryšavý, O.: Specifying and Reasoning in the Calculus of Objects, Brno, CZ, 2005, p. 95

Habilitations:

Kolář, D.: Pushdown Automata: Another Extensions and Transformations, Brno, CZ, FIT BUT, 2005, p. 76

Products:

Vutbrmsr .NET class library, 2005
Author: Ryšavý Ondřej

Seminars

21.2.2005	Presentation of the paper "New language operations in formal language theory" published in Schedae Informaticae vol. 13/2004, Kraków, Poland, ISSN 0860-0295
28.2.2005	Are our Students Honest?
7.3.2005	The State and Perspectives of E-learning at Czech Universities; Implementation of Learning Management System- M. Weiter
14.3.2005	Association Rule Discovery From Relational Data (PhD. thesis presentation) - V. Bartík
21.3.2005	Message Dispatch Problem within the Systems with Roles - Formalism, Approaches to the Solution - T. Burger
11.4.2005	Using Ontologies to Access Control - R. Petrucha
18.4.2005	System for design and simulation of microprocessors - K. Masařík, R. Lukáš
25.4.2005	An introduction to categorical logic - J. Šlapal
2.5.2005	Application of Knowledge Discovery methods in Texture Analysis - M. Heckel

9.5.2005	Symbolic data structure based on intervals for parametric verification - P. Matoušek
10.10.2005	Iteratively Extendable Strings - A. Meduna a R. Lukáš
17.10.2005	An Introduction to Bioinformatics - I. Rudolfová
24.10.2005	An Improvisation on the Mathematical Induction Theme - A. Meduna
31.10.2005	Formal Models over Free Groups - R. Bidlo, P. Blatný
7.11.2005	Proofs via Structural Induction - D. Kolář
14.11.2005	Self-plagiarism - V. Čech
21.11.2005	Brief OLAP introduction - J. Holčapek
28.11.2005	Quantum Public-Key Cryptosystems and Quantum Hardcore Functions - Tomoyuki Yamakami
5.12.2005	Closure Properties of Trios under Operations of Regular Deletion - T. Masopust

Other Activities

- Organization of the "8th Information Systems Implementation and Modelling" (ISIM 2005). It is an international conference on theory, modelling techniques and tools, methods of information systems design and database systems.
- Commencement of the Cisco Network Academy programme at the FIT (Dr. Matoušek) and of the CCNA1, CCNA2, CCNA3 and CCNA4 courses in the academic year 2005/2006, accompanied by participation in the CCNA teachers training at the University of Defence, Brno.
- Prof. Švéda was a member of the IFIP WG10.1 group, of the organizational committee of IEEE Engineering of Computer-Based Systems (ECBS), of the FIT BUT Scientific Board, Study Branch Boards for Doctoral Studies at the FIT BUT, Study Branch Boards for Doctoral Studies at the FI MU, and boards for Bc. and MSc. study programmes of the FIT. Last year, he was a member of the programme committee of the IEEE ECBS conference, the programme committee of the IEEE/IFIP Joint Workshop on Formal Specification of Computer-Based Systems, Head of a section at the IEEE ECBS 2005, Greenbelt, Maryland, USA, and a member of the executive committee of the IEEE ICICT 2005 Conference, Cairo, Egypt.
- Prof. Honzík was a member of the national Bologna Promoters team, National Committee for Erasmus, an expert supervisor of the national Gaudeamus - Fair, a chairman of the advisory board of Gaudeamus - Fair, a member of 6 scientific boards of schools (BUT, OU) and faculties (FIT BUT, FP BUT, FI MU, FM TUL), and a member of a GACR subcommittee in 2005.
- Doc. Zendulka was a member of programme boards of international scientific conferences - 8th Information Systems Implementation and Modelling (ISIM 2005) Hradec nad Moravicí ČR, 39th Spring International Conference Modelling and Simulation of Systems (MOSIS 2005) Hradec nad Moravicí ČR, Znalosti 2005 Brno, DATAKON 2005 Brno and Student ACM 2005.
- Doc. Zendulka was a member of the evaluation board in Database Product 2005 competition organized by the journal of Databázový svět (Database World).

- 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 Crystal Disc competition within the international trade fair on information technology INVEX 2005. Dr.Burget was in charge of information support.
- Dr. Kreslíková was a member of programme committees for PRONT 05 and PROMA 05 conferences dealing with Project Management.
- Dr. Bartík was a member of the programme committee of the Information Systems Implementation And Modelling (ISIM 2005) international conference.
- Prof. Hruška was a member of the programme committee for 8th Information Systems Implementation and Modelling conference, and the chairman of the programme committee for DATAKON 2005 Brno. He was a member of the Scientific Board of Brno University of Technology, of the Scientific Board of the Faculty of Information Technology BUT, of the Scientific Board of the Faculty of Electrical Engineering and Communications BUT, and of the Scientific Board of the Faculty of Applied Sciences, WBU in Plzeň
- Dr.Burget was a member of programme committees for DATAKON 2005, WebS 2005, and RAWS 2005.
- Ing.Ráb was involved in the Gregor-Mendel-Bioinfonet project financed from a PHARE grant worked on by Mendel Museum and IMP Vienna.

III.2 Department of Intelligent Systems

The Department of Intelligent Systems provides tuition of subjects for the Intelligent Systems specialization. This specialization synthesizes knowledge from several scientific areas: classical artificial intelligence, system modelling, simulation and formal analysis over system models, neural networks, genetic algorithms and fuzzy systems. The common features here are the non-traditional ways of computing that enable solving extremely complex problems, uncertainties and dynamism of processes in progress.

The graduates will become experts in system modelling and creation, in 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 covers first of all intelligent systems, but attention is also paid to systems for specific applications, computer-based systems, interface design and the use of multi-level 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.

Most subjects are accompanied with projects or laboratory sessions so that students might acquire practical skills and experience with the latest software products and systems.

Staff

Head of the Department
Hanáček Petr, doc. Dr. Ing.
Deputy Head of the Department
Rábová Zdeňka, doc. Ing., CSc.
Professors
Češka Milan, prof. RNDr., CSc.
Associate Professors
Hanáček Petr, doc. Dr. Ing.
Kunovský Jiří, doc. Ing., CSc.
Rábová Zdeňka, doc. Ing., CSc.
Zbořil František, doc. Ing., CSc.
Assistant Professors
Cvrček Daniel, Ing., Ph.D.
Drahanský Martin, 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 Jr., Ing.. Ph.D.

Assistant
> Kumpošt Marek, Mgr.
> Martinek, David, Ing.

Ph.D. Students
> Erlebach Pavel, Ing.
> Florián Vladimír, Ing.
> Grulich Lukáš, Ing.
> Jurka Pavel, Ing.
> Malinka Kamil, Mgr.
> Mazal Zdeněk, Ing
> Novosad Petr, Ing.
> Polášek Petr, Ing.
> Pospíšil Dominik, Mgr.
> Rogalewicz Adam, Mgr.
> Rozman Jaroslav, Ing.
> Skřivánek Roman, Ing.
> Slavíček Pavel, Ing.
> Smrčka Aleš, Ing.
> Turakhodjaeva Nasibakhon
> Vintera Jiří, Ing.

Equipment

The Department uses the equipment of the Computer Centre

Tuition

Abbr	Course	Sem	Cr.	Hours	Lecturer
IAS	Assemblers	Z	6	39-0-0-13-0	Zbořil František, doc. Ing., CSc.
IBP	Bachelor's project	Z	6	0-0-0-0-78	Rábová Zdeňka, doc. Ing., CSc.
IBP	Bachelor's project	L	6	0-0-0-0-78	Rábová Zdeňka, doc. Ing., CSc.
BKR	Computer security and cryptography	L	6	39-0-0-0-26	Hanáček Petr, doc. Dr. Ing.
BIO	Biometric Systems	Z	5	39-0-0-13-0	Drahanský Martin, Ing., Ph.D.
DPI	Diploma project	Z	10	0-0-0-0-130	Rábová Zdeňka, doc. Ing., CSc.
DPI	Diploma project	L	10	0-0-0-0-130	Rábová Zdeňka, doc. Ing., CSc.
GIS	Geographic information systems	L	4	26-0-0-8-5	Hrubý Martin, Ing., Ph.D.
ISD	Intelligent systems	Z	0	39-0-0-0-13	Zbořil František, doc. Ing., CSc.
SIN	Intelligent systems	Z	5	39-0-0-0-13	Janoušek Vladimír, Ing., Ph.D.

IJC	C Language	Z	5	39-0-0-0-13	Peringer Petr, Dr. Ing.
CPP	C Language	Z	5	39-0-0-0-13	Peringer Petr, Dr. Ing.
IJC	C Language	L	5	39-0-0-0-13	Peringer Petr, Dr. Ing.
CPP	C Language	L	5	39-0-0-0-13	Peringer Petr, Dr. Ing.
KIB	Cryptography and information security	L	4	26-0-0-0-13	Cvrček Daniel, Ing., Ph.D.
KIB	Cryptography and information security	Z	5	26-0-0-0-13	Cvrček Daniel, Ing., Ph.D.
MSI	Modelling and simulation	Z	6	39-0-0-10-16	Rábová Zdeňka, doc. Ing., CSc.
MSD	Modelling and simulation	Z	0	39-0-0-9-0	Rábová Zdeňka, doc. Ing., CSc.
IMS	Modelling and simulation	Z	5	39-6-0-0-7	Peringer Petr, Dr. Ing.
IMS	Modelling and simulation	L	5	39-0-0-13-0	Zbořil František, Jr., Ing., Ph.D.
APP	Advanced computer applications	L	6	39-0-0-26-0	Kunovský Jiří, doc. Ing., CSc.
NEU	Neural networks	Z	6	39-0-0-0-26	Zbořil František, doc. Ing., CSc.
OMP	Object-oriented modelling and prototyping	L	6	26-0-0-12-27	Janoušek Vladimír, Ing., Ph.D.
IOS	Operation systems	L	5	39-0-0-0-13	Vojnar Tomáš, Ing., Ph.D.
PDA	Parallel and distributed algorithms	Z	6	39-0-0-0-26	Hanáček Petr, doc. Dr. Ing.
PAS	Advanced Assemblers	Z	5	26-2-0-14-10	Orság Filip, Ing., Ph.D.
IPR	Computer Elements	L	6	26-13-13-0-0	Kunovský Jiří, Doc. Ing., CSc.
PI1	Year project 1/2	Z	0	0-8-0-0-18	Rábová Zdeňka, doc. Ing., CSc.
PI2	Year project 2/2	L	4	0-6-0-0-20	Rábová Zdeňka, doc. Ing., CSc.
RDID	Discussion over Dissertations	L	0	0-0-0-0-26	Češka Milan, prof. RNDr., CSc.
ISP	Term Project	Z	2	0-6-0-0-20	Rábová Zdeňka, doc. Ing., CSc.
PI3	Term Project	Z	3	0-8-0-0-31	Rábová Zdeňka, doc. Ing., CSc.
ICP	The C++ Programming Language	L	4	0-26-0-0-13	Peringer Petr, Dr. Ing.
IJA	Java	L	4	0-26-0-0-13	Janoušek Vladimír, Ing.,Ph.D.
IST	Smalltalk	L	4	0-26-0-0-13	Janoušek Vladimír, Ing.,Ph.D.
TIN	Theoretical computer science	Z	5	39-0-0-0-13	Češka Milan, prof. RNDr., CSc.

TI2	Theoretical computer science 2	L	6	39-0-0-12-14	Češka Milan, Prof. RNDr., CSc.
TAD	Theory and applications of Petri nets	L	0	39-0-0-8-0	Češka Milan, prof. RNDr., CSc.
ITO	Circuit Theory	Z	6	26-13-0-0-13	Kunovský Jiří, Doc. Ing., CSc.
ITY	Typography and Publishing	L	4	13-0-0-0-26	Křena Bohuslav, Ing., Ph.D.
UIN	Artificial intelligence	L	6	39-0-0-12-14	Zbořil František, doc. Ing., CSc.
IUS	Introduction to SW engineering	Z	5	26-0-0-0-13	Křena Bohuslav, Ing., Ph.D.
VSL	Computability and complexity	Z	6	39-12-0-0-14	Janoušek Vladimír, Ing., Ph.D.
VND	Highly-sophisticated computations	L	0	39-0-0-0-0	Kunovský Jiří, doc. Ing., CSc.
IZU	Fundamentals of AI	Z	4	26-13-0-0-0	Zbořil František, doc. Ing., CSc.
IZU	Fundamentals of AI	L	4	26-0-0-13-0	Zbořil František, doc. Ing., CSc.

