BRNO
UNIVERSITY
OF TECHNOLOGY

FIT

FACULTY
OF INFORMATION
TECHNOLOGY

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ANNUAL REPORT 2004

BRNO 2004

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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 establishement of the faculty to 1st January 2002. The uneasy task of working out new study programmes for both faculties for accreditation 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 second year of the second three-year office BUT was directed by **Prof. 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 AS BUT. **Ing. Jaroslav Švec,** a student of postgraduate doctoral study at the FIT, worked in the second year of the second three-year office as a Vice-Chairman and Chairman of the Students' Chamber of the Academic Senate of BUT.

In 2004, **Prof. Ing. Tomáš Hruška, CSc.**, the Dean, directed the FIT together with four Vice-Deans. The Vice-Deans are in charge of research and creative activities, international and external relations and campus development together 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 2004, there was a teaching staff of 45 members and 1551 students in all state-supported study programmes.

The faculty management in 2004:

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. 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, became the Chairman of the Academic Senate of the FIT for the second time. **Ing. Petr Lampa**, Head of the Computer Centre FIT BUT, was re-elected the first Vice-Chairman of the Academic Senate of the FIT.

Zdeněk Vráblík, a student, worked in the position of the second Vice-Chairman of the Academic Senate of the FIT, and also in the position of the President of the Student Union FIT BUT till 15th June, 2004.**Vlastimil Kaluža,** another student, worked as a Vice-Chairman of the Student Chamber of the AS FIT till the end of the first term of office. On 2nd November 2004, **Zdeněk Letko** was elected to be in charge of the two functions.

Doc. Ing. Josef Schwarz, CSc., represented the Trade Union in the faculty management.

In its third 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 2004, 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 2004, the FIT also provided tuition in the **Ph.D. study programme Information Technology** (DIT) with the Ph.D. qualification. 2004/2005 was the third 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** will be launched. 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 2004:

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)

Doctoral study programme
Nominal length of study: 3 years (internal form) or 7 years (combined form) Line of study   Information Technology (DIT)

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

- Information Systems
- Computer Graphics and Multimedia
- Intelligent Systems
- Computer Systems and Networks

In 2004, 5 Bachelors, and 95 students of the five-year Master's study programme graduated at the FIT and 14 students completed the Ph.D. study programme. 511 new students entered the first year of the regular study, 22 students entered the postgraduate doctoral study, 21 in the internal form, and 1 in the combined form of study.

In 2004, tuition in English was provided for 5 foreign students who paid their tuition fees.

In 2004, one professorship procedure and one habilitation proceedings for the title of "Docent" (Associate Professor) were initiated.

The most significant events and activities that influenced the life at the faculty in 2004, were the following:

- Microsoft Day at the FIT BUT, on 7th January 2004,
- Open Day at the FIT BUT, on 15th January, 2004,
- The traditional FIT/FEEC ball, a high-level and well-organized event which took place in Voroněž Hotel, on 30th January 2004,
- Work on the innovation of the "Long-Term Plan of Development of BUT",
- Work on the innovation of the "Long-Term Plan of Development of the Faculty",
- Activities of the pedagogical staff of the FIT related to the new study programmes,
- Four new GACR (Grant Agency of the Czech Republic) projects were accepted in 2004, the total number of GACR projects at the faculty being 12 (7 standard projects and 5 postdoctoral projects),
- Five new FRVS (University Development Fund) projects,
- Seven MSMT (Ministry of Education) projects were worked on,
- Three EU projects were worked on (one of them was new - 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) and two EU projects were handed in,
- Participation in the EU project (6NET, Large-Scale International IPv6 Pilot Network) and entering another EU project (GN2, Multi-Gigabit European Academic Network) within the research activity Programmable Hardware, CESNET, where Ing. Jan Kořenek, a researcher from the FIT, co-operated,
- Three CESNET projects were worked on , some students and staff from the FIT collaborated in two tasks of a CESNET research plan and one new CESNET project started,
- A new GACR project was accepted: "Rapid prototyping tools for development of HW - accelerated embedded image- and video-processing applications", with doc. Dr. Ing. Pavel Zemčík as a co-researcher from the FIT,
- Engineering products: Ing. Přemysl Kršek, Ph.D.: Transfer 3.0 Modelling System for Medicine: is a programme system for 3D tissue inspection and segmentation, for creation of 3D geometry models of tissues and their applications for virtual and real simulations, operation planning and testing, and for production of physical tissue models,
- New laboratories: Laboratory of medical engineering applications with a view to generating 3D geometry models of tissues from CT/MR data and to the production of physical models of tissues. The laboratory co-operates with the Faculty of Medicine, Masaryk University, Brno, and St. Anna's Hospital in Brno. 3D geometry models of selected tissues are made from real CT/MR data aiming at the development of special applications in stomatology, plastic surgery, orthopedy and neuroradiology.
  These models are used for virtual stimulations, testing and planning of operations. Another possibility could be the production of physical models of tissues for real simulations, and testing and planning of operations.
- Ing. Lukáš Sekanina, Ph.D., was awarded the Fulbright scholarship for scientists and spent the winter semester (2004) in NASA Jet Propulsion Laboratory,

California Institute of Technology, Pasadena, USA. He was engaged in evolutionary design of electronic circuits on reconfigurable analogue platforms and at extremely low temperatures.

- Displacement and development of the FIT Library, admission of Mgr. Barbora Selingerová as a new librarian, and investments of 1, 041, 000 CZK in the library resources, which was supervised by doc. Dr. Ing. Jan Černocký, Chairman of the FIT Library Council,
- Dr. Ing. Otto Fučík, prof. Ing. Jan M. Honzík,CSc. and doc. Dr. Ing. Pavel Zemčík participated in the evaluation of exhibits for the "Cristal Disc" award at INVEX trade fair,
- Co-organization of the MOSIS 03´ conference (Modelling and Simulation of Systems), Brno, 19th to 21th April 2004, organized by FEEI VŠB-TU Ostrava,
- Co-organization of the ISIM´04 conference (Information Systems Implementation and Modelling), Brno , 19th to 21th April 2004, organized by FEEI VŠB-TU Ostrava,
- Organization of 11th Annual IEEE International Conference and Workshop on the Engineering of Computer-Based Systems, ECBS 2004). The conference was held on 24th – 27th May 2004 in BUT Centre in Brno. prof. Ing. Miroslav Švéda, CSc., (FIT ÚIFS) was the Director of the Conference, prof. Ing. Václav Dvořák, DrSc. (FIT ÚPSY Department of Computer Systems) was the Chairman of the Programme Committee, and Ing. Lukáš Sekanina, Ph.D. and Ing. Richard Růžička, Ph.D. were the leaders of the Organization Committee,
- Organization of a Socrates IP international course (Intensive Programme Project),
- Activities of doc. Ing.Vladimír Drábek, CSc., Vice-Dean, and his colleagues resulting in automated assessment of written entrance examinations,
- Commencement of participation in the three-year international Leonardo da Vinci programme "Requalification of Disabled Persons",
- Activities of doc. Ing. Vladimír Drábek, CSc., Vice-Dean, and Ing. Miloš Eysselt, CSc., advisor for studies, concerned with defining the mechanism for internal and inter-faculty distribution of funds for tuition (especially FIT / FEEC) and mutual payment for tuition,
- Activities of pedagogical staff connected with information sessions at different types of secondary schools,
- Co-organization of STUDENT EEICT 2004 Conference, the main organizer being the Faculty of Electrical Engineering and Communications, Brno University of Technology,
- Activities of Prof. RNDr. Milan Češka, CSc. and doc. Ing. Zdeňka Rábová, CSc. - ASIS 2004, XXVIth International Autumn Colloquium "Advanced Simulation of Systems" , 6th to 9th September 2004,
- Participation in the GAUDEAMUS 2004 trade fair and presentation of the new study programmes offered at the faculty,
- CSEW 2004 (Computer Science Education Workshop) – a meeting of Czech and Slovak institutes, departments and faculties involved in computer science – was held in Trojanovice, in the Beskydy mountains on 14th – 15th October 2004,
- Elections of the members of the Academic Senate FIT BUT, on 19th October 2004,
- Activities of the AS FIT BUT members, namely doc. Ing. Jaroslav Zendulka, CSc., Ing. Petr Lampa, Ing. Bohuslav Křena, Ph.D., Zdeněk Vráblík and Zdeněk Letko, focused on faculty interests in the areas of organization, development and economy,

- Call for candidates for the position of the Dean of the FIT for the term of office 2005-2008 took place on 2nd November 2004,
- A get-together of the academic community aimed at meeting up with the nominees for the position of the Dean of the FIT was held on 1st December 2004,
- Nomination by the AS FIT of prof. Ing. Tomáš Hruška, CSc., for the position of the Dean of the FIT, took place on 7th December 2004,
- Preparatory work on a new research plan Modelling and Optimization of Computer-Based Application-Specific Systems, a team of researchers from the FIT led by prof. Ing. Jan M. Honzík, CSc.,
- 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. related to the "Research in Information and Control Systems" research project,
- Activities of prof. Ing. Jan M. Honzík, CSc., concerned with preparing the Bachelor's programme "Information Technology" 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.

Awards in 2004

Doc. Ing. Zdeňka Rábová, CSc. was awarded the **Gold Medal of Brno University of Technology** for her significant contribution to the development of higher education.

On the occasion of the 105th anniversary of the foundation of Brno University of Technology, **doc. RNDr. Alexander Meduna, CSc**. was awarded the **Rector's Prize** for his significant book publication.

The **Rector's Award** was conferred to **Ing. Ivana Rudolfová** for her outstanding study results and diploma thesis.

Ing. Josef Novosad (FIT BUT) gained a good position in the 8th year of the **AFCEA student's** competition for the best work in the area of information and communication systems.

Ing. Josef Strnadel, Ph.D. was awarded **prof. Hlavička Prize** for his contribution „Testability analysis and improvements of register-transfer level digital circuits presented at the Computer Architecture and Diagnostics PAD 2004 Workshop for Ph.D. students.

Ing. Lukáš Sekanina, Ph.D. was awarded the **Merit Award** in Human-competitive awards in genetic and evolutionary computation, at the Genetic and Evolutionary Computation Conference (GECCO) 2004, Seattle,U.S.A, for the evolutionary design of image filtres.