Research Projects

Brno University Security Laboratory, UNKNOWN, BUSLab, 2005
Research leader: Cvrček Daniel, Hanáček Petr, Matyáš Václav Jr., Říha Zdeněk, Staudek Jan

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

Gaudeamus 2005 – 12th Fair of Higher Education, RP MSMT, MSMT 623/1 - 2005, 2005
Research leader: Honzík Jan M.
Team leader: Křena Bohuslav

Automated methods and tools supporting development of reliable parallel and distributed systems, GACR, GA102/04/0780, 2004-2006
Research leader: Češka Milan
Team leaders: Haša Luděk, Janoušek Vladimír, Kočí Radek, Křena Bohuslav, Rábová Zdeňka, Vojnar Tomáš

Information system security - research of attacks on tamper-resistant cryptographic hardware, GACR, GA102/04/0871, 2004-2006
Research leader: Hanáček Petr
Team leaders: Cvrček Daniel, Hruška Tomáš, Peringer Petr, Rábová Zdeňka

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

European Research Training Network Segravis - Syntactis and Semantic Integration of Visual Modelling Techniques, EU, HPRN-CT-2002-00275, 2004-2005
Research leader: Křena Bohuslav

Optical network in national research and its new applications - Programmable hardware, CESNET, MSM6383917201, 2004-2010
Research leader: Novotný Jiří
Spoluřešitelé: Čejka Rudolf, Fučík Otto, Kořenek Jan, Martínek Tomáš, Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Vojnar Tomáš, Zemčík Pavel

Advanced Methods of Automatic Verification of Parametric and Infinite-State Systems, GACR, GA102/03/D211, 2003-2006
Research leader: Vojnar Tomáš
Team leader: Češka Milan

Co-operation

Co-operation in the Czech Republic
- Faculty of Informatics, Masaryk University Brno
- Department of Computers FEL, ČVUT Praha
- Department of Computer Science and Engineering WBU in Plzeň
- Energy institute EGU Brno, a.s.
- Institute of Process and Environmental Engineering DSI, BUT in Brno
- Artisys, s.r.o., Brno, Dana Brhelová, http://www.artisys.cz
- Monet+ s.r.o., Zlín, Ing. Endrys
- Department of Informatics FEI, VŠB - Technical University Ostrava
- Grisoft, s.r.o., Brno, http://www.grisoft.cz

International Co-operation
- ADI, University of Michigan, USA, prof. Howe − co-operation in the field of Real-time Simulation, http://www.adi.com
- VERIMAG, Université Joseph Fourier/CNRS, Grenoble, FR, prof. Y. Lakhnech, co-operation in the field of formal verification, http://www-verimag.imag.fr
- DISCo, Universita degli Studi di Milano, Milano, IT, Testing and Analysis Laboratory, prof. Mauro Pezze − co-operation in the field of formal analysis and verification, http://www.lta.disco.unimib.it
- LIAFA, Université Paris 7 - Denis Diderot/CNRS, FR, prof. A. Boujjani − co-operation in the field of formal verification, http://www.liafa.jussieu.fr
- Universität Siegen, FB12 − Fakultät für Elektrotechnik und Informatik, DE, Dipl. Ing. R. Nötzel − co-operation in the field of analysis of microscopic images, http://www.uni-siegen.de
- TU Košice, Košice, SK, co-operation in various fields of research, http://www.tuke.sk
- University of Malta, MT, co-operation in modelling and simulation, http://www.um.edu.mt

- ComputerLab, Cambridge University, GB, co-operation in the field of security of bank cards, http://www.cl.cam.co.uk

Visitors to the Department

- Prof. Bouajjani, LIAFA, Université Paris 7 - Denis Diderot/CNRS – Regular Symbolic Analysis of Dynamic Networks of Pushdown Systems
- O. Nezhyba, Digitus, s.r.o., Přerov – a lecture on biometric systems

Visits of Staff Members to Foreign Institutions

- Cvrček Daniel, Ing., Ph.D., Johann Wolfgang Goethe Universitait, Berlin, DE
- Cvrček Daniel, Ing., Ph.D., European Union, Brussels, BE
- Drahanský Martin, Ing., Ph.D., Universität Siegen, FB12, Institut für Messtechnik, DE
- Erlebach Pavel, Ing., Laboratoire d'Informatique Algorithmique: Fondements et Applications, Université Paris 7/CNRS, UMR 7089, LIAFA, CNRS, UMR 7089, Université Paris 7, FR
- Křena Bohuslav, Ing., Ph.D., Universita degli Studi di Milano - Bicocca; Dipartimento di Informatica, Sistemistica e Comunicazione; Laboratorio di Test e Analisi del Software, Universita degli Studi di Milano-Bicocca, Via Bicocca degli Arcimboldi 8, 20126, Milano, IT
- Křena Bohuslav, Ing., Ph.D., Galileo Avionica S.p.A., Via A. Einstein 35, Campi Bisenzio, 50018, IT
- Novosad Petr, Ing., Laboratoire d'Automatique de Grenoble, Laboratoire d'Automatique de grenoble, ENSIEG - Domaine Universitaire - BP46, 38402 Saint Martin d'Heres, FR
- Rogalewicz Adam, Mgr., Laboratoire d'Informatique Algorithmique: Fondements et Applications, Université Paris 7/CNRS, UMR 7089, LIAFA, 175 rue du Chevaleret 75013 Paris, FR
- Vojnar Tomáš, Ing., Ph.D., Laboratoire d'Informatique Algorithmique: Fondements et Applications, Université Paris 7/CNRS, UMR 7089, LIAFA, 175 rue du Chevaleret 75013 Paris, FR

Agreements

- An agreement on co-operation in research of automatic verification methods for systems with a complex and dynamically changing structure and for systems with advanced qualitative behaviour features with LIAFA, Université Paris 7 - Denis Diderot/CNRS , http://www.liafa.jussieu.fr, FR
- A bilateral agreement on co-operation within the Socrates/Erasmus programme made with Universität Siegen, Germany

Membership in Organizations and Societies

- Češka Milan, prof. RNDr., CSc.
  - TC 10 IFIP Committee – Computer systems technology
  - IFIP WG 10.1 Computer Aided System Theory
  - Editorial Board of International Journal of General Systems, Gordon and Breach Science Publisher, USA
  - Research Board of Advisors, American Biographical Institute
  - Gesellschaft für Informatik, Germany

- o CSSS – Czech and Slovak Simulation Society within EUROSIM
- o ACM – SIGSAC – Special Interest Group on Security, Audit and Control
- Hanáček Petr, doc. Dr. Ing.
  - o CIS – Czech and Slovak Information Society
  - o CSSS – Czech and Slovak Simulation Society within EUROSIM
  - o ACM – SIGSAC – Special Interest Group on Security, Audit and Control
  - o CEO – Centre for Electronic Commerce
- Janoušek Vladimír, Ing., Ph.D.
  - o CSSS – Czech and Slovak Simulation Society within EUROSIM
- Peringer Petr, Dr. Ing.
  - o CSSS - Czech and Slovak Simulation Society within EUROSIM
- Rábová Zdeňka, doc. Ing., CSc.
  - o CSSS – Czech and Slovak Simulation Society within EUROSIM
  - o AFCEA
- Vojnar Tomáš, Ing., Ph.D.,
  - o Editorial Board of CAI
- Zbořil František, doc. Ing., CSc.,
  - o CSSS – Czech and Slovak Simulation Society within EUROSIM

Publications:

Lectures:

Drahanský, M.: Improving the Accuracy of a Hydraulic Forging Press using a Real Time Model, Hradec nad Moravicí, CZ, MARQ, 2005, p. 8

Books:

Drahanský, M.: Biometric Security Systems - Fingerprint Recognition Technology, Brno, CZ, VUTIUM, 2005, p. 32, ISBN 80-214-2969-0

Book Chapters:

Hrubý, M., Kočí, R., Rábová, Z.: The Heterogeneous Modelling Methods and Tools, Simulation Almanac 2005, Praha, CZ, FEL ČVUT, 2005, pp. 40-50, ISBN 8001033228

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Grulich, L., Rábová, Z.: Modelling of Human Activity - Overview, In: Proceedings of 39th International Conference MOSIS'05, Ostrava, MARQ, 2005, CZ, MARQ, 2005, pp. 152-159, ISBN 80-86840-10-7

Grulich, L.: Reinforcement learning System in Squeak Smalltalk, In: Proceedings of the 11th Conference Student EEICT 2005, Brno, CZ, 2005, pp. 653-657, ISBN 80-214-2890-2

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Hanáček, P., Peringer, P., Rábová, Z.: Input data discovery for models of security, In: Proceedings of ASIS 2005, Ostrava, CZ, MARQ, 2005, pp. 68-73, ISBN 80-86840-16-6

Hanáček, P., Staudek, J.: Identity administration, In: Proceedings of DATAKON 2005, Brno, CZ, MUNI, 2005, pp. 123-146, ISBN 80-210-3813-6

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Janoušek, V., Slavíček, P.: Concept for the parallel road-traffic simulation, In: Proceedings of MOSIS'05, Ostrava, CZ, MARQ, 2005, p. 6, ISBN 80-86840-10-7

Kočí, R., Turakhodjaeva, N.: Workflow modeling with Petri nets in Workflow Management Systems, In: Proceedings of MOSIS'05, Ostrava, CZ, MARQ, 2005, pp. 120-127, ISBN 80-86840-10-7

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Kunovský, J., Tomica, P., Petřek, J.: Parasitic Effects in Electronic Circuits Simulations, In: Proceedings of 39th International Conference MOSIS '05, Ostrava, CZ, MARQ, 2005, pp. 128-134, ISBN 80-96840-10-7

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Martinek, D., Kunovský, J., Zacios, D.: Taylor Series in Control and Simulation, In: Proceedings of 39th International Conference MOSIS '05, Ostrava, CZ, MARQ, 2005, pp. 56-60, ISBN 80-86840-10-7

Martinek, D., Pavlas, M., Bébar, L.: Simulation of units for thermic processing of waste as dynamical systems, In: 52nd Conference on Chemical and Process Engineering CHISA 2005, CD-Rom V3.44, Srní, CZ, 2005, p. 14

Martinek, D., Rábová, Z.: Graphical description of simulation models, In: NETSS 2005 - 2nd International Winter Workshop - New Trends in System Simulation, Ostrava, CZ, MARQ, 2005, pp. 63-66, ISBN 80-86840-07-7

Martinek, D.: Modelling of a Waste Incinerator, In: Proceedings of XXVII International Autumn Colloquium ASIS 2005 Advanced Simulation of Systems, Ostrava, CZ, MARQ, 2005, pp. 62-67, ISBN 80-86840-16-6

Novosad, P.: Software Tool CESim for Graphical Design, Simulation and Analysis of C/E Petri Nets, In: Proceedings of XXVIIth International Autumn Colloquium ASIS 2005, Ostrava, CZ, MARQ, 2005, pp. 236-240, ISBN 80-86840-16-6

Novosad, P.: Software Tool CESim for Graphical Design, Simulation and Analysis of C/E Petri Nets, In: PRE-PROCEEDINGS of the 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FI MUNI, 2005, pp. 106-113

Ondráček, T., Zbořil, F., m.: Constructive Gradient Neural Network, In: MOSIS '05, Ostrava, CZ, MARQ, 2005, pp. 196-201, ISBN 80-86840-10-7

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Rozman, J., Zbořil, F.: Trilobot Mobile Robot and its Using in Education, In: MOSIS '05, Ostrava, CZ, MARQ, 2005, pp. 188-195, ISBN 80-86840-10-7

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Smrčka, A.: Abstract Model Verification of the Lookup Processor, In: Proceedings of MOSIS'05, Ostrava, CZ, MARQ, 2005, pp. 138-145, ISBN 80-86840-10-7

Smrčka, A.: Towards Hardware Verification, In: Proceedings of the 11th Conference Student EEICT 2005, Brno, CZ, FIT BUT, 2005, pp. 668-672, ISBN 80-214-289-2

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Zbořil, F., Jr.: Low Level Language for Agent Behaviour Control, In: Proceedings of XXVIIth International Autumn Colloquium ASIS 2005, Ostrava, CZ, MARQ, 2005, pp. 138-143, ISBN 80-86840-16-6

Zbořil, F., Zbořil, F., Jr.: Intelligent Systems, In: Proceedings of the I&IT '04, Banská Bystrica, SK, FPV UMB, 2005, pp 20-25, ISBN 80-8033-017-7

Zbořil, F.: Trilobot Robot Control, In: MOSMIC'2005, Žilina, SK, EDIS ŽU, 2005, pp. 47-52, ISBN 80-8070-468-6

Journals:

Bouajjani, A., Habermehl, P., Moro, P., Vojnar, T.: Verifying Programs with Dynamic 1-Selector-Linked Structures in Regular Model Checking, In: Lecture Notes in Computer Science, Vol. 2003, No. 3440, DE, pp. 13-29, ISSN 0302-9743

Cvrček, D., Matyáš, V., m., Patel, A.: Evidence processing and privacy issues in evidence-based reputation systems, In: Computer Standards & Interfaces, Vol. 27, No. 5, NL, pp. 533-545, ISSN 0920-5489

Češka, M., Křena, B., Vojnar, T.: Parallel State Space Generation and Exploration on Shared-Memory Architectures, In: Lecture Notes in Computer Science, Vol. 2005, No. 3643, DE, pp. 275-280, ISSN 0302-9743

Drahanský, M., Orság, F.: Can biometrics be used for cryptography?, In: Crypto-world, Vol. 7, No. 11, Praha, CZ, pp. 13-18, ISSN 1801-2140

Hrubý, M., Toufar, J.: Modeling of the Electricity Market and Support Services in ES CR, In: Energetika, Vol. 2005, No. 11, CZ, pp. 356-358, ISSN 0375-8842

Matoušek, P., Smrčka, A., Vojnar, T.: High-Level Modelling, Analysis, and Verification on FPGA-Based Hardware Design, In: Lecture Notes in Computer Science, Vol. 2005, No. 3725, DE, pp. 371-375, ISSN 0302-9743
Research Projects:

Habermehl, P., Radu, I., Vojnar, T.: Automata-based Verification of Programs with Tree Updates, Verimag Technical Report number TR-2005-16, Grenoble, FR, VERIMAG, 2005, p. 28

Matoušek, P., Smrčka, A., Vojnar, T.: High-level Modelling, Analysis, and Verification on FPGA-based Hardware Design, Brno, CZ, CESNET, 2005, p. 17

Dissertations:

Drahanský, M.: Biometric Security Systems - Fingerprint Recognition Technology, Brno, CZ, 2005, s. 140

Seminars:

17. 2. 2005	Seminar: Security – Dan Cvrček
24. 2. 2005	Seminar: LIAFA (info) – Tomáš Vojnar
10. 3. 2005	Seminar: Modeling of Human Activity (overview) – Lukáš Grulich Seminar: Robot Navigation - Jaroslav Rozman
17. 3. 2005	Seminar: Hybrid Petri Nets – Novosad Petr
24. 3. 2005	Seminar: Liberouter – Jan Kořenek
31. 3. 2005	Seminar: Methods and Tools of Indeterminateness Description in the Heterogeneous Models – David Martinek Seminar: Distributed PNtalk with Mobile Objects – Ivan Schwarz
14. 4. 2005	Seminar: Distributed Simulation Environment – Pavel Slavíček
28. 4. 2005	Workshop: OOPN-DEVS (Janoušek, Kočí)
5. 5. 2005	Seminar: Modeling of the Liberouter System to Purpose of the Verification and/or Simulation Prove of the Performance Parameters - Aleš Smrčka

12. 5. 2005	Seminar: New Verification Trends of Applications with Pointers - Pavel Erlebach Seminar: Expert Systems in the System Simulation - Vladimír Florián Seminar: Information of the European Grants – Dan Cvrček
2. 6. 2005	Seminar: Use of the Tree Automatons for the Verification of the Applications with Pointers - Adam Rogalewicz
27. 10. 2005	Martin Drahanský: Information from Universität Siegen
10. 11. 2005	Bohuslav Křena: FIT and its Participation in the EU Projects
24. 11. 2005	Seminar: Modeling of the Electricity Market and Support Services in ES CR - Martin Hrubý

Other activities

- Co-organization of the „*39th International Conference on Modelling and Simulation of Systems*" (MOSIS 2005). An international conference focused on simulation – theory, tools, methods and application.
- Co-organization of the „*27th International Autumn Colloquium Advanced Simulation of Systems*" (ASIS 2005). An international conference focused on simulation – theory, tools, methods and application.
- Co-organization of the international students´ workshop „*Mathematical and Engineering Methods in Computer Science*" (MEMICS 2005).
- Co-organization of the international students´ „*Honeywell EMI Conference and Competition*" supported by Honeywell (EMI 2005).
- Co-organization of the interfaculty students´ scientific conference on „*Electrical Engineering, Information and Communication Technologies*" (EEICT 2005).
- Memberships in programme committees of international scientific conferences.
- Co-organization of the international „*3rd International Workshop on NEw Trends in System Simulation*" (NETSS 2005). An international workshop focused on new trends in simulation of systems.
- „*Brno University Security Laboratory*" (BUSLab). A research group co-operating with FI MU Brno and FIT BUT on the analysis and devlopment of security applications.
- Co-organization of the **„*Mikulášská kryptobesídka 2005*"** international workshop focused on security in IT.

III.3 Department of Computer Graphics and Multimedia

The **Department of Computer Graphics and Multimedia** is responsible for teaching courses in the MSc. specialization called **Computer Graphics and Multimedia**, 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 (CAD), 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 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 human-machine interaction, image and signal processing, medical data processing, and on 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 lectures in most courses are supplemented with projects and laboratory sessions where the knowledge that students acquire during the lectures is further developed through practical experience and then practised in individually assigned projects and/or team projects. Most of the laboratory assignments and projects are platform-independent.

In case of complex tasks, which need specialized equipment, the necessary equipment, such as high performance Silicon Graphics graphic stations and specialized peripheries, is available.

Staff

Head of the Department
Zemčík Pavel, doc. Dr. Ing.
Deputy Head of the Department
Černocký Jan, doc. Dr. Ing.
Associate Professors
Černocký Jan, doc. Dr. Ing.
Zemčík Pavel, doc. Dr. Ing.
Research Worker
Matějka Pavel, Ing.

Assistant Professor

        Burget Lukáš, Ing., Ph.D.

        Herout Adam, Ing., Ph.D.

        Kršek Přemysl, Ing., Ph.D.

        Motlíček Petr, Ing., PhD.

        Smrž Pavel, RNDr., Ph.D.

        Sumec Stanislav, Ing., Ph.D.

Assistant Lecturer

        Dobšík Martin, Ing.

        Grézl František, Ing.

        Karafiát Martin, Ing.

Technical Staff

        Otáhalová Sylva

Ph.D. Students

        Beran Vítězslav, Ing.

        Glembek Ondřej, Ing.

        Chalupníček Kamil

        Chudý Robert, MgA.

        Kadlec Jaroslav, Ing.

        Pečiva Jan, Ing.

        Potúček Igor, Ing.

        Seeman Michal, Ing.

        Sinopalniková Anna, Mgr.

        Svojanovský Petr, Ing.

        Szöke Igor, Ing.

        Šilhavá Jana, Ing.

        Španěl Michal, Ing.

        Venera Jiří, 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-VUT 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)

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
CZR	Digital speech processing	L	6	26-3-0-0-0	Černocký Jan, doc. Dr. Ing.
MVS	Machine vision systems design (in English)	L	7	26-0-0-26-13	Ford M. Ralph
MMD	Advanced methods of 3D scene visualisation	Z	0	39-0-0-0-0	Zemčík Pavel, doc. Dr. Ing.
MZD	Modern methods of speech processing	L	0	39-0-0-0-0	Černocký Jan, doc. Dr. Ing.
MUM	Multimedia	L	6	26-0-0-13-13	Zemčík Pavel, doc. Dr. Ing.
MUP	Multimedia presentation	L	3	13-0-0-13-0	Zemčík Pavel, doc. Dr. Ing.
PGR	Computer graphics	Z	5	39-0-0-6-7	Zemčík Pavel, doc. Dr. Ing.
PGD	Computer graphics	Z	0	39-0-0-0-0	Zemčík Pavel, doc. Dr. Ing.
POG	Computer graphics	L	7	39-0-0-18-21	Zemčík Pavel, doc. Dr. Ing.
POV	Computer vision	L	8	39-0-0-39-0	Zemčík Pavel, doc. Dr. Ing.
PGP	Advanced computer graphics	L	5	26-0-0-0-26	Kršek Přemysl, Ing., Ph.D.
PRR	Product realization and entrepreneurship (in English)	L	2	13-0-0-0-0	Ford M. Ralph
IJE	Java	L	5	26-14-0-12-0	Sumec Stanislav, Ing., Ph.D.
ISS	Signals and systems	Z	6	39-0-0-12-14	Černocký Jan, doc. Dr. Ing.
SCS	Human-machine interface	Z	6	26-0-0-18-21	Zemčík Pavel, doc. Dr. Ing.
ITU	User interface programming	Z	4	14-0-0-12-13	Zemčík Pavel, doc. Dr. Ing.
VIN	Visual creativity informatics	L	6	26-0-0-26-0	Zemčík Pavel, doc. Dr. Ing.
ZAG	Fundamentals of computer graphics	Z	4	26-0-0-12-14	Kršek Přemysl, Ing., Ph.D.
IZG	Fundamentals of computer graphics	L	6	39-0-0-14-12	Kršek Přemysl, Ing., Ph.D.
ZPJ	Natural language processing	Z	5	26-0-0-0-26	Smrž Pavel, RNDr., Ph.D.
ZPD	Natural language processing	Z	0	39-0-0-0-0	Smrž Pavel, RNDr., Ph.D.

Research Projects

Quality check of annotations of meeting data., FRVŠ MŠMT, FR3559/2005/G1, 2005
Research leader: Chalupníček Kamil
Team leader: Černocký Jan

Laboratory for image and sound, FRVŠ MŠMT, FR3521/2005/A, 2005
Research leader: Zemčík Pavel
Team leaders: Černocký Jan, Kršek Přemysl, Richter Miroslav
Stanislav, Španěl Michal, Zemčík Pavel

New trends in research and use of voice technologies, GAČR, GA102/05/0278, 2005-2007
Research leader: Černocký Jan
Team leaders: Burget Lukáš, Grézl František, Chalupníček Kamil, Karafiát Martin, Matějka
Pavel, Motlíček Petr, Schwarz Petr, Szöke Igor

Recognition and tracking of human body parts, FRVŠ MŠMT, FR2192/2005/G1, 2005
Research leader: Potúček Igor
Team leader: Zemčík Pavel

User interface of hierarchic structures, FRVŠ MŠMT, FR200/2005/G1, 2005
Research leader: Kadlec Jaroslav
Team leaders: Chudý Robert, Zemčík Pavel

**Application of segmentation technologies for reconstruction of 3D models of objects
from image**, FRVŠ MŠMT, FR59/2005/G1, 2005
Research leader: Beran Vítězslav
Team leaders: Kršek Přemysl, Španěl Michal

Augmented Multi-party Interaction, EU-HLT, 506811-AMI, 2004-2006
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
Research leader: Honzík Jan M.
Team leader: Zemčík Pavel

**Optical network in national research and its new applications - Programmable
hardware**, CESNET, MSM6383917201, 2004-2010
Research leader: Novotný Jiří
Team leaders: 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
Research leader: Zemčík Pavel

Recognition of keywords and actions in audio visual data, CESNET, 119/2004, 2004-2006
Research leader: Motlíček Petr
Team leaders: Karafiát Martin, Kašpárek Tomáš, Sumec Stanislav

Data driven anthropic coding and speech recognition, GACR, GP102/02/D108, 2002-2005
Research leader: Černocký Jan

Multi Modal Meeting Manager, EU-HLT, IST-2001-34485, 2002-2005
Research leader: Heřmanský Hynek
Team leaders: Černocký Jan, Zemčík Pavel

Co-operation

Co-operation in the Czech Republic
- Faculty of Informatics MU Brno, doc. Karel Pala, Dr. Ivan Kopeček, Dr. Tomáš Staudek – co-operation in speech processing and computer graphics
- VŠB-TU, Ostrava, Faculty of Electronics and Informatics, Dr. Arnošt Šarman – annual series of lectures given by the staff and Ph.D. students of ÚPGM, VŠB-TU – focus on computer graphics
- Centre for Machine Perception, FELK ČVUT Praha, Dr. Jiří Matas – co-operation on image processing related to transport
- ÚTIA Praha, Dr. Jaroslav Kadlec, Ing. Jan Schier - co-operation in the field of algorithm implementation for image processing in FPGA
- St. Anne Faculty Hospital, Brno, Clinic of Imaging Methods, Head of the Clinic doc. MUDr. Petr Krupa – co-operation in the field of computer models of tissues, Clinic of Stomatology, Clinic of Plastic and Aesthetical Surgery, Clinic of Traumatology – co-operation in the field of computer models of tissues .
- Clinic of Traumatology, Traumatological Hospital, Brno, Head: doc. MUDr. Michal Mašek, CSc – co-operation in the field of computer models of tissues