Jiří Techet won the second place in the international STUDENT EEICT 2004 competition for his engineering project in the section of **Informatics and Mathematics.**

Ing. Tomáš Pečenka received the **Siemens Award** (scholarship support for Ph.D. students) for his excellent dissertation**.**

In 2004, FIT BUT continued co-operating with the following significant partners:

- ANF Siemens Austria
- AutoCont CZ
- CAMEA
- CESNET
- GRISOFT
- Honeywell
- IBM Czech Republic
- MEDITRONIC
- Microsoft
- MP-Soft Brno
- VEMA

2004 was the third year of existence of the FIT. The main goal was the introduction of the 3rd year of the new Bachelor's study programme with more than 1030 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. At the same time, I thank all employees who contributed to the functioning of the FIT in its third year of existence, for the extraordinary efforts devoted to 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

AREAS OF ACTIVITIES AT THE FIT

II.1 Study Programmes

First-Level of Master's Study and Bachelor's Study Programme

At the end of 2004, there were 1558 students studying at the FIT in all study programmes including the doctoral one. See the following table:

Specialization	Number
EI-MGR-5, CSE	385
EI-MGR-3, CSE	7
IT-BC-3	1024
EI-BC-3, CSE	26
IT-DR-3	106
Total	1558

The rising number of applicants for the study programme „Information Technology" can be seen in the last three 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 Information Technology study programme 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

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.
1870 applications for admission to the Information Technology study programme for Bachelors were sent to the FIT BUT by the 31st March 2004.
The entrance examinations took place on 9th and 11th June (with a back-up term on 7th July 2004).
1487 applicants turned up to sit for the entrance examinations, which makes 79.6% of the total number.
The written exam took place in 6 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 (75 minutes, 20 tasks, 1000 points max.).
The number of points necessary for admission was 604 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 results of the entrance examination were published 2 hours later on the official notice board and on the FIT BUT Web page. The applicants received a notice about whether they had been admitted or not by a post-office special delivery.

Admitted: 651
Refused (due to lack of capacity): 613
Failed: 149
Absent: 381
Admitted without the entrance examination: 52
Matriculation: 28th to 30th June 2004
548 students enrolled (IT study programme) by 1st August 2004.

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

Comprehensive Examinations and the Second Level Study

The limit of weighted study average, which makes an exemption from the examination possible, was set to be 2,5 in 2003/04. 113 out of the total of 124 students were exempted from the examination. Out of the 11 students who were doing the comprehensive examination 10 passed.

The structure of the oral part of the **Final State Examination** was based on two themes: Hardware and Software. Besides the defence of the thesis each student had to answer one question from each of the two themes. 100 undergraduates passed the Final State Examination, 5 of whom were Bachelors.

Number of Graduates in Computer Science and Engineering

Specialization	1999	2000	2001	2002	2003	2004
CSE	77	96	107	100	95	100

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

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

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 2004 were the following:

- Information Systems

- System Modelling and Simulation

- Artificial Intelligence

- Computer Graphics and Multimedia

- Computer Architecture

- Speech Processing

- High Performance Computing

- Petri Nets

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

- A design of a new inter-faculty research plan called *Modelling and optimization of computer-based application-specific systems* meant for the period of 2005 – 2009.
- 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.
- Publication activities of the faculty (2 monographs, 26 articles in journals and 164 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 are dedicated to 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. (A substantial part of this report has also been generated as an output of the mentioned information system.)

II.2.2.1 European Union Projects at the FIT in 2004

Agency	Theme	Project Code	Name of the Project	Total thous. CZK
EU	AMI	506811	Augmented Multi-Party Interaction	3840
EU-HLT	IST	2001-34485	Multi Modal Meeting Manager	46
EU	IST	1999-10003	SPEECON - Speech Driven Interfaces for Consumer Applications	365
				4251

II.2.2.2 Grant Agency of Czech Republic (GACR) Projects at the FIT in 2004

GACR	Name of the Project	Total thous. CZK
102/04/0780	Automated Methods and Tools for the Development of Reliable Parallel and Distributed Systems	612
102/04/0737	Modern Methods of Digital System Synthesis	466
102/04/0871	Information System Security – Research on Attacks Against Tamper-Resistant Cryptographic Hardware	852
201/04/0441	Optimally Integrated Models of Modern Information Technologies	330
102/02/0124	Voice Technologies for Support of Information Society	256
102/02/0503	Parallel System Performance Prediction and Tuning	249
102/02/1032	Embedded Control Systems and their Inter-Communication	244
102/01/D141	Development in the Area of Creating FEM Models of Human Tissues for Biomechanics Applications	203
102/02/D108	Data-Driven and Anthropic Coding and Recognition of Speech	246
102/03/P176	Formal Approach to Planning Tests of Digital Circuits	185
102/03/P004	Evolvable Hardware Based Applications Design Methods	201
102/03/D211	Advanced Methods of Automatic Verification of Parametric and Infinite-State Systems	40
Total		3884

II.2.2.3 Higher Education Development Fund (FRVS) Projects at the FIT in 2004

FRVS MSMT	Theme	Name of the Project	Total Thous. CZK
1687	A	Compound Laboratory for Computer Hardware Teaching	861
1688	A	Laboratory of Intelligent Systems	870
1689	F1	Introduction to SW Engineering – Innovation of the Subject	75
1690	F1	Knowledge Discovery in Databases – Innovation of the Subject	48
1692	G1	Application of Object-Oriented Development in Project Management	78
Total			1932

II.2.2.4 Research Projects at the FIT in 2004

Research plan MSM262200012, Research leader: prof. Ing. Jan M. Honzík, CSc.

Research project	Name of the project	Total Thous. CZK
MSM262200012	Research in Information and Control Systems at the FIT	5546
MSM262200012	Research in Information and Control Systems at the FEEC DCI	1300
Total		6846

The research project is aimed at research of theoretical and applied methods of design, verification, implementation and evaluation of information and control systems and their components covering both hardware and software. The research is directed into three areas which correspond to logical levels of the architecture of the control systems and the management support systems:

- Area of information systems and support to the management level
- Area of communication, control algorithms and process and control systems
- Data acquisition and evaluation

The whole research field is divided into the following eight areas, which are the subjects and partial aims of the research project:

- Methods and tools for system modelling
- Technology and design of information systems
- Computer graphics and multimedia in information and control systems
- Architecture of software and hardware in imbedded systems
- Computer-aided control
- Computer networks and systems of industrial automation
- Computer vision
- Sensors, digital processing and computer analysis of measured signals

Seven research teams were involved in research of these individual areas (Computer graphics and Computer vision form one whole).

In 2004, the research team included 8 professors (3400 hrs.), 15 associate professors (8200 hrs.), 58 other staff (22980 hrs.) and 69 doctoral students.

The main target for the coming research period is to enrich the contemporary standard of knowledge in the explosively developing discipline of information and industrial technologies through new ideas and innovations. This is supported by the structure of research teams, their management and regular evaluation.

The project management headed by the investigator used its own methodology to guarantee stable quality of research work under changing rules, and provides general information for internal evaluation and comparison of all members of the research team. One part of this methodology is a detailed internal annual report on the research plan. (http://www.fit.vutbr.cz/research/vzamer).

Preparatory work on a new research plan (RP) was another important research activity in 2004. Discussions of the most significant staff members led to an agreement on the design and timing of the RP, and in the first place its size and staffing. The consideration resulted in the following main features:

- The new RP will form a follow-up to the present RP and will be proposed for a 5-year period
- The new RP will be the only one submitted by the FIT
- It will be a middle-sized inter-faculty research plan

The name of the RP had been discussed thoroughly. The original proposal "Advanced Information Technologies" seemed to be too general and was later changed to "Modelling and Optimization of Computer-Based Application-Specific Systems" which fits better the main goals of the RP and at the same time involves the most traditional and most successful research areas of the former department and the present faculty.

The administrator of the proposed RP is the Faculty of Information Technology, Brno University of Technology, the investigator is prof. Ing. Jan M. Honzík, CSc., and the RP was given an identification number MSM 0021630505.

The formation of the staff of the proposed RP had also gone through a complicated development. The co-operation with the FEEC BUT was reduced to two researchers. On the other hand, the co-operation with a research group from the Faculty of Business and Management (FBM) was re-inforced significantly. Its orientation, mainly in the area of information systems and intelligent systems, has rather an application character: its main task is application and verification of theoretical results and models created within the RP.

Young and promising postdoctoral research workers played an important part in the formation of the goals and of the structure of the research team. They are not only supposed to contribute to the successful completion of the research plan but also to get important positions within the research team. In future, they will hopefully form a new generation which will contribute to the completion of the above-mentioned RP as well as initiate new scientific and research projects and occupy leading positions in them.

A large number of members of the FIT academic and technical staff aided by some researchers from the FBM worked on the final design of the plan. Several months of intensive preparatory work proved to be highly demanding for the staff. The main goal was to present a high-quality research plan without the least, even formal errors.

The efforts were compensated by informal evaluation done by the BUT Scientific Board, where the presented RP proposal was evaluated to be one of the two best among 18 RPs within BUT.
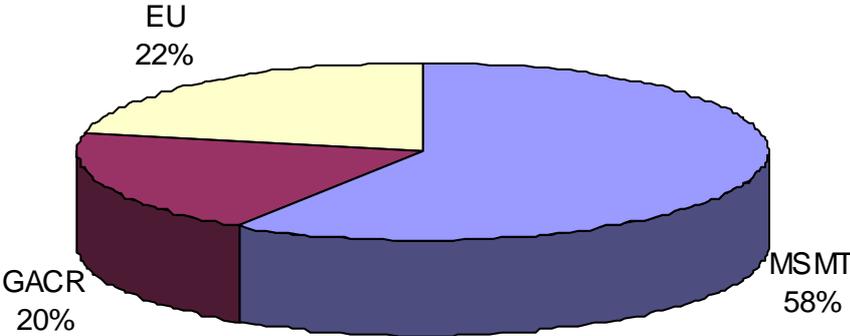
II.2.2.5 Survey of Other Projects at the FIT in 2004

Agency	Project Code	Name	Total Thous. CZK
MŠMT	MS1412001	Design and Implementation of embedded formal verification assistants in the NET framework	544
MŠMT	MŠMT 628	Project integrating the development of learning and teaching English, enhancing the language competence including the internationalization of study programmes	500
MŠMT	MŠMT 629	Integrated project of the development of distant and combined forms of education at BUT	1175
MŠMT	MŠMT 631	Promotion of information and communication technologies at BUT	600
MŠMT	MŠMT 632	Joint international pilot study programmes at BUT	300
MŠMT	MŠMT 642	Equipment of the FIT BUT Library	800
MŠMT	1KO4106	Reputation-based security in information systems	198
Total			**4117**

II.2.2.6 Survey of external sources in funding creative activities at the FIT in 2004

Source	Project	Number of projects	Total Thous. CZK
MŠMT	Research projects	1	5 546
MŠMT	FRVS projects	10	1 932
MŠMT	Other MŠMT projects	1	4 521
GAČR	GACR projects	11	3 884
EU	Projects of the 5th framework programme of the EU	2	4 251
Total			**19 730**

**Funding creative activities at the FIT from external
sources in 2004**

EU
22%

MSMT
58%

GACR
20%

II.2.3. 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 2004 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, 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.
- Preparatory work for two GACR doctoral grants 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.
- Record of dissertation theses and offer of new themes through the Faculty Information System.
- Participation of Ph.D. students in regular professional seminars at the faculty.