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
- 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
- University of Helsinki, Helsinki, Finland, Laboratory of Computational Engineering, prof. Mikko Sams, Dr. Michael Frydrych – co-operation in the area of man-machine communication, exchange of Ph.D. students
- Lappeenranta University of Technology, Lappeenranta, Finland, 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)
- University of Joensuu, Joensuu, Finland, Department of Computer Science, prof. Jussi Parkkinen, Dr. Markku Hauta-Kasari – multispectral colour image processing, exchange of students
- Technische Universität Wien, Institut für Komputergrafik, Thomas Theußl – Annual international students' seminar (Central European Seminar on Computer Graphics)

- Technische Universität Graz, Institut für Computer Graphics and Vision, Markus Grabner, exchange of students and CESGC (Central European Seminar on Computer Graphics) - an annual international students' seminar,
- Oregon Health and Science University, Oregon Graduate Institute, Oregon, USA, prof. Misha Pavel – speech processing, robust detection of phonemes,
- ESIEE Paris, Paris, Francie, prof. Genevieve Baudoin – speech processing, very low bit-rate speech coding, exchange of Ph.D. students
- Department of computer graphics and image processing, Faculty of Mathematics, Physics and Informatics, Comenius University, Bratislava, Slovak Republic, Dr. Andrej Ferko – Annual international students' seminar CESCG (Central European Seminar on Computer Graphics)

Visitors to the Department

- Dr. Alan Chalmers, University of Bristol, Department of Computer Science, Great Britain, 8.-9.5.2005
- Dr. Michael Frydrych, Helsinky University of Technology, Finland, 2 days in January 2005
- prof. Ralph M. Ford, Ph.D., Pennsylvania State University, USA, January to June 2005

Visits of Staff Members to Foreign Institutions

- Beran Vítězslav, Ing., Faculty of Mathematics, Physics and Informatics, Comenius University, Budmerice, SK, 1 day
- Burget Lukáš, Ing., Ph.D., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 4 days
- Burget Lukáš, Ing., Ph.D., University of Edinburgh, Institute for Communicating and Collaborative Systems, Edinburgh, GB, 5 days
- Burget Lukáš, Ing., Ph.D., The 2005 NIST Language Recognition Evaluation, Gaithersburg, MD, US, 10 days
- Černocký Jan, doc. Dr. Ing., Philips Speech Processing, Breitner Tower,Room 20.14, Spaklerweg, Amsterdam, NL, 4 days
- Černocký Jan, doc. Dr. Ing., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, Place de Brouckčre 31-1000 Brussels-Belgium, BE, 3 days
- Černocký Jan, doc. Dr. Ing., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, Cité Descartes BP 99, 93162 Nois-le-Grand, FR, 4 days
- Černocký Jan, doc. Dr. Ing., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, Martigny, Rue du Simplon 4, CH, 3 days
- Černocký Jan, doc. Dr. Ing., University of Edinburgh,Institute for Communicating and Collaborative Systems, University of Edinburgh, UK, GB, 7 days
- Černocký Jan, doc. Dr. Ing., Siemens, Corporate Research and Development, Mnichov, DE, 3 days
- Černocký Jan, doc. Dr. Ing., Eurospeech 2005 - Lisboa 9th European conference on speech communication and technology, Lisabon, PT, 6 days
- Černocký Jan, doc. Dr. Ing., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, IBIS Brussels Sainte Catherine, BE, 3 days
- Fĕdor Martin, Ing., International Conference on Graphics, Vision and Image Processing, Cairo, Egypt, EG, 6 days

- Herout Adam, Ing., Ph.D., University of Bristol, University of Bristol , Senate House, Bristol BS8 ITH, GB, 6 days
- Herout Adam, Ing., Ph.D., Lappeenranta University of Technology, Skinnarilankatu 34, FIN-53850,Lappeenranta, FI, 6 days
- Herout Adam, Ing., Ph.D., Universidade de Trás-os-Montes e Alto Douro, Apartado 1014,5000-911 Vila Real, PT, 8 days
- Herout Adam, Ing., Ph.D., International Conference on Graphics, Vision and Image Processing, Cairo, Egypt, EG, 6 days
- Chalupníček Kamil, 10th International Conference on Speech and Computer, University of Patras, Patras, Greece, GR, 6 days
- Kadlec Jaroslav, Ing., University of Edinburgh,Institute for Communicating and Collaborative Systems, Edinburgh, GB, 5 days
- Karafiát Martin, Ing., Insitut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny,Switzerland, CH, 4 days
- Matějka Pavel, Ing., University of Edinburgh,Institute for Communicating and Collaborative Systems, University of Edinburgh, UK, GB, 8 days
- Matějka Pavel, Ing., Eurospeech 2005 - Lisboa 9th European conference on speech communication and technology, Lisabon, PT, 6 days
- Matějka Pavel, Ing., The 2005 NIST Language Recognition Evaluation, Gaithersburg, MD, US, 10 days
- Motlíček Petr, Ing., PhD., Eurospeech 2005 - Lisboa 9th European conference on speech communication and technology, Lisabon, PT, 6 days
- Pečiva Jan, Ing., Philips Speech Processing, Breitner Tower,Room 20.14, Spaklerweg, Amsterdam, NL, 3 days
- Pečiva Jan, Ing., The University of Twente, University of Twente, NL, 2 months
- Pečiva Jan, Ing., Intelligent Technologies for Interactive Entertainment, Madonna di Campiglio, IT, 5 days
- Potúček Igor, Ing., The Eighth International Conference on Computer Graphics and Artificial Intelligence , Limoges MSI, 83, rue d'Isle, Francie, FR, 4 days
- Potúček Igor, Ing., Visualization, Imaging, & Image Processing, Benidorm, ES, 6 days
- Smrž Pavel, RNDr., Ph.D., European Comission EU, Avenue d´Auderghem 22-28, Bussel, BE, 2 days
- Smrž Pavel, RNDr., Ph.D., Centrale Recherche S.A., rue Jean-Goujon, Paris, FR, 2 days
- Smrž Pavel, RNDr., Ph.D., European Comission EU, Avenue d´Auderghem 22-28, Bussel, BE, 2 days
- Smrž Pavel, RNDr., Ph.D., Open License Society, Leuven, Belgie, BE, 1 day
- Smrž Pavel, RNDr., Ph.D., ALMA Consulting Group, ALMA Consulting Group,55, avenue René CASSIN, Lyon, FR, 3 days
- Smrž Pavel, RNDr., Ph.D., DG Joint Research Center - European Commission, Ispra, Itálie, IT, 3 days
- Smrž Pavel, RNDr., Ph.D., Computer processing of Slavonian and East European Languages, Bratislava, SK, 2 days
- Sumec Stanislav, Ing. Ph.D., The University of Twente, Drienerlolaan 5 , Twente, NL, 2 days
- Svojanovský Petr, Ing., Summer School Neural Networks, Porto, PT, 7 days
- Szöke Igor, Ing., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, Cité Descartes BP 99, 93162 Nois-le-Grand, FR, 4 days

- Szöke Igor, Ing., University of Edinburgh,Institute for Communicating and Collaborative Systems, The University of Edinburgh., GB, 8 days
- Szöke Igor, Ing., Eurospeech 2005 - Lisboa 9th European conference on speech communication and technology, Lisabon, PT, 6 days
- Šilhavá Jana, Ing., Communication and Information Technologies, Hotel Tatranské Zruby, Starý Smokovec, SK, 4 days
- Zemčík Pavel, doc. Dr. Ing., European Comission EU, Avenue d´Auderghem 22-28, Bussel, BE, 1 day
- Zemčík Pavel, doc. Dr. Ing., University of Edinburgh,Institute for Communicating and Collaborative Systems, Edinburgh, GB, 2 days
- Zemčík Pavel, doc. Dr. Ing., Faculty of Mathematics, Physics and Informatics of Comenius University, Budmerice, SK, 1 day
- Zemčík Pavel, doc. Dr. Ing., University of Bristol, University of Bristol , Senate House, Bristol BS8 ITH, GB, 6 days
- Zemčík Pavel, doc. Dr. Ing., New Horizons In Bussines and Industry, Korfu, GR, 5 days
- Zemčík Pavel, doc. Dr. Ing., Lappeenranta University of Technology, Skinnarilankatu 34, FIN-53850, Lappeenranta, FI, 6 days
- Zemčík Pavel, doc. Dr. Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, IBIS Brussels Sainte Catherine, BE, 3 days
- Zemčík Pavel, doc. Dr. Ing., International Conference on Graphics, Vision and Image Processing, Cairo, Egypt, EG, 6 days

Agreements
Co-operation agreements within the Socrates/Erasmus programme made with:

- 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
- École Supérieure d`Ingénieurs en Électrotechnique, http://www.esiee.fr/, France
- Universite la Rochelle, http://www.univ-lr.fr/, France
- UtrechtUniversity,http://www.uu.nl/uupublish/homeuu/homeenglish/1757main.html, the Netherlands
- Universidade de Trás-os-Montes e Alto Douro, http://www.utad.pt, Portugal
- 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
- University of Sheffield, http://www.shef.ac.uk, UK

Membership in Organizations and Societies
- Černocký Jan, doc. Dr. Ing.,
    - IEEE (Secretary of the Czech Section)
    - ISCA (International Speech Communication Assocation).
- Motlíček Petr, Ing., Ph.D.
    - IEEE
    - ISCA
- Matějka Pavel, Ing.,
    - IEEE
    - ISCA

- Zemčík Pavel, doc. Dr. Ing.,
  - o IEEE
  - o ACM
- Szöke Igor, Ing.,
  - o IEEE
- Schwarz Petr, Ing.
  - o IEEE
  - o ISCA
- Grézl František, Ing.
  - o IEEE
  - o Institutional membership in Linguistic Data Consortium, http://www.ldc.upenn.edu/.

Publications:

Presentations, Electronic Documents:

Grézl, F.: Spectral plane investigation for probabilistic features for ASR, Edinburgh, GB, 2005, p. 5

Conference Proceedings:

Kadlec, J., Potúček, I., Sumec, S., Zemčík, P.(editors): Evaluation of Tracking and Recognition Methods, Brno, CZ, 2005, pp. 617-622, ISBN 80-214-2890-2

Conference Articles:

Ashby, S., Bourban, S., Carletta, J., Flynn, M., Guillemot, M., Hain, T., Kadlec, J., Karaiskos, V., Kraaij, W., Kronenthal, M., lathoud, G., Lincoln, M., Lisowska, A., McCowan, I., Post, W., Reidsma, D., Wellner, P.: The AMI Meeting Corpus: A Pre-Announcement, In: Workshop on Multimodal Interaction and Related Machine Learning Algorithms (MLMI), Edinburgh, GB, 2005, p. 4

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Beran, V., Pečiva, J.: Augmented Multi-user Cooperative Environment, In: Proceedings of the 11th conference STUDENT EEICT 2005, Brno, CZ, FEKT BUT, 2005, pp. 528-533, ISBN 80-214-2890-2

Černocký, J., Chalupníček, K.: Checks of speech transcriptions for AMI meeting database, In: 10th International Conference SPEECH and COMPUTER, Moscow, RU, 2005, pp. 587-590, ISBN 5-7452-0110-1

Černocký, J., Lampa, P.: Teaching signals - making it automatic, making it fun, In: Proc. Radioelektronika 2005, Brno, CZ, FEKT BUT, 2005, p. 4, ISBN 80-214-2904-6

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Herout, A., Zemčík, P.: Hardware Pipeline for Rendering Clouds of Circular Points, In: Proceedin. of WSCG 2005, Plzeň, CZ, ZČU Plzeň, 2005, pp. 17-22, ISBN 80-903100-7-9

Karafiát, M., Burget, L., Černocký, J.: Using Smoothed Heteroscedastic Linear Discriminant Analysis in Large Vocabulary Continuous Speech Recognition System, In: 2ndJoint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Edinbourgh, GB, 2005, s. 8

Karafiát, M.: The Development of the AMI System for the Transcription of Speech in Meetings, In: 2nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Edinburgh, GB, 2005, p. 12

Karafiát, M.: The 2005 AMI System for the Transcription of Speech in Meetings, In: Proc. NIST MLMI Meeting Recognition Workshop, Edinbourgh, GB, 2005, p. 12

Karafiát, M.: Transcription of Conference Room Meetings: an Investigation, In: Interspeech'2005 - Eurospeech - 9th European Conference on Speech Communication and Technology, Lisabon, PT, 2005, p. 4

Kršek, P.: Flow Reduction Marching Cubes Algorithm, In: Proceedings of ICCVG 2004, Warsaw, CZ, Springer, 2005, pp. 100-106, ISBN 1-4020-4178-0

Martínek, T., Zemčík, P., Kořenek, J.: FPGA-Based Platform for Network Applications, In: Proc. of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, pp. 194-197, ISBN 9639364487

Matějka, P., Matějka, P., Schwarz, P., Schwarz, P., Černocký, J., Černocký, J., Chytil, P., Chytil, P.: Phonotactic Language Identification using High Quality Phoneme Recognition, In: Interspeech'2005 - Eurospeech - 9th European Conference on Speech Communication and Technology, Lisbon, PT, 2005, p. 4

Matějka, P., Schwarz, P., Černocký, J., Chytil, P.: Phonotactic Language Identification, In: Proceedings of Radioelektronika 2005, Brno, CZ, FEKT BUT, 2005, pp. 140-143, ISBN 80-214-2904-6

Matějka, P.: Phoneme Recognition Tuning for Language Identification System, In: Proceedings of the 11th conference STUDENT EEICT 2005, Brno, CZ, FEKT BUT, 2005, pp. 658-653, ISBN 80-214-2890-2

Motlíček, P., Burget, L., Černocký, J.: Non-parametric Speaker Turn Segmentation of Meeting Data, In: Interspeech'2005 - Eurospeech - 9th European Conference on Speech Communication and Technology, Lisabon, PT, 2005, pp. 657-660, ISSN 1018-4074

Motlíček, P., Burget, L., Černocký, J.: Visual Features For Multimodal Speech Recognition, In: Radioelektronika 2005, Brno, CZ, FEKT BUT, 2005, pp. 187-190, ISBN 80-214-2904-6

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Potúček, I.: Automatic Image Stabilization for Omni-Directional Systems, In: Proceedings of the Fifth IASTED International Conference on VISUALIZATION, IMAGING,AND IMAGE PROCESSING, Benidorm, ES, ACTA Press, 2005, pp. 338-342

Schier, J., Kovář, B., Zemčík, P., Herout, A., Beran, V.: Reconfigurable image processing architecture with simulink prototyping support, In: Sborník "Technical Computing 2005", Praha, CZ, 2005, pp. 1-4

Smrž, P., Kadlec, V.: Incremental Parser for Czech, In: 4th International Symposium on Information and Communication Technologies (WISICT05), Cape Town, ZA, 2005, pp. 1-6

Smrž, P., Pitner, T., Gregar, T.: Natural Language Processing Technologies for Electronic Teaching Support, In: Proceedings of Informatika XVI., Brno, CZ, 2005, pp. 1-7

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Stoklas, J., Kršek, P., Krupa, P., Janeček, M.: Pelvis bone real model applied for implantation of hip joint TP, In: XIII. Frejkovy dny, Brno, CZ, LF MUNI, 2005, p. 2, ISBN 80-210-3749-0

Stolcke, A., Anguera, X., Boakye, K., Cetin, Ö., Grézl, F., Janin, A., Mandal, A., Peskin, B., Wooters, C., Zheng, J.: Further Progress in Meeting Recognition: The ICSI-SRI Spring 2005 Speech-to-Text Evaluation System, In: Proc. NIST MLMI Meeting Recognition Workshop, Edinburgh, GB, 2005, p. 12

Sumec, S., Kadlec, J.: Event Editor - The Multi-Modal Annotation Tool, In: Workshop on Multimodal Interaction and Related Machine Learning Algorithms (MLMI), Edinburgh, GB, 2005, p. 1

Sumec, S., Potúček, I., Zemčík, P.: Automatic Mobile Meeting Room, In: Proceedings of 3IA'2005 International Conference in Computer Graphics and Artificial Intelligence, Limoges, FR, 2005, pp. 171-177, ISBN 2-914256-07-8

Szöke, I., Schwarz, P., Burget, L., Fapšo, M., Karafiát, M., Černocký, J., Matějka, P.: Comparison of Keyword Spotting Approaches for Informal Continuous Speech, In: Interspeech'2005 - Eurospeech - 9th European Conference on Speech Communication and Technology, Lisabon, PT, 2005, pp. 633-636, ISSN 1018-4074

Szöke, I., Schwarz, P., Burget, L., Karafiát, M., Černocký, J.: Phoneme based acoustics keyword spotting in informal continuous speech, In: Radioelektronika 2005, Brno, CZ, FEKT BUT, 2005, pp. 195-198, ISBN 80-214-2904-6

Szöke, I., Schwarz, P., Matějka, P., Burget, L., Fapšo, M., Karafiát, M., Černocký, J.: Comparison of Keyword Spotting Approaches for Informal Continuous Speech, In: 2nd Joint Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Edinburgh, GB, 2005, p. 12

Szöke, I.: Smooth Pitch Tracker Based on Harmonic and Noise Model, In: STUDENT EEICT 2005, Brno, CZ, FIT BUT, 2005, pp. 673-677, ISBN 80-214-2890-2

Šilhavá, J.: Segmentation Approaches Applied to Retinal Fundus Images, In: Communication and Information Technologies, Bratislava, SK, 2005, pp. 41-44, ISBN 80-8040-269-8

Venera, J.: Completion of 3D scene, In: Student EEICT 2005, Brno, CZ, FIT BUT, 2005, p. 3

Zemčík, P., Herout, A., Beran, V., Potúček, I., Fučík, O., Honec, J., Richter, M., Kalová, I., Lisztwan, M.: Image Processing in Traffic Applications, In: Proceedings of GVIP 2005, Cairo, EG, 2005, p. 6, ISSN 1687-398X

Zemčík, P., Herout, A., Beran, V., Schier, J., Fučík, O.: Reconfigurable Image Processing Architecture, In: Proceedings of GVIP2005, Cairo, EG, 2005, s. 6, ISSN 1687-398X

Zemčík, P., Hruška, T.: Recorded lectures in higher education - technology and experience, In: Proceedings of New Horizons in Industry, Business, and Education, Heracleion, Crete, GR, TEI Heracleion, 2005, pp. 222-227, ISBN 960-85316-9-1

Zhu, Q., Chen, B., Grézl, F., Morgan, N.: Improved MLP Structures for Data-Driven Feature Extraction for ASR, In: Interspeech'2005 - Eurospeech - 9th European Conference on Speech Communication and Technology, Lisabon, PT, 2005, p. 4, ISSN 1018-4074

Journals:

Brázdil, M., Dobšík, M., Mikl, M., Hluštík, P., Daniel, P., Pažourková, M., Krupa, P.,

Rektor, I.: Combined event-related fMRI and intracerebral ERP study of an auditory oddball task, In: NeuroImage, Vol. 26, No. 1, US, s. 285-293, ISSN 1053-8119

Kršek, P., Krupa, P.: 3D modelling of tissue based on medical image data, In: Neurologie pro praxi, Vol. 6, No. 3, Olomouc, CZ, s. 149-153, ISSN 1335-9592

Smrž, P.: Parallel Metagrammar for Closely Related Languages - A Case Study of Czech and Russian, Research on Language and Computation, Special Issue on Shared Representation in Multilingual Grammar Engineering, DE, 2005, s. 101-128

Szöke, I., Schwarz, P., Burget, L., Karafiát, M., Matějka, P., Černocký, J.: Phoneme Based Acoustics Keyword Spotting in Informal Continuous Speech, Lecture Notes in Computer Science, Berlin, DE, Springer, 2005, s. 8, ISBN 3-540-28789-2

Research project:

Matějka, P., Schwarz, P., Černocký, J., Chytil, P.: Tuning Phonotactic Language Identificaion System, Brno, CZ, FIT BUT, 2005, p. 5

Products:

AMI for Continuous Speech Recognition with a Large Dictionary, 2005
Autoři: Burget Lukáš, Hain Thomas, Karafiát Martin

Indexation and search engine for multi-modal data, 2005
Autoři: Černocký Jan, Fapšo Michal, Schwarz Petr, Szöke Igor

STK Toolkit, 2005
Autoři: Burget Lukáš, Černocký Jan, Glembek Ondřej, Karafiát Martin, Kontár Stanislav, Schwarz Petr

A System for Automatic Language Identification (LID), 2005
Autoři: Burget Lukáš, Černocký Jan, Matějka Pavel, Schwarz Petr

A System for On-line Detection of Keywords, 2005
Autoři: Černocký Jan, Matějka Pavel, Schwarz Petr, Szöke Igor

System for semi-automatic speech annotation checking using web interface, 2005
Autoři: Černocký Jan, Chalupníček Kamil, Kašpárek Tomáš

Seminars:

7. 1. 2005	UTRAPs - Petr Svojanovský
7. 1. 2005	Speaker segmentation and voice activity detection in meetings - Motlíček Petr
	Control of the man-machine dialogue - Pavel Cenek
21. 1. 2005	Collaborative/Networked virtual environments - Pečiva Jan
21. 1. 2005	Training of AMI CORE recognition system - Karafiát Martin
	WordNET - Karel Pala
4. 2. 2005	Discriminative training of speech recognizers - Lukáš Burget
	Visualisation of hierarchic structures - Kadlec Jaroslav
	AMI meeting annotation checking using web interface (IN CZECH LANGUAGE) - Kamil Chalupníček
18. 2. 2005	RIPAC - the architectural overview and processing units - Pavel Zemčík
	Syntactic analysis of natural languages based on context free grammar backbone - Vladimír Kadlec

11. 3. 2005	Natural language as Web interface - Lukáš Svoboda
	Demos prepared for the AMI Tech transfer workshop - Jan Černocký
1. 4. 2005	Results of acoustic keyword spotting on meeting data - Igor Szoke
	Language Identification - Pavel Matějka
29. 4. 2005	Omni-directional image stabilization - Igor Potúček
	Advanced Human-Computer Interaction - Vítězslav Beran
	Algorithms on C6000 DSP Platform - Nikos Kontakis
1. 7. 2005	Discrete Ergodic Hidden Markov Model Phoneme String Modeling in Language Identification - Pavel Matějka
1. 7. 2005	Keyword spotting by the use of semantic categories of words - Pandey Gaurav
	Corner detectors and evaluation of their performance - Raphaël Escure and Benjamin Sebbah
22. 7. 2005	Structural language modeling - Pavel Smrž
	Omnidirectional system for meeting recordings - Igor Potúček
14. 10. 2005	Indexation and search engine for keyword spotting - Michal Fapšo
	Computer animation of soft tissues - Martin Dobšík
4. 11. 2005	Word association thesauri - Anna Sinopalnikova
	Language identification without sleep - Pavel Matějka & Lukáš Burget
25. 11. 2005	Presentation of Activities: Prosody Prediction and Language Modelling - Ilya Oparin (Speech Technology center St. Peterburg, Russia and ZCU Plzen)
	Programming of cellular phones in Java - an application for reading of graphical codes by cellular phones - Josef Žižka
9. 12. 2005	Advances in keyword spotting in SPeech@FIT - Igor Szoke
	Adaptive Delaunay Triangulation for Medical Image Segmentation - Michal Španěl

III.4 Department of computer systems

Department of Computer Systems provides tuition in the MSc. specialization **Computer Systems and Networks** which covers processor and computer architecture, data transmission, communication protocols and computer networks, development of network-based, Internet, parallel and embedded applications, design of hybrid HW/SW systems and their spacification, digital signal processing, design of spacialized interfaces, including interfaces to the Internet. Besides, the Department is also in charge of teaching a number of courses in the Bachelor's study programme **Information Technology**.

Research activities of the Department are focused on architecture of HW/SW of embedded systems, parallel performance prediction and tuning, specification and design of computer-based systems,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, and
- diagnostics, testability and safety.

The lectures in most courses are supplemented with projects or laboratory sessions, where students acquire useful experience and skills with the latest software packages and hardware units (workstations, multiprocessor systems, workstation clusters, RT OS, design systems FPGA and the like), learn basics of teamwork and project management. For the most demanding projects IBM BladeServer is used.
Department seminars take place on Fridays at 1 p.m. in Room C21. Current programme.

Staff
Head of Department
    Kotásek Zdeněk, doc. Ing., CSc.
Deputy Head of Department
    Sekanina Lukáš, Ing., Ph.D.
Professors
    Dvořák Václav, prof. Ing., DrSc.
Associate Professors
    Drábek Vladimír, doc. Ing., CSc.
    Kotásek Zdeněk, doc. Ing., CSc.
    Linhart Miroslav, doc. Ing., CSc.
    Schwarz Josef, doc. Ing., CSc.

Lecturers

Eysselt Miloš, Ing., CSc.

Fučík Otto, Dr. Ing.

Růžička Richard, Ing., Ph.D.

Sekanina Lukáš, Ing., Ph.D.

Strnadel Josef, Ing., Ph.D.

Ph.D. Students

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.

Škarvada Jaroslav, 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: 2 Agilent oscilloscopes and 2 Textronix oscilloscopes (able to sample on 100MHz, 1G samples/channel), a 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.

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8 benches equipped with development kits HC11 EVBU 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. 6 analog EZ Digital OS 5020 oscilloscopes that enable two-channel waveform display in the frequency range up to 20 MHz.

1 bench with Celoxica RC-1000 PCI card (Xilinx FPGA Virtex 1000) for FPGA gate array 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 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 interfaces 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.