PhD. study statistics

Year	Type of study	Number of students
1.	internal	22
	combined	1
2.	internal	29
	combined	4
3.	internal	12
	combined	0
4.	combined	25
5.	combined	7
6.	combined	7
7.	combined	12
Total		**119**

II.2.3.1. Ph.D. theses defended in 2004

Ph.D. student: Ing. Milan Kolka
Study area: Information Technology
Thesis: L-systems: new results and applications
Supervisor: doc. RNDr. Alexandr Meduna,CSc.
Defended on: 17th March 2004

Ph.D. student: Ing. Martin Hrubý
Study area: Information Technology
Thesis: Environment for modelling heterogeneous systems
Supervisor: doc. Ing. Zdeňka Rábová, CSc.
Defended on: 21st June 2004

Ph.D. student: Ing. Jiří Staroba
Study area: Information Technology
Thesis: Parallel performance modelling, prediction and tuning
Supervisor: prof. Ing. Václav Dvořák, DrSc.
Defended on: 21st June 2004

Ph.D. student: Ing. Radek Burget
Study area: Information Technology
    Information extraction from HTML documents based on logical
Thesis: document structure
Supervisor: doc. Ing. Jaroslav Zendulka, CSc.
Defended on: 6th October 2004

Ph.D. student: Ing. Jakub Güttner
Study area: Information Technology
Thesis: Object databases and the semantic web
Supervisor: prof. Ing. Tomáš Hruška ,CSc.
Defended on: 6th October 2004

Ph.D. student: Ing. Bohuslav Křena
Study area: Information Technology
Thesis: Methods of analysis of object-oriented Petri nets
Supervisor: prof. RNDr. Milan Češka, CSc.
Defended on: 20th October 2004

Ph.D. student: Ing. David Řezáč
Study area: Information Technology
Thesis: Stiff systems of differential equations and modern Taylor series method
Supervisor: doc. Ing. Jiří Kunovský, CSc.
Defended on: 20th October 2004

Ph.D. student: Ing. František Zbořil
Study area: Information Technology
Thesis: Planning and communication in multi-agent systems
Supervisor: doc. Dr. Ing. Petr Hanáček
Defended on: 20th October 2004

Ph.D. student: Ing. Filip Orság
Study area: Information Technology
Thesis: Biometric security systems
Supervisor: doc. Ing.František Zbořil,CSc.
Defended on: 27th October 2004

Ph.D. student: Ing. Josef Strnadel
Study area: Information Technology
Thesis: Testability analysis and improvements of register-transfer level digital circuits
Supervisor: doc. Ing. Zdeněk Kotásek
Defended on: 27th October 2004

Ph.D. student: Ing. Adam Herout
Study area: Information Technology
Thesis: Hardware architecture for point-based graphics rendering
Supervisor: doc. Dr. Ing. Pavel Zemčík
Defended on: 29th October 2004

Ph.D. student: Ing. Radek Kočí
Study area: Information Technology
Thesis: Methods and tools for implementation of open simulation systems
Supervisor: doc. Ing. Zdeňka Rábová, CSc.
Defended on: 29th October 2004

Ph.D. student: Ing. Jaromír Marušinec
Study area: Information Technology
Thesis: Artificial life simulation in virtual reality
Supervisor: doc. Ing. Zdeňka Rábová, CSc.
Defended on: 29th October 2004

Ph.D. student: Ing. Lukáš Burget
Study area: Information Technology
                   Complementarity of speech recognition systems and system
Thesis: combination
Supervisor: doc. Dr. Ing. Jan Černocký
Defended on: 3rd November 2004

prof. RNDr. Milan Češka, CSc.
Vice-Dean for Creative Activities

prof. Ing. Jan M. Honzík, CSc.
Reseach leader of the RP MSM262200012

II.2.4. Student Creativity

The student creativity 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 2004, the student conference took place on 22nd April at the premises of BUT Under Palacky Hill. 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, Theoretical Informatics, and Computer, Intelligent and Graphic 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 22 competitors from the Ph.D. study programme and 34 students of the Master's study programme 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 a teacher with considerable international experience (doc. Dr. Ing. Pavel Zemčík). 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 2003, there were bilateral agreements between the faculty and 16 foreign universities in the framework of Socrates/Erasmus programme and 23 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).

In June 2004, the FIT BUT organized a summer school in the framework of the Socrates "Intensive Program Project in Informatics and Multimedia". It was organized in the FIT lecture halls, under the auspices of prof. Jan M, Honzík , from 7th to 18th June 2004. 11 teachers from abroad and 6 teachers from the FIT participated in the event and 16 students from partner universities from abroad and 21 students from the FIT completed the course and received leaving certificates.

During this event (on 11th June 2004) a preparatory consultative meeting on the second stage of the PROG Socrates project "Joint European Degree Program in Applied Informatics and Multimedia" took place on the premises of the Rector's Office. Representatives of foreign partner universities as well as teachers from the summer school took part in it.

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

Country	University	Erasmus code
Finland	Helsinki University of Technology http://www.hut.fi/English/	FI ESPOO 01
	Lappeenrannan University of Technology http://www.lut.fi/english.html	SF LAPPEEN 01
	University of Joensuu http://www.joensuu.fi/englishindex.html	SF JOENSUU 01
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	F PARIS 007
	http://www.sigu7.jussieu.fr	
	ESIEE Amiens	F AMIENS 18
	http://www.esiee-amiens.fr	
	http://www.esiee-amiens.fr/site esiee/FR/studies/cursus/majeures/grit/index.php	
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	NLUTRECHT01
	http://www.math.uu.nl	
Germany	Universität Siegen, IMT	D SIEGEN 01
	http://www.fb12.uni-siegen.d	
	Fachhochschule Wiesbaden	D WIESBAD 01
	University of Applied Sciences Wiesbaden	
	http://fh-web1.informatik.fh-wiesbaden.de/go.cfm	
Portugal	Universidade de Trás-os-Montes e Alto Douro http://www.utad.pt	P VILA-RE 01
Austria	Graz University of Technology http://www.tugraz.at	A GRAZ 02
Spain	Universidad de Valladolid http://www.uva.es/	E VALLADO 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 2004 - ERASMUS and others

Stays abroad:

Name	Stay	University
Drahanský Martin, Ing.	01/04 – 12/04	Germany, Universität Siegen (apart from ERASMUS)
Burian Tomáš	01/04 – 05/04	UK, University of Salford
Marek Martin	01/04 – 05/04	Finland, Lapeenranta University of Technology
Soukup Petr	01/04 – 05/04	Finland, Lapeenranta University of Technology
Svoboda Petr	01/04 – 06/04	UK, University of Bristol
Szöke Igor	02/04 – 07/04	France, ESIEE Amiens
Šimek Václav	02/04 – 06/04	Belgium, Katholieke Hogeschool Brugge Oostende
Masařík Karel	02/04 – 06/04	Germany, Fernuniversität Hagen
Grézl František	02/04 – 12/04	Switzerland, Institut Dalle Molle d Intelligence Artificielle Perceptive (apart from ERASMUS)
Svojanovský Petr	02/04 – 12/04	Switzerland, Institut Dalle Molle d Intelligence Artificielle Perceptive (apart from ERASMUS)
Karafiát Martin, Ing.	06/04 – 09/04	UK, University of Sheffield (apart from ERASMUS)
Hýl Petr	08/04 – 12/04	Sweden, Uppsala University School of Engineering
Měřínský Radek	08/04 – 12/04	Finland, Lapeenranta University of Technology
Bartůšek Jan	09/04 – 12/04	Finland, University of Joensuu
Fiedler Zdenek	09/04 – 12/04	Finland, University of Joensuu
Holenda Stanislav	09/04 – 12/04	Germany, Universität Siegen
Hrouza Jan	09/04 – 12/04	Spain, Universidad de Valladolid
Ježowicz Janusz	09/04 – 12/04	UK, University of Bristol
Kostelecký Ivo	09/04 – 12/04	France, ESIEE Amiens
Kratochvíl Tomáš	09/04 – 12/04	France, ESIEE Amiens
Macek Aleš	09/04 – 12/04	Spain, Universidad de Valladolid
Pavelka Miroslav	09/04 – 12/04	UK, University of Bristol
Šopík Bronislav	09/04 – 12/04	Portugal, UTAD
Tichý Jan	09/04 – 12/04	Austria, Graz University of Technology
Vítek Martin	09/04 – 12/04	Finland, Lapeenranta University of Technology
Potúček Igor	09/04 – 10/04	Germany, Technische Universität München (apart from ERASMUS)
Walek Tomáš	10/04 – 12/04	Germany, Universität Siegen
Rogalewicz Adam	10/04 – 12/04	France, ESIEE Paris
Glembek Ondřej	10/04 – 11/04	Russia, Izhevsk State Technical University (apart from ERASMUS)
Galbavý Lubomír	10/04 – 12/04	Austria, CISC Klagenfurt, Leonardo project

Unlabelled stays: Finance Socrates/Erasmus, MSMT CR and the mobility fund of BUT

Visiting students:

Name	Stay	University
Pekka Keränen	02/04 – 07/04	Finland, Lapeenranta University of Technology
Miguel Santos de Pablo	02/04 – 07/04	Spain, Universidad de Valladolid
Raquel Parra Diez	02/04 – 07/04	Spain, Universidad de Valladolid
Francesco la Torre	02/04 – 07/04	Germany, Fachhochschule Wiesbaden
Julien Piquot	03/04 – 06/04	France, Université du Maine, (apart from ERASMUS)
Julien Reptin	04/04 – 06/04	France, ESIEE Amiens
Angela Hua	04/04 – 07/04	France, ESIEE Paris
Emmanuel Borry	04/04 – 07/04	France, ESIEE Paris
Alexis Dambricourt	04/04 – 07/04	France, ESIEE Amiens
Anurag Gaggar	05/04 – 08/04	India, Indian Institute of Technology (INTERNSHIP)
Dhiraj Goel	05/04 – 08/04	India, Indian Institute of Technology (INTERNSHIP)
Olga Rola Monteiro	10/04 – 01/05	Portugal, UTAD
Efrain Pardo	10/04 – 06/05	México, graduated from TEC de Monterrey (apart from ERASMUS)

List of participants of the Socrates IP Summer School in Brno, June 2004

Foreign lecturers:

Prof. George Papadourakis, TEI Crete, Greece
Prof. Dimitri Karayannakis, TEI Crete, Greece
Prof. George Pangalos, Aristotle University of Thessaloniki, Greece
Assoc. Prof. Pablo de la Fuente, Universidad de Valladolid, Spain
Prof. Andrew Ware, University of Glamorgan, Wales
Prof Jozef Vanneuville, Katholieke Hogeschool Brugge – Oostende, Belgium
Ing. Dorine Gevaert, Katholieke Hogeschool Brugge – Oostende, Belgium
Ing. Jeroen Lambert, Katholieke Hogeschool Brugge – Oostende, Belgium
Assoc. Prof. Michael Eboueya, La Rochelle University, France
Dr. Markus Grabner, Graz University of Technology
Dr. Michael Frydrych, Helsinki University of Technology, Finland

FIT lecturers:
Prof. Jan M. Honzík
Assoc. Prof. Vladimír Drábek
Assoc. Prof. Pavel Zemčík
Dr. Přemysl Kršek
Ing. Petr Přikryl
Ing. Adam Herout

Foreign students - participants of the Socrates IP Summer School in Brno:

Maria Boumaki, Université de la Rochelle, France
Stéphane Chapeau, Université de la Rochelle, France
Lional Slade, University of Glamorgan, Wales
Christian Ivaha, University of Glamorgan, Wales
Rubén Gonzáles, Universidad de Valladolid, Spain
Iván Simón, Universidad de Valladolid, Spain
Juan Carlos López García, University of Córdoba, Spain
Alvaro García Ostos, University of Córdoba, Spain
Emmanouil Kokarakis, TEI of Crete, Greece
Anastasia Pampouchidou, TEI of Crete, Greece
Paraskevi Sympa, TEI of Crete, Greece
Apostolos Palogos, TEI of Crete, Greece
Nikolaos Mantzarakis, TEI of Crete, Greece
Panagiotis Palantas, TEI of Crete, Greece
Ioannis Stefanis, TEI of Crete, Greece
Konstantinos Papantonopoulos, TEI of Crete, Greece

FIT students - participants of the Socrates IP Summer School in Brno:

Petr Vlach
Zdeněk Fiedler
Jan Tichý
Ivo Kostelecký
Jiří Janeček
Stanislav Holenda
Petr Hýl
Tomáš Walek
Jan Bartůšek
Richard Latislav
Aleš Macek
Miroslav Pavelka
Jozef Mlích
Tomáš Kratochvíl
Jan Hrouza
Jiří Tobola
Michal Kašpařík
Marek Kaluža
Petr Weiss
Jaroslav Pospíšil
Václav Špok

List of lectures given within the Socrates IP Summer School in Brno, in June 2004:

Prof. Andrew Ware: Genetic Talk

Assoc. Prof. Pavel Zemčík: Hardware Acceleration of Graphics and Imaging Algorithms Using FPGAs

Assoc. Prof. Přemysl Kršek: Medical Image Processing and Tissues Geometry Modelling

Ing. Dorine Gevaert, Prof. Jozef Vanneuville, Ing. Jeroen Lambert: System C versus VHDL: Design Issues and Applications

Pablo de la Fuente: Distributed Systems. Concepts and Applications

Dr. Michael Frydrych: Modelling Facial Expressions for Finnish Talking Head

Prof. George Pangalos: Distributed Information Systems Security

Assoc. Prof. Michel Eboueya: Scientific Visualization

Prof. Dimitri Karayannakis: Wavelets and Signal Analysis

Ing. Petr Přikryl: The Python Language

Assoc. Prof. Vladimír Drábek: Graphical and Multimedia Processors GMP

Dr. Markus Grabner: 3D web

Prof. George Papadourakis: Neural Network

Prof. Ing. Jan M Honzík, CSc.: Faculty of Information Technology and Development of its Study Programmes

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

II.4 Lifelong Education

Doc. Ing. Jiří Kunovský, CSc. contributed to the programme of the Third Age University (U3V) in the first semester by lecturing and organizing a computer workshop, and by teaching computer science in the first, second and third semesters with assistance of three doctoral students.

After setting up a syllabus and discussing the matter in the UV3 Committee of BUT, doc. Kunovský started teaching a new attractive U3V course "Digital photography and computer graphics" in the winter semestre. The course consisted of lectures and practical training in a modern computer laboratory of the FIT. The course will continue in the summer semester of 2005.

The third stage of the three-year MSMT project " Preparation of the Distance Form of Bachelor's Study Programme Information Technology for Accreditation" was worked on. This study programme focused on e-learning and computer-aided technologies can also be used for lifelong education in future.

Ing. Kočí, Ph.D., and 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 IT Computer Centre once a week and offered the following topics of computer science: programming languages, especially C language, operation systems – fundamentals of Unix/Linux systems, networking, and work with the Internet, including programming interactive internet presentations (fundamentals of HTML, PHP, and Java).

Within the Government Policy on IT in Education, new accreditation of training centres was completed in 2004. The FIT was re-accredited for P preliminary training module and Z module. Several training courses were organized in close co-operation with ApS Brno s.r.o. and about 50 elementary and secondary school teachers were trained. In the academic year of 2004-2005, the content of courses on Microsoft technologies was innovated, especially in the area of administration and programming. The courses were organized in co-operation with the IT Training Centre and Microsoft Company. Students of the 2nd and 3rd years of the Bachelor's study programme are offered a set of five courses. Each of the courses prepares them for achieving the MCP Certificate – Microsoft Certified Professional, an internationally recognized certificate. Last year more than 20 students of the FIT received the certificate. Due to the increasing interest in attending the courses, the capacity of the courses was raised to 130 students per semester. Despite that, the demand strongly surpasses the offered capacity.

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

II.5 Dislocation, Modernization, and Development in 2004

In 2004, the managements of BUT and FIT concentrated on the second stage of the investment and strategic intention of dislocation and stabilization of the FIT in Božetěchova 2 and Božetěchova 1 premises. In the first half of 2004, a project for gaining the construction permit and the general contractor selection was made.Then the construction permit was applied for and the general contractor was chosen with the aim of starting the construction in the second half of 2004. The construction was ranked among individul constructions that were financed from the state budget. To have the chance of starting the construction in 2004, the application for the construction permit was split into two parts. The permit for the first stage was capable of taking effect on 8th December 2004 and the construction itself was initiated in 11/2004 with demolishing and clearing the site and with site exploration in one part of Božetěchova 1 premises. At the time of commencement of the construction work, operating documentation of the construction was being worked on and a project of mobile interior and an orientation system were created. With regard to financial underestimation of the investments some buildings had to be left out so as not to endanger the date of commencement of the construction and the technical condition of the buildings left on the site. The basic technological standard specifications for the equipment of buildings with respect to teaching and to the minimum costs of operation (intelligent building) were kept.

As part of the preservation of architectural heritage, reconstruction of the last southern seclusion was completed in 04/2004. Reconstruction and static security of the "mortuary" (one of the oldest and best preserved parts of the Cartesian monastery) were also completed with the use the own financial resources of the FIT.

After the Department of Control and Instrumentation, FEEC, left Božetěchova 2 premises in the middle of 2004, minor reconstructions were made and two departments of the FIT were relocated into the cleared rooms. The FIT will stay in this layout till the first stage of Božetěchova 1 construction is completed.

An orientation system for Božetěchova 2 was completed in 2004. It will be followed by and interconnected with an outer and inner system of the whole investment intention (2004 to 2007).

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.

<div align="center">
Ing. Zdeněk Bouša
Vice-Dean for Campus Development
</div>

II.6. Library at the FIT

The library forms an information basis for education and research activities of the faculty and provides fast access to information so that the requirements of the students, teachers and other employees of the faculty could be met.

In September 2004, the library moved to new and more convenient premises which offer better access and more pleasant study environment for the users. In the new premises there is also free access to most of the library stock. There are 14 regular and 22 PC-equipped seats in two computer study rooms.

The library provides traditional lending, reference and reprographic services and, recently, also electronic service thanks to the web pages of the library (since November 2004) http://www.fit.vutbr.cz/lib. Apart from basic information on the library and its services, the web pages enable access to special databases, on-line journals and dictionaries.

In December 2004, the library entered the OPAC catalogue of the Aleph500 library system. The access to the on-line catalogue and instructions for access and searching can also be found on the library web pages. The operation of the library is fully automated.

The first year students attended a lecture called "Information Education" where they were informed about the basic library terminology and about the most important rules for written work, and they were also introduced to the services of BUT Library and the FIT Library.

In 2004, the library bookstock was enlarged by 890 units.

At the end of 2004, Czech and foreign books worth more than CZK 450,000 were ordered in accordance with the requirements of students and the pedagogical staff. The total sum for purchase of books and journals was CZK 1,281,231.

Library statement for 2004

Number of books	Number of periodicals	Number of acquisitions per year	Number of registered users	Financial means for purchase (CZK)
6 560	50	893	1 644	1 281 231

Mgr. Barbora Selingerová
Head of the Library

II.7. Annual Report - the Academic Senate of the FIT BUT in 2004

As new members of the Academic Senate of the FIT (AS FIT) were elected in 2004, the Annual Report consists of two parts. The first one is an annual report of the AS which was elected on 7th January 2002, after the establishment of the FIT, and worked till the elections which took place on 19th October 2004. The second part is an annual report of the AS which started working on 2nd November 2004.

Annual report – the AS FIT activity from 1st January 2004 to 2nd November 2004

Academic Senate

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 Vráblík *(up to 15th June 2004)*
Vlastimil Kaluža *(from 15th June 2004)*   *Vice-Chairman and*
                                           Chairman of the Student Chamber

Chamber of Academic Staff

Ing. Vladimír Janoušek, PhD.
RNDr. Jitka Kreslíková, CSc.
doc. Ing. Jiří Kunovský, CSc.
Ing. Petr Lampa
doc. RNDr. Alexander Meduna, CSc.
Dr. Ing. Petr Peringer
doc. Dr. Ing. Pavel Zemčík
doc. Ing. Jaroslav Zendulka,CSc.

Student Chamber

Stanislav Holenda (Master's programme EI, CSE specialization)
Vlastimil Kaluža (Master's programme EI, CSE specialization)
Ing. Bohuslav Křena (Ph.D.programme IT)
Marek Kyrsch (Master's programme EI, CSE specialization)
Zdeněk Vráblík (Master's programme EI, CSE specialization)

AS FIT Committees

Legislative Committee

Stanislav Holenda
Vlastimil Kaluža
doc. Ing. Jiří Kunovský, CSc. - Chairman
Ing. Petr Lampa

Economic Committee

RNDr. Jitka Kreslíková, CSc.
Ing. Bohuslav Křena

Ing. Petr Lampa – *Chairman*
Zdeněk Vráblík
doc. Dr. Ing. Pavel Zemčík

Activities of the AS FIT

The Academic Senate gathered at five meetings in 2004 with an average attendance of 89%. All meetings had a quorum.

Most of the meetings dealt with legislative and economic topics. At the end of the term of office the AS focused on preparatory work for the election of members of the AS FIT and on nomination of candidates for the position of the Dean of the FIT. (The present Dean's term of office expires on 7th January 2005).

As far as the internal regulations are concerned, the Dean's Regulations completing the Study and Examination Regulations of BUT were agreed on. Those paragraphs of Study and Examination Regulations which were indispensable for the beginning of the new academic year were specified and amended.

The Academic Senate of the FIT and its management proposed some amendments of the Statute of BUT in the paragraph dealing with scholarships for doctoral students.

The Academic Senate agreed on the annual report on financial management of the FIT in 2003 and approved the FIT budget for 2004. The AS checked the fulfilment of the FIT budget in 2004 in its meeting on 5th October 2004.

The Academic Senate also discussed and approved the Annual Report on the Activities of the FIT in 2003.

A total of 18 decisions, out of which 8 concerned internal regulations and 3 economic issues, were approved. The other decisions concerned the Annual Report of 2003, the shortening of the presentation period and the nomination of the election committee for the elections of the members of the AS.

The Legislative Committee met three times to discuss the proposals of internal regulations of the FIT, and the Economic Committee of the AS FIT met once to discuss the FIT budget for 2004.

Annual report – the AS FIT activity after 2nd November 2004

Academic Senate

the Academic senate elected on 19th October 2004 consisted of:

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
Ing. Radek Kočí, Ph.D.
Ing. Bohuslav Křena, Ph.D.
doc. Ing. Jiří Kunovský, CSc.
Ing. Petr Lampa
doc. RNDr. Alexander Meduna, CSc.
Ing. Tomáš Vojnar, Ph.D.
doc. Ing. Jaroslav Zendulka

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 AS met at one constitutive and another regular meeting in 2004. The subject matters of the discussions were mainly some important internal regulations of the FIT, the nomination of candidates for the position of the Dean of the FIT and information concerning the commencing reconstruction of the Božetěchova 1 and Božetěchova 2 premises.

Revision of the Internal Regulations for Admission and of the requirements for admission to the Bachelor's study programme at the FIT BUT (namely admission without an entrance examination and the characteristics of the entrance examination) were discussed. New admission regulations for the FIT follow-up Master's study programme as well as the Dean's Regulations completing the Study and Examination Regulations of BUT were agreed on.

The nomination of candidates for the position of the Dean of the FIT was another important task of the new AS. The date of the elections was announced during the constitutive meeting. The election committee received six proposals, in all of which prof. Ing. Tomáš Hruška, CSc. was nominated. The pre-election meeting of the academic comunity took place on 1st December 2004, the elections at the AS FIT meeting on 7th December 2004. The nomination of prof.Ing. Tomáš Hruška,CSc. for the position of the Dean for 2005 – 2008 was agreed on by the FIT AS in a ballot and suggested to the Rector of BUT.

During its two sessions the new AS FIT agreed on a total of 14 decisions, out of which 3 concerned internal regulations and 1 an economic issue. Further agreements concerned the elections for the AS FIT, permanent commissions of the AS FIT, nomination for the position of the Dean of the FIT and the annual reports of the AS FIT for 2004.

The Legislative Committee met once to discuss the proposal for the "Amendments to the BUT Study and Examination Regulations" and the "Internal Regulations for Admission and of the requirements for admission to the Master's study programme at the FIT BUT".

Doc. Ing. Zdeňka Rábová, CSc. worked as the FIT Deputy in the Czech Council of Higher Education (CHE). In 2004 she worked as the Chairperson of the Commission for Student Creativity and a member of the Commission for Information Technologies in higher education.

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

doc. Ing. Jaroslav Zendulka, CSc.
Chairman 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 (SCAS) of the FIT in 2004

Student senators regularly attended the AS FIT meetings. They participated in the Economic and Legislative Committees of the Senate. After the elections in November 2004, the SCAS FIT worked in a new composition. The SCAS FIT members took part in a meeting of representatives of the Student Chambers of ASs of faculties of electrical engineering and faculties of information technology, which was held in Brno. The SCAS FIT also delegated its representatives to the individual work sections of the SCAS BUT.

Activities of the Student Union (SU) FIT in 2004

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 ecducation 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 allocate residential accommodation to students of the FIT.

The members of the SU helped to promote various faculty events, such as: elections to the AS FIT, Microsoft Day, a meeting that informed about various study stays abroad for the FIT students,… The Student Union had their own T-shirts promoting the study at the FIT made and distributed among the students. The SU representatives worked in the committees of the Students´ Creativity Conference.

For the second 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 provided an audio-visual transmission of an event organized by Silicon Hill student club in Prague and a lecture on the Linux Operation Systém, which is used at the faculty.

The SU colaborated with the OpenMinds student group and helped to organize several workshops for the FIT and FI MU students.

Zdeněk Letko
Chairman SCAS FIT

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, doc. RNDr., CSc.
Professors
　　Honzík Jan M., prof. Ing., CSc.
　　Hruška Tomáš, prof. Ing., CSc.
　　Švéda Miroslav, prof. Ing., CSc.
Associate Professors
　　Meduna Alexander, doc. RNDr., CSc.
　　Zendulka Jaroslav, doc. Ing., CSc.

Assistant Professors
Burget Radek, Ing., Ph.D.
Cvrček Daniel, Ing., Ph.D.
Kolář Dušan, Dr. Ing.
Kreslíková Jitka, RNDr., CSc.

Assisstant Lecturers
Bartík Vladimír, Ing.
Matoušek Petr, Ing.
Ráb Jaroslav, Ing.
Ščuglík František, Ing.

Postgraduate Students
Bednář David, Ing.
Bidlo Radek, Ing.
Blatný Petr, Ing.
Bureš František, Ing.
Čech Vladimír, Ing.
Elbl Stanislav, Ing.
Heckel Martin, Ing.
Holub Milan, Ing.
Hrouzek Jan, Ing.
Kaláb Petr, Ing.
Kopeček Tomáš, Ing.
Křivka Zbyněk, Ing.
Kubát Lubomír, Ing.
Kurečka Radomír, Ing.
Lorenc Luboš, Ing.
Lukáš Roman, Ing.
Martínek Zdeněk, Mgr.
Masařík Karel, Ing.
Očenášek Pavel, Ing.
Petrucha Roman, Ing.
Rudolfová Ivana, Ing.
Ryšavý Ondřej, Ing.
Strach Michal, Ing.
Škrkal Oto, Ing.
Švec Martin, Ing.
Trávníček Miloš, Ing.
Vítek Martin, Ing.
Zeman David, Ing.

Equipment

The Department uses the equipment of the Computer Centre.

Tuition

Abbreviat.	Course	Sem	Cr.	Hours	Lecturer
IAL	Algorithms	Z	5	39-0-0-0-13	Honzík Jan M., prof. Ing., CSc.

ADS	Algorithms and Data Structures	L	7	39-0-0-0-39	Honzík Jan M., prof. Ing., CSc.
APR	Algorithms and Programming	L	5	39-0-0-26-0	Kreslíková Jitka, RNDr., CSc.
AIN	Applied Informatics	L	5	26-0-0-26-0	Honzík Jan M., prof. Ing., CSc.
IDS	Database Systems	L	5	39-0-0-0-13	Zendulka Jaroslav, doc. Ing., CSc.
DSI	Database Systems and Database Design	Z	6	39-0-0-6-20	Zendulka Jaroslav, doc. Ing., CSc.
IFJ	Formal Languages and Compilers	Z	5	39-0-0-0-13	Meduna Alexander, doc. RNDr., CSc.
SSD	Formal Specifications of Computer-Based Systems	L	0	39-0-0-0-0	Švéda Miroslav, prof. Ing., CSc.
FLP	Functional and Logic Programming	Z	6	39-0-0-12-14	Kolář Dušan, Dr. Ing.
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	Z	6	39-0-0-12-14	Švéda Miroslav, prof. Ing., CSc.
TID	Modern Theoretical Computer Science	Z	0	39-0-0-0-13	Meduna Alexander, doc. RNDr., CSc.
MW2	MS Windows Server	L	5	0-0-0-52-0	Honzík Jan M., prof. Ing., CSc.
MW3	MS Windows Networks	Z	5	0-0-0-52-0	Kurečka Radomír, Ing.
MW1	MS Windows XP Professional	Z	5	0-0-0-52-0	Kurečka Radomír, Ing.
IPK	Computer Communication and Networks	L	5	39-0-0-0-13	Švéda Miroslav, prof. Ing., CSc.
PSI	Computer Networks and Communication Protocols	Z	6	39-0-0-12-14	Švéda Miroslav, prof. Ing., CSc.
PSI	Computer Networks and Communication Protocols	L	8	39-0-0-39-0	Švéda Miroslav, prof. Ing., CSc.
PRD	Post-Relational Databases	L	6	26-0-0-26-13	Kolář Dušan, Dr. Ing.
IPP	Principles of Programming Languages and OOP	L	5	39-0-0-0-13	Kolář Dušan, Dr. Ing.
PRJ	Programming Languages	L	6	39-12-0-0-14	Hruška Tomáš, prof. Ing., CSc.
PRO	Programming Practice	L	2	0-0-0-0-26	Kreslíková Jitka, RNDr., CSc.

PPS	Software Engineering	L	5	39-8-0-0-18	Zendulka Jaroslav, doc. Ing., CSc.
PDT	Data Transmission and Computer Networks	L	6	39-8-0-10-8	Švéda Miroslav, prof. Ing., CSc.
RPS	Project Management of Computer-Based Systems	L	6	39-6-0-0-20	Kreslíková Jitka, RNDr., CSc.
RPX	Project Management of Computer-Based Systems	L	7	39-0-0-14-12	Kreslíková Jitka, RNDr., CSc.
IPM	Pascal and Modula Languages	L	4	39-0-0-0-13	Honzík Jan M., prof. Ing., CSc.
ISA	Network Applications and Network Administration	Z	5	26-12-0-0-14	Švéda Miroslav, prof. Ing., CSc.
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.
TWS	Web page design	Z	0	26-0-0-26-0	Burget Radek, Ing.,Ph.D.
IUS	Introduction to Software Engineering	Z	5	26-0-0-0-13	Zendulka Jaroslav, doc. Ing., CSc.
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.
IZP	Fundamentals of Programming	Z	7	39-0-0-12-14	Kreslíková Jitka, RNDr., CSc.
ZAP	Fundamentals of Translators	L	6	39-12-0-0-14	Meduna Alexander, doc. RNDr., CSc.
ZZD	Knowledge Discovery in Databases	Z	0	39-0-0-0-13	Zendulka Jaroslav, doc. Ing., CSc.

Research Projects

Information system security - research of attacks on tamper-resistant cryptographic hardware, GAČR, 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

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

Gaudeamus 2004, RP MŠMT, MŠMT 642/1 - 2004, 2004
Research leader: Honzík Jan M.
Team leader: Kreslíková Jitka

Innovation of the course Introduction of Software Engineering, FRVŠ MŠMT, FR 1689/2004/F1, 2004
Research leader: Kreslíková Jitka

Innovation of the course Knowledge Discovery in Databases, FRVŠ MŠMT, FR1690/2004/F1, 2004
Research leader: Zendulka Jaroslav

Project integrating the development of teaching in English, enhancing the language competences and including the internatialisation of the study programmes, RP MŠMT, MŠMT 628/2004, 2004
Research leader: Rais Karel
Team leader: Honzík Jan M.

Project integrating the development of distance and combined forms of education at BUT, RP MŠMT, MŠMT 629/2004, 2004
Research leader: Švec Miloslav
Team leader: Honzík Jan M.

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

Pilot Joint International Study Programme at BUT, RP MŠMT, MŠMT 632/2004, 2004
Research leader: Honzík Jan M.
Team leader: Rais Karel

Programmable hardware, CESNET, CESNET 34602/2004, 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

Development programme "Promotion of the realization of the new structure and modular composition of the study programmes at BUT", RP MŠMT, MSMT 627/2004, 2004
Research leader: Švec Miloslav
Team leader: Honzík Jan M.