Compound digital system laboratory

20 benches equipped with development kits for design and debugging of digital systems and their interface. Each bench contains a Motorola HC08LJ12 kit with a microcontroller including common peripheries and debugging interface, Xilinx Spartan 3 kit with a gate array and an interface with numerous analogue and digital inputs and outputs (Advantech PCI-1710 industrial card), further peripheries, a bread board, JTAG programmer and a power supply unit.

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
EVA	Applied evolution algorithms	L	6	39-0-0-12-14	Schwarz Josef, doc. Ing., CSc.
AMC	Applied microcomputers	L	6	26-0-26-0-13	Schwarz Josef, doc. Ing., CSc.
ARP	Computer architectures	Z	6	39-16-0-0-10	Dvořák Václav, prof. Ing., DrSc.
IBX	Bachelor's project abroad	L	9	0-0-0-0-78	Eysselt Miloš, Ing.,CSc.
BPI	Bachelor's project VTB	Z	6	0-0-0-0-78	Eysselt Miloš, Ing.,CSc.
CZS	Digital signal processing	Z	6	39-0-0-10-16	Fučík Otto, Dr. Ing.
DIA	Diagnostics and secure systems	L	6	39-10-6-0-10	Drábek Vladimír, doc. Ing., CSc.

DPX	Diploma project abroad	L	15	0-0-0-0-0	Eysselt Miloš, Ing.,CSc.
EVD	Evolutionary computation	L	0	39-0-0-4-0	Schwarz Josef, doc. Ing., CSc.
GMP	Graphics processors	Z	6	39-0-0-13-13	Drábek Vladimír, doc. Ing., CSc.
HSC	Hardware/Software Codesign	Z	5	39-0-0-0-13	Fučík Otto, Dr. Ing.
IMP	Microprocessors and embedded systems	Z	6	39-6-8-0-12	Schwarz Josef, doc. Ing., CSc.
IMP	Microprocessors and embedded systems	L	6	39-0-0-26-0	Schwarz Josef, doc. Ing., CSc.
NCS	Modern design of digital systems	Z	6	39-0-0-10-16	Fučík Otto, Dr. Ing.
INC	Design of digital systems	L	5	39-10-0-0-3	Fučík Otto, Dr. Ing.
NAV	Design of external adapters and embedded systems	L	5	26-0-16-0-10	Kotásek Zdeněk, doc. Ing., CSc.
INP	Design of computer systems	Z	5	39-5-0-4-4	Drábek Vladimír, doc. Ing., CSc.
PDD	Parallel and distributed programming	Z	0	39-0-0-0-0	Dvořák Václav, prof. Ing., DrSc.
IPZ	Periferal devices	Z	4	35-0-2-0-2	Kotásek Zdeněk, doc. Ing., CSc.
PZ2	Peripheral devices 2	Z	6	39-0-12-0-14	Kotásek Zdeněk, doc. Ing., CSc.
PTP	PCs, technical maintenance	L	6	26-0-39-0-0	Kotásek Zdeněk, doc. Ing., CSc.
IPN	Computer design	Z	5	26-0-0-10-16	Schwarz Josef, doc. Ing., CSc.
PCS	Advanced digital systems	Z	5	39-0-0-8-5	Fučík Otto, Dr. Ing.
PTD	Principles of testable circuits synthesis	Z	0	39-0-0-0-0	Kotásek Zdeněk, doc. Ing., CSc.
PTD	Principles of testable circuits synthesis	L	0	39-0-0-0-0	Kotásek Zdeněk, doc. Ing., CSc.
P2X	Year project 2/2	L	6	0-0-0-0-26	Eysselt Miloš, Ing., CSc.
P3X	Semester project abroad	Z	5	0-0-0-0-39	Eysselt Miloš, Ing., CSc.
IVH	VDHL Seminar	L	4	0-26-0-0-13	Fučík Otto, Dr. Ing.
SZZ	Final state exam	Z	0	0-1-0-0-0	Eysselt Miloš, Ing., CSc.
ISZ	Final state exam	Z	0	0-1-0-0-0	Eysselt Miloš, Ing., CSc.
SZB	Final state exam	Z	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.
SZZ	Final state exam	L	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.
ISZ	Final state exam	L	0	0-0-0-0-0	Eysselt Miloš, Ing., CSc.

SOP	Fault-tolerant systems	L	6	39-0-0-12-14	Drábek Vladimír, doc. Ing., CSc.
SOD	Fault-tolerant systems	L	0	39-0-0-0-0	Drábek Vladimír, doc. Ing., CSc.
ITP	Personal Computers	L	5	26-0-26-0-0	Kotásek Zdeněk, doc. Ing., CSc.
ITPX	Personal Computers Abroad	L	6	26-0-26-0-0	Kotásek Zdeněk, doc. Ing., CSc.
ZPX	Professional training abroad	Z	5	0-0-0-0-0	Drábek Vladimír, doc. Ing., CSc.
ZPX	Professional training abroad	L	5	0-0-0-0-0	Drábek Vladimír, doc. Ing., CSc.

Research Projects

Network architectures for embedded systems , GAČR, GA102/05/0467, 2005-2007
Research leader: Srovnal Vilém
Team leaders: Bílek Jan, Švéda Miroslav

Evolutionary design of sorting and median networks using FPGA, FRVS MSMT, FR3042/2005/G1, 2005
Research leader: Kořenek Jan
Team leader: Sekanina Lukáš

Evolutionary design of testable circuits , FRVS MSMT, FR3041/2005/G1, 2005
Research leader: Pečenka Tomáš
Team leader: Kotásek Zdeněk

Integrated approach to education of DSP students in the field of parallel and distributed systems, GACR, GA102/05/H050, 2005-2008
Research leader: Gruska Jozef
Team leader: Češka Milan

Optimization processes in diagnostics of digital systems, GACR, GA102/05/P193, 2005-2007
Research leader: Strnadel Josef

New Structure and Modularity of Study Programmes at BUT, RP MSMT, MSMT 613/2005, 2005
Research leader: Drábek Vladimír

Utilization of evolutionary algorithms for implementation of adaptive image filters in FPGA, FRVS MSMT, FR2987/2005/G1, 2005
Research leader: Martínek Tomáš
Team leader: Sekanina Lukáš

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

Modern methods of digital systems synthesis/design, GACR, GA102/04/0737, 2004-2006
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
Research leader: Novotný Jiří
Team leaders: 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 AVCR, 1ET400750408, 2004-2008
Research leader: Zemčík Pavel

Formal approach to digital circuits test scheduling, GACR, GP102/03/P176, 2003-2005
Research leader: Růžička Richard

Application design methods based on evolvable hardware, GAČR, GA102/03/P004, 2003-2005
Research leader: Sekanina Lukáš

Co-operation

Co-operation in the Czech Republic
- Camea, s.r.o., Brno
- UNIS, s.r.o., Brno
- ASICentrum, Praha
- Institute of Informatics and Automation, AV ČR
- Department of Informatics FEI, Technical University of Mining and Metallurgy, Ostrava
- Computer Department FEL, Czech Technical University, Prague
- Department of Electrical Measurement, Technical University of Mining and Metallurgy, Ostrava
- Faculty of Mechatronics, Liberec University of Technology
- Faculty of Applied Sciences, University of West Bohemia, Plzeň
- Department of Computer Science, Masaryk University in Brno
- Cesnet

International Co-operation
- Institute of Informatics, Slovak Academy of Sciences
- Technical University in Tallin, Estonia
- Department of Informatics, University of Oslo, Norwey
- Pennsylvania State University, The Behrend College, Erie, USA.
- Technical University in Riga, Latvia
- University of Aveiro, Portugal
- Univesity of Wyoming, USA
- Dept. of Statistics, Operational Research and Computing, La Laguna University, Tenerife, SpainComputational Laboratory (CoLab), Swiss Federal Institute of Technology (ETH) Zürich, Switzerland
- ESIEE Amiens, France – co-operation in the field of student mobility,
- http://www.esiee-amiens.fr
- NASA Jet Propulsion Laboratory, Pasadena, USA

Visitors to the Department
- Dr. Ralph Ford, Pennsylvania State University (January to May 2005), Fulbright grant
- Arghaya Kumar Dhali, Indian Insitute of Technology, (May to August 2005), co-operation in research
- Dr. Filip Železný, Computer Department FEL, Czech Technical University, Prague – a seminar held on 2nd December 2005

Visits of the Staff in Other Institutions
- Sekanina, L.: Evolvable Hardware. FEL, Czech Technical University, Prague (7th November, 2005) – a seminar
- Bidlo Michal, Ing., Genetic and Evolutionary Computation Conference, Loews L'Enfant Plaza Hotel, Washington, D.C. USA, US, 7 days
- Bidlo Michal, Ing., University of York, The University of York, Heslington, York YO10 5DD, UK, GB, 8 days
- Bidlo Michal, Ing., 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Znojmo, CZ, 4 days
- Bidlo Michal, Ing., Computer architecture and diagnostics – A seminar for doctoral Ph.D. students, Lázně Sedmihorky, CZ, 3 days
- Crha Luděk, Ing., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hotel Sopron, HU, 4 days
- Drábek Vladimír, doc. Ing., CSc., University of Sofia St. Kliment Ohridski, James Baucher 5, Sofia 1164, BG, 5 days
- Dvořák Václav, prof. Ing., DrSc., Department of Computer Science, Trinity College, Cape Town International Convention Center, ZA, 5 days
- Dvořák Václav, prof. Ing., DrSc., Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brasil, BR, 12 days
- Jaroš Jiří, Ing., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hotel Sopron, HU, HU, 4 days
- Jaroš Jiří, Ing., The 20th International Symposium on Computer and Information Sciences, The Marmara Hotel, Istanbul, TR, 4 days
- Kořenek Jan, Ing., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hotel Sopron, HU, 4 days
- Kořenek Jan, Ing., International Conference on Evolvable Systems: From Biology to Hardware, Hotel Antemare, Sitges, Barcelona, Spain, ES, 5 days
- Kořenek Jan, Ing., 15th International Conference on Field Programmable Logic and Applications, Tampere Hall, Tampere, Finland, FI, 5 days
- Kotásek Zdeněk, doc. Ing., CSc., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hungary, HU, 4 days
- Kotásek Zdeněk, doc. Ing., CSc., Universita v Tallinu, Reval Hotel Olympia, Tallin, EE, 5 days
- Kotásek Zdeněk, doc. Ing., CSc., 8th EUROMICRO CONFERENCE ON DIGITAL SYSTEM DESIGN, Universidade do Porto, PT, 7 days
- Martínek Tomáš, Ing., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hungary, HU, 4 days
- Martínek Tomáš, Ing., International Conference on Evolvable Systems: From Biology to Hardware, Hotel Antemare, Sitges, Barcelona, Spain, ES, 5 days
- Martínek Tomáš, Ing., 15th International Conference on Field Programmable Logic and Applications, Tampere Hall, Tampere, Finland, FI, 5 days

- Martínek Tomáš, Ing., Computer architecture and diagnostics – A seminar for doctoral Ph.D. students, Lázně Sedmihorky, CZ, 3 days
- Pečenka Tomáš, Ing., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hungary, HU, 4 days
- Pečenka Tomáš, Ing., The 2005 NASA/DoD Conference on Evolvable Hardware, The Westin Grand, 2350 M Street N.W. Washington, DC, US, 6 days
- Pečenka Tomáš, Ing., 15th International Conference on Field Programmable Logic and Applications, Tampere Hall, Tampere, Finland, FI, 5 days
- Růžička Richard, Ing., Ph.D., Universita v Tallinu, Reval Hotel Olümpia, Tallinn, EE, 6 days
- Růžička Richard, Ing., Ph.D., 8th EUROMICRO CONFERENCE ON DIGITAL SYSTEM DESIGN, Faculdade de Engenharia da Universidade do Porto, Rua Dr. Roberto Frias, s/n, 4200-465 Porto, PT, 7 days
- Sekanina Lukáš, Ing., Ph.D., European Network of Excellence in Evolutionary Computing, Information Systems Department, University of Lausanne, CH - 1015 Lausanne, CH, 6 days
- Sekanina Lukáš, Ing., Ph.D., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, Hotel Sopron, HU, 4 days
- Sekanina Lukáš, Ing., Ph.D., The 2005 NASA/DoD Conference on Evolvable Hardware, konference GECCO: Loews L'Enfant Plaza Hotel, 480 L'Enfant Plaza, Washington DC; konference EH: The Westin Grand, 2350 M Street N.W. Washington, DC, US, 9 days
- Sekanina Lukáš, Ing., Ph.D., International Conference on Evolvable Systems: From Biology to Hardware, Hotel Antemare, Sitges, Barcelona, Spain, ES, 5 days
- Strnadel Josef, Ing., Ph.D., The 8th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Sopron, HU, 4 days
- Strnadel Josef, Ing., Ph.D., Faculty of Electrical Engineering and Informatics Slovak Technical University in Bratislava, Slovakia, Bratislava, Ilkovičova 3, 812 19 Bratislava, SK, 2 days