Development of Academic Centre for Students Activities, RP MŠMT, 2004
Research leader: Švec Jaroslav
Team leader: Švec Jaroslav

Application of Object-oriented Development in Project Management, FRVŠ MŠMT, FR 1692/2004/G1/2004
Research leader: Bednář David
Team leader: Kreslíková Jitka

Professionalization of Student Members in Higher Education Governance in Visegrad Group Countries, MVF, 36060356, 2003-2004
Research leader: Švec Jaroslav
Team leader: Švec Jaroslav

Intensive Programme project - IP - Applied Informatics and Multimedia, EC EUA ECTS, Socrates - IP, 2002-2004
Team leader: Honzík Jan M.

Preparation of the Distance Form of Bachelor's Study Programme "Information Technology" for Accreditation, MŠMT, MŠMT, 2002-2004
Research leader: Honzík Jan M.

Embedded Control Systems and their Inter-Communication, GAČR, GA102/02/1032, 2002-2004
Research leader: Švéda Miroslav
Team leaders: Bílek Jan, Srovnal Vilém

ADVANCE - Advanced Validation Techniques for Telecommunication Protocols, EU-5FP-IST, IST-1999-29082, 2001-2004
Research leader: Bouajjani Ahmed

Research in Information and Control Systems, CEZ MŠMT, MSM 262200012, 1999-2004
Research leader: Honzík Jan M.
Team leaders: Češka Milan, Zendulka Jaroslav, Zezulka František

Co-operation

Co-operation in the Czech Republic
- Application Software, s.r.o.
- Autocont CZ, a.s.
- CCB s r.o. Brno
- Demag Deleval Industrial Turbomachinery s r.o.
- Faculty of Informatics, MU Brno
- FAYN.CZ,s r.o.
- InterSystems B.V.
- Deparment of Information and Knowledge Engineering, FIS, VŠE, Praha
- Department of Informatics FEI, VŠB – Technical University Ostrava
- Department of Automation and Measurement FEI, VŠB - Technical University Ostrava
- Department of Control Technology FEL, ČVUT Praha

- LBMS, s.r.o. Praha
- Mendel Museum Brno
- Microsoft, s.r.o.
- Minolta, s.r.o.
- MP-Soft, s.r.o.Brno
- Liberouter project, CESNET, group of formal verifications
- Software Technology Institute, a.s.
- STAVCERT, s.r.o. Praha
- UNIS, s.r.o., Brno
- VEMA, a.s.
- Military Academy in Brno
- Faculty of Applied Sciences,West Bohemian University, Plzeň

International Co-operation

- Institute for Molecular Pathology, Vienna, Austria
- LIAFA, Université Paris 7, Paris, France
- Slovak Technical University, Bratislava, Faculty of Informatics and Information Technology, Slovakia
- Sophia Solutions, Banská Bystrica, Slovakia
- Universidad de Valladolid, Valladolid, Spain
- University of Arizona, Tuscon, Arizona, USA
- Universität Siegen, Germany
- University of Stirling, Stirling, Scotland, UK
- Microsoft Business Solutions, Denmark
- OnDemand Ltd., Austria

Visits to the Department

- Dr. Manuel Barrio Solórzano (co-ordinator of Socrates/Erasmus), Dr. Valentin Cardeñoso (Dean of the Faculty of Informatics and Telecommunications), Universidad de Valladolid, Valladolid, Spain, ES, 8 days
- Dr. Frank Eisenhaber (Head of the bio-informatic research group), Institute for Molecular Pathology, Vienna, Austria, 1 day

Visits of Staff Members to Foreign Institutions

- Honzík Jan M., prof. Ing., CSc., European Commision, Debrecen, HU, 4 days
- Matoušek Petr, Ing., Laboratoire d'Informatique Algorithmique: Fondements et Applications, Université Paris 7/CNRS, UMR 7089, LIAFA, 175 rue du Chevaleret 75013 Paris, France,7 days
- Matoušek Petr, Ing., Laboratoire d'Informatique Algorithmique: Fondements et Applications, Université Paris 7/CNRS, UMR 7089, LIAFA, 175 rue du Chevaleret 75013 Paris, France, 9 days
- Meduna Alexander, doc. RNDr., CSc., Universidad de Valladolid, Valladolid, Spain, ES, 8 days
- Ráb Jaroslav, Ing., Institute for Molecular Pathology, Vienna, Austria, 30 days

- Ryšavý Ondřej, Ing., World Scientific and Engineering Academy, Salzburg, AT, 3 days
- Ryšavý Ondřej, Ing., International Centre for Computational Logic, TU Dresden, Hans-Grundig-Straße 25, 01307 Dresden, DE, 14 days
- Zendulka Jaroslav, doc. Ing., CSc., Universidad de Valladolid, Valladolid, Spain, ES, 8 days

Agreements

- Kreslíková Jitka, RNDr., CSc., Agreement on Professional Aid, STAVCERT Praha, spol s r.o.
- Zendulka Jaroslav doc., Ing., CSc., Caché Campus Program Participation, Memorandum of Understanding – Addendum, InterSystems Corporation
- A Bilateral Agreement on Student and Teacher mobilities within the Socrates/Erasmus Programme Made with La Universidad de Valladolid, http://www.uva.es/, ES

Membership in Organizations and Societies

- Bureš František, Ing.,

    o IEEE

- Honzík Jan M., prof. Ing., CSc.,

    o IGIP

    o IFIP

    o EUA-ECTS/DS National Coordinator

- Hruška Tomáš, prof. Ing., CSc.,

    o ACM

- Kreslíková Jitka, RNDr., CSc.,

    o Czech Society for Quality

    o Project Management Association

    o Czech Electrotechnical Society

- Ryšavý Ondřej, Ing.

    o IEEE

- Ščuglík František, Ing.

    o IEEE

- Švec Jaroslav, Ing.,

    o The European Higher Education Society

- Švéda Miroslav, prof. Ing., CSc.,

    o IFIP WG10.1

    o IEEE Computer Society

    o IEEE Technical Committee on Engineering of Computer-Based Systems

- Zendulka Jaroslav, doc. Ing., CSc.,

    o ACM

    o Czech and Slovak Simulation Society (CSSS)

Publications

Books:

Meduna Alexander, Švec Martin: Grammars with Context Conditions and Their Applications, Wiley, New York, US, 2004, pp. 1-225

Book Chapters:

Švéda Miroslav, Beneš Petr, Vrba Radimír, Zezulka František: Introduction to Industrial Sensor Networking, Handbook of Sensor Networks: Compact Wireless and Wired Sensing Systems, Boca Raton, Florida, US, CRC Press, 2004, p. 24, ISBN 0-8493-1968-4

Journals:

Bond Mike, Cvrček Daniel, Murdoch Steven J.: Reverse-engineering of a cryptographic module, Cryptoworld, Praha, CZ, 2004, p. 6

Cvrček Daniel, Krhovják Jan, Matyáš Václav ml.: Attacks and cryptography in HW, In: DSM Data Security Management, 2004, No. 5, CZ, pp. 16-19, ISSN 1211-8737

Cvrček Daniel, Matyáš Václav ml.: Information Privacy and its Measurability, In: DSM Data Security Management, 2004, No. 6, CZ, p. 5, ISSN 1211-8737

Dvořák Václav, Švéda Miroslav, Rattray Charles, Rozenblit Jerzy: Formal Specifications of Computer-Based Systems - J.UCS Special Issue, In: Journal of Universal Computer Science, vol. 9, No. 11, AT, pp. 1258-1260, ISSN 0948-6968

Heckel Martin, Zendulka Jaroslav: Data Mining and Its Use in Texture Analysis, In: Fundamenta Informaticae, 2004, No. 60, Amsterdam, NL, pp. 173-186, ISSN 0169-2968

Kopeček Tomáš, Meduna Alexander: Simple-Semi-Conditional Versions of Matrix Grammars with a Reduced Regulating Mechanism, In: Computing and Informatics, 2004, No. 23, Bratislava, SK, pp. 189-202, ISSN 1335-9150

Kopeček Tomáš: Mandrake Linux 9.0 Community Edition − A Review, In: IT System, vol. 6, No. 5, Brno, CZ, p. 3, ISSN 1212-4567

Matoušek Petr: Tools for Parametric Verification. A Comparison on a Case Study, In: Journal of Universal Computer Science, vol. 10, No. 10, AT, pp. 1469-1495, ISSN 0948-6968

Meduna Alexander, Vítek Martin: New Language Operations in Formal Language Theory, In: Schedae Informaticae, 2004, No. 13, Krakov, PL, pp. 123-150, ISSN 0860-0295

Meduna Alexander: Generation of Sentences with Their Parses: the Case of Propagating Scattered Context Grammars, In: Acta Cybernetica, 2004, No. 4, US, pp. 241-252, ISSN 0324-721X

Ryšavý Ondřej, Bureš František: A Graph Representation for Use Case Specifications, In: WSEAS Transactions on Computers, 2004, No. 3, Athens, GR, pp. 686-690, ISSN 1109-2750

Strach Michal: Internet Security Tests and Statistics, InEkundayo John Abegunde: ElectronicsLetters.com , 2004, No. 1, Brno, CZ, p. 5, ISSN 1213-161X

Ščuglík František, Bureš František: Shared Variables in CSP, In: WSEAS Transactions on Computers, 2004, No. 3, Athens, GR, pp. 690-695, ISSN 1109-2750

Švéda Miroslav, Rattray Charles, Rozenblit Jerzy: Formal Specifications of Computer-Based Systems - J.UCS Special Issue, In: Journal of Universal Computer Science, vol. 10, No. 10, AT, pp. 1354-1356, ISSN 0948-6968

Švéda Miroslav, Vrba Radimír: Sensor Networking with Publish/Subscribe and IP Multicast, In: WSEAS Transactions on Information Science and Applications, vol. 1, No. 4, US, pp. 983-987, ISSN 1790-0832

Conference Proceedings:

Cvrček Daniel, Krhovják Jan, Matyáš Václav ml.: Hardware security modules - API and attacks, Plzeň, CZ, 2004, pp. 91-114, ISBN 80-86583-07-4

Dvořák Václav, Švéda Miroslav: Proceedings of the International IEEE Conference and Workshop ECBS'2004, Los Alamitos, CA, US, IEEE CS, 2004, p. 560, ISBN 0-7695-2125-8

Rattray Charles, Švéda Miroslav, Rozenblit Jerzy: Proceedings of the IEEE TC-ECBS and IFIP WG10.1 Joint Workshop on Formal Specifications of Computer-Based Systems, Stirling, GB, US, 2004, p. 64, ISBN 1-85769-1970

Conferences:

Bednář David, Kreslíková Jitka, Kubát Lubomír: Metrics Models for Software Development, In: NETSS2004, Ostrava, CZ, MARQ, 2004, pp. 97-102, ISBN 80-85988-92-5

Bednář David, Kreslíková Jitka: Towards Verification of Processes in Object-oriented Model of Project Management, In: Proceedings of ASIS 2004, Ostrava, CZ, MARQ, 2004, p. 8, ISBN 80-86840-03-4

Bednář David: Methodology for Management of Students Software Projects, In: EDU 2004 PM, Brno, CZ, FAST BUT, 2004, p. 4, ISBN 80-214-2720-5

Bednář David: Project Management Methodology of Object-oriented Software Development, In: Proceedings of 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, FIT BUT, 2004, pp. 238-242, ISBN 80-214-2635-7

Bidlo Radek: The General Syntax Analysis for Context-Free Grammars and E0L Grammars, In: SVOČ 2004 - Soutěž vysokoškoláků ve vědecké odborné činnosti v matematice, Brno, CZ, FSI BUT, 2004, p. 31-31

Bidlo Radek: The General Syntax Analysis for Modified E0L Grammars, In: Proceedings of 10th Conference and Competition Student EEICT 2004, Volume 1, Brno, CZ, FEKT BUT, 2004, pp. 188-190, ISBN 80-214-2634-9

Blatný Petr: Parsing Based on SCG, In: Proceedings of 10th Conference and Competition Student EEICT 2004, Volume 1, Brno, CZ, FEKT BUT, 2004, pp. 191-193, ISBN 80-214-2634-9

Bureš František, Ryšavý Ondřej: A Graph Representation for Use Case Specifications, In: Proceedings of the WSEAS International Conferences, Salzburg, AT, WSEAS, 2004, p. 5, ISBN 960-8052-95-5

Bureš František, Ryšavý Ondřej: Formal Abstract Architecture for Use Case Specifications, In: Proceedings of the 11th IEEE International Conference and Workshop on the Engineering of Computer-Based Systems, Los Alamitos, MX, ICSP, 2004, pp. 203-211, ISBN 0-7695-21258

Bureš František, Ščuglík František: Shared Variables in CSP, In: Proceedings of the WSEAS International Conferences, Salzburg, AT, WSEAS, 2004, p. 5, ISBN 960-8052-95-5

Burget Radek: Hierarchies in HTML Documents: Linking Text to Concepts, In: 15th International Workshop on Database and Expert Systems Applications, Zaragoza, ES, IEEE CS, 2004, pp. 186-190, ISBN 0-7695-2195-9

Cvrček Daniel, Matyáš Václav jr.: On the Role of Contextual Information for Privacy Attacks and Classification, In: Workshop on Privacy and Security Aspects of Data Mining, Brighton, GB, 2004, pp. 31-39

Cvrček Daniel, Matyáš Václav jr.: Privacy - What do you Mean?, In: UBICOMP Privacy Workshop, Nottingham, GB, 2004, pp. 12-19

Cvrček Daniel, Matyáš Václav jr.: Pseudonymity in the Light of Evidence-Based Trust, In: Authentic Privacy, Berlin, DE, Springer, 2004, pp. 109-116, ISSN 0302-9743

Cvrček Daniel: Dynamics of Reputation, In: NordSec'04, Helsinki, FI, HUT, 2004, pp. 1-7, ISSN 1455-9749

Čech Vladimír: System for Distant Access to Materials, In: Proceedings of 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, FIT BUT, 2004, pp. 238-242, ISBN 80-214-2635-7, Brno, CZ, 2004, p. 3

Elbl Stanislav, Meduna Alexander: Finite Index in Language Theory, In: Proceedings of 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, FIT BUT, 2004, pp. 247-251, ISBN 80-214-2635-7

Elbl Stanislav, Meduna Alexander: Grammar Systems of Finite Index, In: Proceedings of 7th International Conference ISIM '04, Ostrava, CZ, MARQ, 2004, pp. 141-146, ISBN 80-85988-99-2

Háze Jiří, Krejčí Jan, Vrba Radimír, Švéda Miroslav: Sensor Analysis of Liquid Pollution, In: Proceedings of the 2004 ISA/IEEE Sensors for Industry Conference, New Orleans, LA, US, IEEE CS, 2004, pp. 155-158, ISBN 0-7803-8143-2

Honzík Jan M.: The Survey of Some Aspects of European Higher Education at the Beginning of the Third Millenium, In: Proceedings ECBS 2004, Los Alamitos, CA, US, IEEE CS, 2004, pp. 161-167, ISBN 0-7695-2125-8

Kaláb Petr: A Two-Way PC Grammar Systems Based on Regular Grammars, In: Proceedings of 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, FIT BUT, 2004, pp. 252-256, ISBN 80-214-2635-7

Kaláb Petr: Two-Way PC Grammar Systems Based on Regular Grammars, In: Proceedings of 7th International Conference ISIM'04 Information Systems Implementation and Modelling, Ostrava, CZ, MARQ, 2004, pp. 111-118, ISBN 80-85988-99-2

Kolář Dušan, Černý Stanislav: Evolution of Software for Embedded Systems in Processort Expert, In: Proceedings of Eleventh IEEE International Conference and Workshop on the Engineering of Computer-Based Systems, ECBS 2004, Los Alamitos, CA, US, IEEE CS, 2004, pp. 419-422, ISBN 0-7695-2125-8

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Kreslíková Jitka: Project management education at the FIT BUT, In: EDU 2004 PM, Brno, CZ, FAST VUT, 2004, p. 4, ISBN 80-214-2720-5

Kreslíková Jitka: UML Diagrams and their Using in Systems Modelling, In: Pedagogický software 2004, České Budějovice, CZ, 2004, p. 4, ISBN 80-85645-49-1

Křivka Zbyněk: Making Aritmethical Expression Parsing More Effective, In: SVOČ 2004 - Soutěž vysokoškoláků ve vědecké odborné činnosti v matematice, Brno, CZ, FSI BUT, 2004, p. 34

Křivka Zbyněk: Two-Way K-Linear N-PC Grammar Systems, In: Proceedings of the 10th Conference and Competition STUDENT EEICT 2004 Volume 1, Brno, CZ, FEKT BUT, 2004, pp. 203-205, ISBN 80-214-2634-9

Kubát Lubomír: Measurement in software development process, In: Proceedings of the 10th conference STUDENT EEICT 2004, Brno, CZ, BUT, 2004, p. 5, ISBN 80-214-2635-7

Lorenc Luboš, Meduna Alexander: Self-Reproducing Pushdown Transducers, In: Proceedings of 7th International Conference ISIM'04 Information Systems Implementation and Modelling, Ostrava, CZ, MARQ, 2004, pp. 155-160, ISBN 80-85988-99-2

Martínek Zdeněk, Kreslíková Jitka: Process Evaluation in Small Organizations, In: GEMAN, Plzeň, CZ, EVIDA, 2004, p. 7, ISBN 80-86596-51-6

Martínek Zdeněk, Kreslíková Jitka: Methods for Project Management in Small Teams, In: PRONT 04, Plzeň, CZ, EVIDA, 2004, p. 7, ISBN 80-86596-54-0

Martínek Zdeněk: Instruments for Process Management in Small Organizations, In: PRONT 04, Plzeň, CZ, EVIDA, 2004, p. 7, ISBN 80-86596-54-0

Matoušek Petr: Tools for Parametric Verification. A Comparison on A Case Study (extended abstract)., In: Proceedings of the 5th Joint Workshop on FSCBS, Stirling, GB, US, 2004, pp. 45-55, ISBN 1-85769-1970

Meduna Alexander, Škrkal Oto: Combined Leftmost Derivations in Matrix Grammars, In: Proceedings of 7th International Conference ISIM'04 Information Systems Implementation and Modelling, Ostrava, CZ, MARQ, 2004, pp. 127-132, ISBN 80-85988-99-2

Očenášek Pavel: On Inductive Approach in Security Protocol Verification, In: Proceedings of the 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, FEKT BUT, 2004, pp. 272-276, ISBN 80-214-2635-7

Očenášek Pavel: Reasoning about Security Issues in Wireless Devices based on the IEEE 802.11, In: 11th Electronic Devices and Systems Conference 2004 Proceedings, Brno, CZ, FEKT BUT, 2004, pp. 228-231, ISBN 80-214-2701-9

Petrucha Roman: Semantic Web as a machine understandable Web, In: Proceedings of 7th International Conference ISIM '04, Ostrava, CZ, MARQ, 2004, pp. 53-56, ISBN 80-85988-99-2

Petrucha Roman: Semantic Web, In: Proceedings of the 10th Conference STUDENT EEICT 2004, Brno, CZ, FIT BUT, 2004, pp. 277-281, ISBN 80-214-2635-7

Ryšavý Ondřej, Bureš František, Ščuglík František, Švéda Miroslav: Integration of Formal Methods in a Specification Framework for Embedded Systems, In: Proceedings of the IEEE TC-ECBS and IFIP WG10.1 Joint Workshop on Formal Specifications of Computer-Based Systems, Stirling, GB, IEEE CS, 2004, pp. 57-63, ISBN 1-85769-1970

Ščuglík František: Formal Specification of Shared Variables Using CSP, In: Engineering of Computer-Based Systems, Los Alamitos, CA, IEEE CS, 2004, pp. 211-216, ISBN 0-7695-2125-8

Švec Jaroslav: Implementation of Bologna Process in the Czech Republic, In: Published on WWW, Ljubljana, SI, 2004, p. 24

Švec Jaroslav: Professionalization of Students, In: The Present Role and Position of Students in Higher Education 2003, "The Role of the Student in the Civic Society", Brno, CZ, BUT, 2004, pp. 122-128, ISBN 80-214-2586-5

Švec Jaroslav: Project Management and Young Project Managers Group (YPMG) in the Czech Republic, In: Published on WWW, Kiev, UA, 2004, p. 16

Švec Martin: Computational Simulation Formalized by String-Relation Systems, In: Proceedings of the 7th International Conference on Information Systems Implementation and Modelling (ISIM '04), Ostrava, CZ, MARQ, 2004, pp. 147-153, ISBN 80-85988-99-2

Švec Martin: Computational Simulation Formalized by String-Relation Systems, In: Proceedings of the International Conference and Competition of Student's Scientific

Works STUDENT EEICT 2004, Bratislava, SK, STUBA, 2004, pp. 544-547, ISBN 80-227-2057-7

Švéda Miroslav, Vrba Radimír: A Development Environment for Internet-Based Applications of Smart Sensors, In: Proceedings of the 2004 ISA/IEEE Sensors for Industry Conference, New Orleans, LA, US, IEEE CS, 2004, pp. 170-176, ISBN 0-7803-8143-2

Švéda Miroslav, Vrba Radimír: An Approach to Computer-Based System Synthesis, In: Proceedings of the ICSE & INCOSE 2004 Conference, Las Vegas, NV, US, CRC Press, 2004, p. 8

Švéda Miroslav, Vrba Radimír: Reuse of Formal Specifications in Computer-Based Systems Design, In: Proceedings of the ICSE & INCOSE 2004 Conference, Las Vegas, NV, US, CRC Press, 2004, p. 6

Švéda Miroslav: A Design Framework for Internet-Based Embedded Distributed Systems, In: Proceedings of the International IEEE Conference and Workshop ECBS'2004, Los Alamitos, California, US, IEEE CS, 2004, pp. 113-120, ISBN 0-7695-2125-8

Švéda Miroslav: IP Multicast with Publish/Subscribe for Sensors on Internet, In: 11th Electronic Devices and Systems Conference 2004 Proceedings, Brno, CZ, BUT , 2004, pp. 350-353, ISBN 80-214-2701-9