Membership in Organizations and Societies
- Drábek Vladimír, doc. Ing., CSc.,
    - IEEE - Computer Society
- Dvořák Václav, prof. Ing., DrSc.,
    - IEEE - Computer Society, since 1991
    - Editorial board of JUCS, Journal of Universal Computer Science, since 1994
    - Editorial board of JEE - Journal of Electrical Engineering, since 1996
- Eysselt Miloš, Ing., CSc.,
    - IGIP - Internationale Gesellschaft für Ingenieurpädagogik / International Society for Engineering Education, A, Klagenfurt.
- Fučík Otto, Dr. Ing.,
    - IEEE - Computer Society
- Kotásek Zdeněk, doc. Ing., CSc.,
    - IEEE - Computer Society
- Růžička Richard, Ing., Ph.D.,
    - EvoNet - The European Network of Excellence in Evolutionary Computing
    - IEEE - Computer Society

- Sekanina Lukáš, Ing., Ph.D.,
  - o IEEE - Computer Society
  - o SIGEVO - ACM Special Interest Group for Genetic and Evolutionary Computation
  - o EvoNet - The European Network of Excellence in Evolutionary Computing
- Schwarz Josef, doc. Ing., CSc.,
  - o IEEE - Computer Society
  - o EvoNet - The European Network of Excellence in Evolutionary Computing
  - o IEEE - Neural Network Society, since 2004
- Strnadel Josef, Ing., Ph.D.,
  - o a member of IEEE since 2004, and of IEEE Technical Council (TTTC - Test Technology Technical Council, TCRTS - Technical Committee on Real Time Systems, TCDA - Technical Committee on Design Automation) since 2005

Publications

Manuals:

Drábek, V.: The Entrance Examination at the Faculty of Information Technology in 2005-2006, Brno, CZ, FIT BUT, 2005, p. 16

Drábek, V.: Study at the Faculty of Information Technology BUT in 2005/2006, Brno, CZ, FIT BUT, 2005, p. 12

Eysselt, M.: A Study Programme at the Faculty of Information Technology, IT - Information Technology: A New Follow-Up Master Study Programme, in 2005/2006, MJ servis s.r.o., Brno, CZ, FIT BUT, 2005, p. 60

Eysselt, M.: Study Programmes at the Faculty of Information Technology: EECS – Electrical Engineering and Computer Science, in 2005/2006, MJ servis s.r.o., Brno, CZ, FIT BUT, 2005, p. 66

Eysselt, M.: Study Programmes at the Faculty of Information Technology: IT – Information Technology, in 2005/2006, MJ servis, spol. s r.o., Brno, CZ, FIT BUT, 2005, p. 76

Eysselt, M.: Study Programmes at the Faculty of Information Technology: IT - Information Technology, A Survey, MJ servis s.r.o., Brno, CZ, FIT BUT, 2005, p. 20

Chapters in Books:

Drábek, V., Kotásek, Z.: Handbook of Testing Electronic Systems, Handbook of Testing Electronic Systems, Praha, CZ, VCVUT, 2005, pp. 235-243, ISBN 80-01-03318-X

Conference Articles:

Bidlo, M., Bidlo, R.: An Evolved General Construction Method for the Sorting Networks, In: PRE-PROCEEDINGS of the 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, FI MUNI, 2005, pp. 88-95

Bidlo, M., Sekanina, L.: Providing Information from the Environment for Growing Electronic Circuits Through Polymorphic Gates, In: Proc. of Genetic and Evolutionary Computation Conference - Workshops 2005, New York, US, ACM, 2005, pp. 242-248, ISBN 1-59593-097-3

Bidlo, M.: A Benchmark for the Sorting Network Problem, In: Proc. of Genetic and Evolutionary Computation Conference - Workshops 2005, New York, US, ACM, 2005, pp. 289-291, ISBN 1-59593-097-3

Bidlo, M.: Models for Ontogeny for the Evolutionary Design of Digital Circuits, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, ČVUT, 2005, pp. 13-18, ISBN 80-01-03298-1

Crha, L., Fučík, O., Šustek, J.: Environment for Hw/Sw Codesign of Embedded Systems, In: Proc. of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, p. 4, ISBN 9639364487

Dvořák, V.: Reconfigurability of the Interconnect Architecture for Chip Multiprocessors, In: Proceedigns of the 4th International Symposium on Information and Communication Technologies, Dublin, IE, CS TCD, 2005, pp. 136-141, ISBN 0-9544145-6-X

Dvořák, V.: Scheduling Collective Communications on Wormhole Fat Cubes, In: Proc. of the 17th International Symposium on Computer Architecture and High Performance Computing, Los Alamitos, US, IEEE CS, 2005, pp. 27-34, ISBN 0-7695-2446-X

Gajda, Z.: Evolutionary Design of Fractal Images, In: Proceedings of 1th Conference and Competition Student EEICT 2005, Brno, CZ, 2005, pp. 1-3, ISBN 80-214-2888-0

Herrman, T.: Test Application Methodology Based on the Identification of Testable Cores, In: Proceedings of the Computer Architecture and Diagnostics, Prague,, CZ, ČVUT, 2005, pp. 51-54, ISBN 80-01-03298-1

Jaroš, J., Dvořák, V.: Speeding-up OAS and AAS Communication in Networking System on Chips, In: Proc. of 8th IEEE Workshop on Design and Diagnostic of Electronic Circuits and Systems, Sopron, HU, UWH, 2005, p. 4, ISBN 9639364487

Jaroš, J.: Optimal Schedules Finding for OAB Collective Communication Pattern, In: Proceedings of the Computer Architecture and Diagnostics, Prague,Praha, CZ, ČVUT, 2005, pp. 67-72, ISBN 80-01-03298-1

Kašpárek, T.: Modeling OS dependencies using graphs, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, CVUT, 2005, pp. 83-88, ISBN 80-01-03298-1

Kobliha, M., Schwarz, J., Očenášek, J.: Bayesian Optimization Algorithm in Dynamic Environment, In: Mendel 2005 11th Internacional Conference on Soft Computing, Brno, CZ, CZ, FSI VUT, 2005, pp. 15-20, ISBN 80-214-2961-5

Kořenek, J.: Fast regular expression matching using FPGA, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, FEL ČVUT, 2005, p. 6

Kotásek, Z., Strnadel, J. a kol.: Testing Tools for Training and Education, In: Proceedings of 12th International Conference on Mixed Design of Integrated Circuits and Systems, Krakow, PL, DMCS-TUL, 2005, pp. 671-676, ISBN 83-919289-9-3

Kotásek, Z., Strnadel, J., Pečenka, T.: Methodology of Selecting Scan-Based Testability Improving Technique, In: Proc. of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, pp. 186-189, ISBN 963-9364-48-7

Kubek, J.: FSM-based IP soft-core analysis, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, ČVUT, 2005, pp. 107-112, ISBN 80-01-03298-1

Martínek, T., Zemčík, P., Kořenek, J.: FPGA-Based Platform for Network Applications, In: Proc. of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, pp. 194-197, ISBN 9639364487

Martínek, T.: Data flow analysis using self-reconfigurable automata, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, FEL ČVUT, 2005, pp. 119-124, ISBN 80-01-03298-1

Ohlídal, M., Schwarz, J.: Design of Group Communication for Regular and Irregular Networks, In: Mendel 2005 11th Internacional Conference on Soft Computing, Brno, CZ, FSI BUT, 2005, pp. 45-50, ISBN 80-214-2961-5

Ohlídal, M.: Design of Group Communication in Interconnection Networks, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, FEL ČVUT, 2005, pp. 129-134, ISBN 80-01-03298-1

Pečenka, T., Kotásek, Z., Sekanina, L., Strnadel, J.: Automatic Discovery of RTL Benchmark Circuits with Predefined Testability Properties, In: Proc. of the 2005 NASA/DoD Conference on Evolvable Hardware, Los Alamitos, US, ICSP, 2005, pp. 51-58, ISBN 0-7695-2399-4

Pečenka, T.: At-speed Wiring Interconnects Testing on COMBO6 Card, In: Proc. of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, pp. 221-223, ISBN 963-9364-48-7

Pečenka, T.: Generating Synthetic Benchmark Circuits with Predefined Testability Properties, In: Pre-Proc. 1st Doctoral Workshop on Mathematical and Engineering Methods in Computer Science, Brno, CZ, 2005, pp. 200-209

Pečenka, T.: Resources and Methods for Automatic Discovery of Benchmark Circuits, In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, FEL ČVUT, 2005, p. 135-140, ISBN 80-01-03298-1

Růžička, R.: A Complex Approach to Digital RTL Circuit Testability - iFCoRT System, In: Informal Digest of Papers of the IEEE European Test Symposium 2005, Tallinn, EE, UT, 2005, pp. 156-157

Růžička, R.: On the Petri Net Based Test Scheduling, In: Proceedings of the Work in Progress Session at Euromicro SEAA/DSD 2005, Linz, DE, JKUL, 2005, pp. 18-19, ISBN 3-902457-09-0

Sekanina, L., Zebulum, R., S.: Evolutionary discovering of the concept of the discrete state at the transistor level, In: Proc. of the 2005 NASA/DoD Conference on Evolvable Hardware, Los Alamitos, US, ICSP, 2005, pp. 73-78, ISBN 0-7695-2399-4

Sekanina, L.: Design Methods for Polymorphic Digital Circuits, In: Proc. of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, pp. 145-150, ISBN 9639364487

Strnadel, J., Kotásek, Z.: Educational Tool for the Demonstration of Dft Principles Based on Scan Methodologies, In: Proceedings of 8th Euromicro Conference on Digital System Design, Los Alamitos, US, IEEE CS, 2005, pp. 420-427, ISBN 0-7695-2433-8

Strnadel, J., Pečenka, T., Sekanina, L.: On Testability Analysis Driven Generation of Synthetic Register-Transfer Level Benchmark Circuits, In: Proceedings of 5th Electronic Circuits and Systems Conference, Bratislava, SK, STUBA, 2005, pp. 107-110

Strnadel, J.: VIRTA: Virtual Port Based Register-Transfer Level Testability Analysis and Improvements, In: Proceedings of 8th IEEE Design and Diagnostic of Electronic Circuits and Systems Workshop, Sopron, HU, UWH, 2005, pp. 190-193, ISBN 963-9364-48-7

Škarvada, J.: Test scheduling of embedded systems with power constraint. In: Proceedings of the Computer Architecture and Diagnostics, Prague, CZ, ČVUT, 2005, pp. 147-151, ISBN 80-01-03298-1

Zemčík, P., Herout, A., Beran, V., Potúček, I., Fučík, O., Honec, J., Richter, M., Kalová, I., Lisztwan, M.: Image Processing in Traffic Applications, In: Proceedings of GVIP 2005, Cairo, EG, 2005, s. 6, ISSN 1687-398X

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Žádník, M., Pečenka, T., Kořenek, J.: NetFlow Probe Intended for High-Speed Networks, In: Proceedings of the International Conference on Field Programmable Logic and Applications (FPL05), Tampere, FI, IEEE CS, 2005, pp. 695-698, ISBN 0-7803-9362-7

Journals:

Crha, L.: How to write a processor, In: ABC Linuxu, Vol. 2005, No. 1, Praha, CZ, p. 10, ISSN 1214-1267

Jaroš, J., Ohlídal, M., Dvořák, V.: Evolutionary Design of Group Communication Schedules for Interconnection Networks, In: Lecture Notes in Computer Science, Vol. 2005, No. 3733, DE, pp. 472-481, ISSN 0302-9743

Kořenek, J., Sekanina, L.: Intrinsic Evolution of Sorting Networks: A Novel Complete Hardware Implementation for FPGAs, In: Lecture Notes in Computer Science, Vol. 2005, No. 3637, DE, pp. 46-55, ISSN 0302-9743

Kutálek, V., Dvořák, V.: On Complexity of Collective Communications on a Fat Cube Topology, In: Journal of Universal Computer Science, Vol. 11, No. 6, AT, pp. 944-961, ISSN 0948-6968

Martínek, T., Sekanina, L.: An Evolvable Image Filter: Experimental Evaluation of a Complete Hardware Implementation in FPGA, In: Lecture Notes in Computer Science, Vol. 2005, No. 3637, DE, s. 76-85, ISSN 0302-9743

Sekanina, L., Bidlo, M.: Evolutionary Design of Arbitrarily Large Sorting Networks Using Development, In: Genetic Programming and Evolvable Machines, Vol. 6, No. 3, Berlin, DE, pp. 319-347, ISSN 1389-2576

Sekanina, L., Zebulum, R., S.: Intrinsic Evolution of Controllable Oscillators in FPTA-2, In: Lecture Notes in Computer Science, Vol. 2005, No. 3637, DE, pp. 98-107, ISSN 0302-9743

Sekanina, L.: Evolutionary Design Beats the Creative Designer (Evoluční design poráží řešení vytvořená kreativním návrhářem), In: Vesmír, Vol. 84, No. 1, CZ, pp. 44-46, ISSN 0042-4544

Sekanina, L.: Evolutionary Design of Gate-Level Polymorphic Digital Circuits, In: Lecture Notes in Computer Science, Vol. 2005, No. 3449, DE, pp. 185-194, ISSN 0302-9743

Zebulum, R., S., Stoica, A., Keymeulen, D., Sekanina, L.: Evolvable Hardware System at Extreme Low Temperatures, In: Lecture Notes in Computer Science, Vol. 2005, No. 3637, DE, pp. 37-45, ISSN 0302-9743

Research Projects:

Bidlo, M.: A Developmental Method for Construction of Arbitrarily Large Sorting Networks and Adders, Brno, CZ, FIT BUT, 2005, p. 8

Bidlo, M.: Development Models for Evolutionary Design of Logical Circuits, Brno, CZ, UPSY FIT BUT, 2005, p. 13

Dissertations:

Mika, D.: Application of formal approaches for the design of digital circuit test controller, Brno, CZ, 2005, p. 144

Seminars:

13. 1. 2005	New methods of the data compression – Luděk Crha. Modularization support using graphs – Tomáš Kašpárek
21. 1. 2005	Polymorphic electronics – Lukáš Sekanina. Applying formal approaches in test controller design – Daniel Mika
25. 1. 2005	Evolutionary circuit design in a field programmable transistor array FPTA – the experience from a stay with NASA Jet Propulsion Laboratory – Lukáš Sekanina
27. 1. 2005	Evolutionary design of growing combinational circuits – Michal Bidlo. Evolutionary algorithms with a high degree of adaptation – Miloš Kobliha
3. 2. 2005	Test scheduling reflecting power consumption limitations – Jaroslav Škarvada. Scan techniques and architectures – Tomáš Herrman. Test application methods for complex circuits – Ján Kubek
10. 2. 2005	Modeling and performance prediction of application-specific multiprocessor systems – Vladimír Kutálek
4. 3. 2005	Group communications scheduling using a hybrid genetic parallel simulated annealing – Miloš Ohlídal. Group communications scheduling using evolutionary algorithms – Jiří Jaroš
11. 3. 2005	Application of evolution principles in the design of benchmark circuits – Tomáš Pečenka. Networks with a variable throughput: Topology-dependent optimizations of group communications – Jiří Bilík
18. 3. 2005	Novel and efficient evaluation of sequence and structure similarity in bioinformatics using programmable hardware – Jan Kořenek. Development of an adaptive image filter in an FPGA – Tomáš Martínek
25. 3. 2005	My first attempts to use the genetic algorithms in the License Plate Detection project – Luděk Crha
1. 4. 2005	Instruction-based development – new results and their evaluation – Michal Bidlo. Adaptation of EDA algorithms to the changes in fitness – Miloš Kobliha
8. 4. 2005	IP cores testing for SoC – Ján Kubek. Operations over a formal model and a testable core – Tomáš Herrman
29. 4. 2005	Power consumption during test application of digital circuits – Jaroslav Škarvada. Dependency modeling in OS with graphs/Acceleration card driver – Tomáš Kašpárek
6. 5. 2005	Solving hard combinatorial problems using EDA evolutionary algorithms) – Jiří Jaroš. Parallel hybrid evolutionary algorithms applied to hard combinatorial problems – Miloš Ohlídal
13. 5. 2005	Data flow analysis using self-reconfigurable state machines) – Tomáš Martínek. Fast search for regular expressions using an FPGA – Jan Kořenek
19. 5. 2005	Tools and methods for automatic development of benchmark circuits – Tomáš Pečenka
10. 10. 2005	Introduction of new PhD students - Ing. Zbyšek Gajda, Ing. Lukáš Stareček

4. 11. 2005	An evolved general method for constructing sorting networks – Michal Bidlo. Tools and methods for automatic development of benchmark circuits – Tomáš Pečenka
11. 11. 2005	Test scheduling of embedded systems reflecting components power consumption – Jaroslav Škarvada. IP softcores analysis based on finite automata – Ján Kubek
2. 12. 2005	Machine learning for genome data analysis – Filip Železný, FEL ČVUT
9. 12. 2005	Scheduling of group communications OAB and AAB – Jiří Jaroš. A new approach to the AAB group communication scheduling oriented to the conflict prediction– Miloš Ohlídal
16. 12. 2005	Novel efficient evaluation of sequence and structure similarity in bioinformatics using programmable hardware – Tomáš Martínek. Fast search for regular expressions using an FPGA – Jan Kořenek

Other activities:

- Bidlo Michal, Ing., prof. Hlavička Prize for an outstanding paper Computer Architectures and Diagnostics 2005 (performed in Sedmihorky seminar)
- Kořenek Jan, Ing., Martínek Tomáš, Ing., Pečenka Tomáš, Ing., the final review of the SCAMPI project, and a demonstration of hardware for 10Gps net monitoring, January 2005
- Kotásek Zdeněk, doc. Ing., CSc., a section moderator at IEEE European Test Symposium 2005 (Tallin, Estonia)
- Kotásek Zdeněk, doc. Ing., CSc., a member of the programme committee of the Dependability and Testing of Digital Systems section at DSD 2005 (Portugal)
- Sekanina Lukáš, Ing., PhD. and Ing. Michal Bidlo, Merit Award in Human Competitive Awards 2005 (Washington D.C.) and a prize for the best article at the 2nd European Workshop on Evolutionary Computation in Hardware Optimisation EvoHOT 2005, Lausanne
- Sekanina Lukáš, Ing., PhD., the head of the section and panel presenter at the 2005 NASA/DoD Conference on Evolvable Hardware (Washington DC) and the International Conference on Evolvable Systems: From Biology to Hardware (Barcelona)
- Sekanina Lukáš, Ing., PhD., The BUT Rector's Award for outstanding pedagogical and scientific achievements in 2005
- Sekanina Lukáš, Ing., PhD., membership in the following programme committees:
    - IEEE Congress on Evolutionary Computation - CEC 2005 (Edinburgh, UK)
    - International Conference on Evolvable Systems: From Biology to Hardware - 2005 (Barcelona, Spain)
    - European Conference on Genetic Programming - EuroGP 2005 (Lausanne, Switzerland)
    - European Workshop on Hardware Optimisation EvoHOT 2005 (Lausanne, Switzerland)
    - European Modelling and Simulation Conference 2005 (Porto, Portugal)
    - IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop - DECS 2005 (Sopron, Hungary)

- Preparation of new forms of tuition:
    - creation of study support and materials for the Bachelor's study programme in both Czech and English,
    - improvement of quality of HW-oriented subjects through a hardware kit sponsored by the Evropean Social Fund (ESF)
- Expert opinion on grant projects, conference and journal articles and students work

III.5 Computer Centre

The Computer Centre is a self-contained part of the **Faculty of Information Technology**. It guarantees the running of computer laboratories, both local and faculty net, servers and information systems. The computer laboratories of the Centre are utilised both for scheduled tuition and for work on projects, diploma theses and research projects. Apart from the scheduled teaching hours the laboratories are open to all students of the FIT.

Staff

Head
Lampa Petr, Ing.
Deputy Head
Čejka Rudolf, Ing.
Centre Manager
Dupalová Helena
Systém Integrator
Gaďorek Petr, Ing.
Information System Administrator
Michal Bohumil, Ing.
Computer Network Administrator
Lampa Petr, Ing.
OS Administrator
Čejka Rudolf, Ing.
Kašpárek Tomáš, Ing.
Technical and Administrative Staff
Kappler Karel
Kreslík František, Ing.
Programmer
Skokanová Jana, Mgr.
Attendants
Cvrčková Pavla
Habrdová Stella
Nečasová Milena
Pagová Ywetta
Samsonová Radomíra

Equipment
All faculty servers are concentrated in the computer node of the Computer Centre. Most servers are placed in 19'' cabinets, at present there are 36 servers installed in 6 cases. Other servers are placed on laboratory desks. The computer network is based on Ethernet gigabit technology with switches at the 3rd level. The central element of the network is a fully redundant modular switch Extreme Networks Black Diamond 6808 equipped with 4 modules with a total of 48 ports 1Gb/s and 2 modules with 96 ports 10/100 Mb/s. All servers and switches in other switchboard centres are connected to the central switch through 1 Gb/s.
Important parts of the faculty (corridors, lecture halls, library, and conference rooms) are covered by the WiFi wireless net. The FIT computer network is linked to CESNET2 - the national network for science and research - at a speed of 2x1 Gb/s.

Teaching and Research Laboratories
- Laboratories with personal computers and Windows XP/Linux systems (120 work-stations)
- 2 unscheduled Internet laboratories open to all students of the faculty (a total of 42 computers)

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.
- IBM BladeCenter server with 14 modules each with two Intel Xeon 3,2 GHz, 2 GB RAM and 36 GB disk. The modules are linked to an internal gigabit switch and each of them has a capacity of a server.
- 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 HP DL385G1 computing server, 2 AMD Opteron 2,8GHz processors, 8GB RAM, 280 GB HDD.
- A Supermicro 7043P research server, 2 Intel Xeon processors, 3,06 GHz and 2 GB oper. memory.
- Three SuperMicro SC933 file servers with RAID-5 disk arrays with a total capacity of 5 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 4,2 TB
- A Students' server (Web, email, file server), 2 Intel Pentium III processors, 1.5 GB RAM, RAID-5 disk array with a capacity of 600 GB.
- Novell NetWare student and staff server with 2 Intel Xeon processors, 1 GB RAM, and RAID-5 of 800GB and 700GB capacity
- FTP archive with a RAID-5 disk array, 540 GB capacity.
- An Overland NEO 4200 back-up library with LTO3 drive a total back-up capacity of 96 TB
- A3 HP LaserJet 8150 and A4 HP LaserJet 4300 high performance network printers, a Xerox Phaser 6300 colour printer.

Software
- Operating 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 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 ModelSim Design System

- Adobe Photoshop, Acrobat Distiller and Premiere, Autodesk 3D studio, Caligari TrueSpace.
- GNU Open Software, Mozilla, TeX, Linux, FreeBSD, MySQL, Apache, PHP4,etc.

Tuition

Abbr	Course	Sem	Cr.	Hours	Lecturer
GUR	Graphical User Interface	Z	5	26-0-0-8-18	Lampa Petr, Ing.
GUX	Graphical User Interface in X Windows	Z	5	26-0-0-8-18	Lampa Petr, Ing.
OS2	Operating Systems 2	L	6	39-0-0-8-18	Lampa Petr, Ing.

Research Projects

Optical network in national research and its new applications - Programmable hardware, CESNET, MSM6383917201, 2004-2010**:**
Research leader :Novotný Jiří
Team leaders: Čejka Rudolf, Fučík Otto, Kořenek Jan, Martínek Tomáš, Matoušek Petr, Pečenka Tomáš, Smrčka Aleš, Vojnar Tomáš, Zemčík Pavel

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

Membership in International Institutions and Societites

- Čejka Rudolf, Ing.,
  - Czech and Slovak Simulation Society (CSSS)
- Lampa Petr, Ing.,
  - Usenix
  - Sage

Publications

Presentations, el. documents:

Lampa, P.: Experience with building and running an open source-based information system, Špindlerův Mlýn, CZ, 2005, p. 21

Conference articles:

Černocký, J., Lampa, P.: Teaching signals : making it automatic, making it fun, In: Proc. Radioelektronika 2005 Brno, CZ, FEKT BUT, 2005, p.4, ISBN 80-214-2904-6

Honzík, J., M., Lampa, P.: Computer aided QA process of accreditation of study program "Information technology" at FIT BUT in the Czech Republic, Corfu, Greece, GR, 2005, pp. 84-89, ISBN 55555555

Kašpárek, T.: Diagnose the kernel in run-time - trace toolkits, In: Sborník konference OpenWeekend 2005, Praha, CZ, SU CVUT, 2005, pp. 15-20, ISBN 80-01-03349-X

Kašpárek, T.: Modeling OS dependencies using graphs, In: Sborník příspevků ze semináře Počítačové Architektury & Diagnostika, Praha, CZ, VCVUT, 2005, pp. 83-88, ISBN 80-01-03298-1

Products:

System for semiautomatic quality check of speech annotations using web interface, 2005
Authors: Černocký Jan, Chalupníček Kamil, Kašpárek Tomáš