Vrba Radimír, Sajdl Ondřej, Kuchta Radek, Švéda Miroslav: Wireless Smart Sensor Network System, In: Proceedings of the ICSE & INCOSE 2004 Conference, Las Vegas, NV, US, CRC Press, 2004, p. 6

Vrba Radimír, Švéda Miroslav, Mareček Karel: Pressure Transducer with Multiplexed Frequency Transmitter, In: Proceedings of the 2004 ISA/IEEE Sensors for Industry Conference, New Orleans, LA, US, IEEE CS, 2004, pp. 7-10, ISBN 0-7803-8143-2

Research Projects:

Bond Mike, Cvrček Daniel, Murdoch Steven J.: Unwrapping the Chrysalis, In: Technical report, No. 592, Cambridge, GB, p. 15, ISSN 1476-2986

Lectures:

Matoušek Petr, Sighireanu Mihaela: Parametric Analysis of PGM protocol - report, Advance meeting, Paris, FR, 2004, p. 33

Studies:

Matoušek Petr: Planning and Preparatory Work for a New Subject at the FIT BUT , Brno, CZ, 2004, p. 38

Dissertations:

Burget Radek: Information Extraction from HTML Documents Based on Logical Document Structure, Brno, CZ, FIT BUT, 2004, p. 85

Güttner Jakub: Object Databases and the Semantic Web, Brno, CZ, 2004, p. 85

Seminars

29.11.2004	**Design and implementation of NET library for formal specification and verification – F. Ščuglík, O. Ryšavý**
22.11.2004	**Generation of sentences with their parses by propagating scattered context grammars – A. Meduna, J. Techet**
15.11.2004	**Combined leftmost derivations in matrix grammars - O. Škrkal**
8.11.2004	**Canonical derivations in matrix grammars - A. Meduna**
1.11.2004	**My new Ph.D. students and their research - A. Meduna**
25.10.2004	**Repetitions in text and finite automata - B. Melichar**
18.10.2004	**Data structures for parametric verification - P. Matoušek**
4.10.2004	**Information extraction from HTML documents based on logical document structure - A. Meduna, J. Zendulka, R. Burget**
26.4.2004	**Visual data mining - I. Šmarda**
5.4.2004	**Visual HTML document modelling for information extraction - R. Burget**
29.3.2004	**On certain topology on Z 2 and the corresponding Jordan curves - J. Šlapal**
15.3.2004	**Multigenerative grammar systems - A. Meduna, R. Lukáš**
8.3.2004	**Parametric analyses of PGM protocol - P. Matoušek**

Other Activities

- Organization of an international IEEE Conference "Engineering of Computer-Based Systemes", Brno, 2004
- Co-organization of the "7th Information Systems Implementation and Modelling" (ISIM 2004). It is an international conference on theory, modelling techniques and tools, methods of information systems design and database systems (together with KI FEI VŠB-TU Ostrava)
- Memberships in programme committees of the following scientific conferences: 7th Information Systems Implementation and Modelling, (ISIM 2004) in Rožnov pod Radhoštěm, CZ 38th Spring International Conference on Modelling and Simulation of Systems, (MOSIS 2004) Brno, CZ IASTED International Conference on Databases and Applications (DBA 2004), Innsbruck, , Austria, Knowledge, Brno 2004, DATAKON 2004
- 8th Conference on Advances in Databases and Information Systems (ADBIS 2004), Budapest, Hungary
- Leading the section of Information Security, Protocols and Networks at the 3rd international multiconference WSEAS ISCOCO: Information Security, Hardware Codesign and Computer Networks 2004, and ICOSSE: System Science and Engineering 2004.
- Membership in the evaluation board of the competition called Crystal Disc within the framework of the international trade fair of information technology Invex 2004, where prof. Honzík acted as the chief executive of the evaluation board.
- Participation in the 11th Gaudeamus – Fair on Education, whose supervisor, founder and advisory board chairman is prof. Ing. Jan M. Honzík, CSc.

- Prof. Honzík is the National Co-ordinator of ECTS (the only one in the Czech Republic) in EUA (European University Association). EUA is an important European body – the only representative of all universities in EU.
- Membership in the national "Bologna Promoters" team working in the ECTS/DS area.

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
> 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
> Martinek, David, Ing.

Ph.D. Students
> Černohorský Jakub, Ing.

Drahanský Martin, Ing.
Erlebach Pavel, Ing.
Florián Vladimír, Ing.
Grulich Lukáš, Ing.
Novosad Petr Ing.
Petřek Jiří, Ing.
Pospíšil Dominik, Mgr.
Rogalewicz Adam, Mgr.
Rozman Jaroslav, Ing
Řezáč David, Ing., Ph.D.
Schwarz Ivan, Ing.
Slavíček Pavel, Ing.
Smrčka Aleš, Ing.
Tomica Petr, Ing.
Turakhodjaeva Nasibakhon
Zacios Dalibor, 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.
BPI	Bachelor's project CSE	Z	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.
BIS	Security of information systems	Z	5	39-0-0-13-0	Hanáček Petr, doc. Dr. Ing
DPI	Diploma project	L	10	0-0-0-0-130	Rábová Zdeňka, doc. Ing., CSc.
DPX	Diploma project (abroad)	L	15	0-0-0-0-130	Rábová Zdeňka, doc. Ing., CSc.
IE1	Electrical Engineering 1	L	5	26-26-0-0-0	Kunovský Jiří, doc. Ing., CSc.
IE2	Electrical Engineering 2	L	7	26-13-2-10-14	Kunovský Jiří, doc. Ing., CSc.
I2E	Electrical Engineering 2 (for foreign students)	L	6	26-13-12-0-14	Kunovský Jiří, doc. Ing., CSc.
ISD	Intelligent systems	Z	0	39-0-0-0-13	Zbořil František, doc. Ing., CSc.
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.
IMS	Modelling and simulation	Z	5	39-0-0-0-13	Peringer Petr, Dr. Ing.
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	L	5	39-0-0-0-13	Peringer Petr, Dr. Ing.
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	26-0-0-20-19	Janoušek Vladimír, Ing., Ph.D.
IOS	Operation systems	L	5	39-0-0-0-13	Vojnar Tomáš, Ing., Ph.D.
OS1	Operation systems 1 (for foreign students)	L	5	39-0-0-26-0	Peringer Petr, Dr. Ing.
PDA	Parallel and distributed algorithms	Z	6	39-0-0-0-26	Hanáček Petr, doc. Dr. Ing.
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.
P2X	Year project 2/2 (abroad)	L	6	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.
TI1	Theoretical computer science 1	Z	6	39-12-0-2-12	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	26-13-0-13-0	Kunovský Jiří, doc. Ing., CSc.
UIN	Artificial intelligence	L	6	39-6-0-6-14	Zbořil František, doc. Ing., CSc.
IPU	Computer applications	Z	4	26-0-0-26-0	Kunovský Jiří, doc. Ing., CSc.
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	L	4	39-0-0-0-0	Zbořil František, doc. Ing., CSc.

Research Projects

Automated methods and tools supporting development of reliable parallel and distributed systems, GAČR, 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, GAČR, 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

BioCompress, FHG-IGD, BioCompress, 2004
Research leader: Arnold Michael
Team leaders: Busch Christoph, Drahanský Martin

European Research Training Network SegraVis - Syntactic and Semantic Integration of Visual Modelling Techniques, EU, HPRN-CT-2002-00275, 2004-2005
Gaudeamus 2004, RP MŠMT, MŠMT 642/1 - 2004, 2004
Research leader: Honzík Jan M.
Team leader: Kreslíková Jitka

Intelligent Systems Laboratory, FRVŠ MŠMT, FR1688/2004/A, 2004
Research leader: Zbořil František
Team leader: Hanáček Petr

Programmable Hardware, CESNET, CESNET 34602/2004, 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

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

ADVANCE - Advanced Validation Techniques for Telecommunication Protocols, EU-5FP-IST, IST-1999-29082, 2001-2004
Research leader: Bouajjani Ahmed

Research in Information and Control Systems, CEZ MŠMT, MSM 262200012, 1999-2004
Research leader: Honzík Jan M.
Team leaders: Češka Milan, Zendulka Jaroslav, Zezulka František

Co-operation

Co-operation in the Czech Republic

- Department of Computer Science and Engineering WBU in Plzeň, prof.Matoušek,
- Biometric Systems. http://www.zcu.cz

International Co-operation

- Universita degli Studi di Milano – Bicocca, Milano, Italy, prof. Penze, dr. Denaro – Development of a verification tool based on symbolic execution of Java programmes http://www.unimi.it/

- University of Malta, Malta, doc. Sklenář – Object-oriented Petri Nets, http://www.um.edu.mt/

- Universität Siegen in Siegen, Fakultät für Elektrotechnik und Informatik, Germany, prof. Dr.-Ing. Dr.h.c. K.W.Bonfig – study stays, diploma theses http://www.uni-siegen.de

- LIAFA (Laboratoire d Ínformatique Algorithmique: Fondements et Applications), Université Paris 7 - Denis Diderot/CNRS, France, prof. A. Bouajjani - Methods for verification of parametric and infinite state systems http://www.liafa.jussieu.fr/

- Uppsala University, Department of Information Technology, Division of Computer Systems, Sweden, prof. P.A.Abdulla – Integration of tools for verification of parametric systems http://www.docs.uu.se

- Weizmann Institute of Science, Faculty of Mathematics and Computer Science, Rehovot, Israel, Dr. E. Sharar, D. Fisman – Integration of TLV among other tools for parametric verification http://www.weizmann.ac.il/

- VERIMAG, Université Joseph Fourier/CNRS, Grenoble, France, prof. Y. Lakhnech, dr. M. Bozga - Use of language and IF environment for tool integration for verification of parametric systems http://www-verimag.imag.fr

- Université Léonard de Vinci, Paris, France, prof. Merceron – Research on possibilities of abstraction for verification of infinite state and parametric systems http://www.devinci.fr

Visitors to the Department

- Dr. Peter Habermehl, LIAFA, Université Paris, a week stay, joint research in system verification

- Prof. Veljko M. Milutinovic, Department of Computer Engineering, University of Belgrade, a lecture

Visits of Staff Members to Foreign Institutions

- Češka Milan, prof. RNDr., CSc., Faculty of Electrical Engineering and Information Technology, Technical University , Košice, SK, 3 days

- Drahanský Martin, Ing., Universität Siegen, Siegen, DE, 17 months

- Drahanský Martin, Ing., Fraunhofer Gesellschaft – Institut für Graphische Datenverarbeitung, Darmstadt, DE, 6 days

- Křena Bohuslav, Ing., Ph.D., Universita degli Studi di Milano - Bicocca; Dipartimento di Informatica, Sistemistica e Comunicazione; Laboratorio di Test e Analisi del Software, Universita degli Studi di Milano-Bicocca, Via Bicocca degli Arcimboldi 8, 20126, Milano, IT, 3 months

- Kunovský Jiří, doc. Ing., CSc., University of Malta, Malta, Hotel Kristal (a conference), MT, 11 days

- Rogalewicz Adam, LIAFA, Université Paris 7, one semestre study stay

- 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 13, FR, 10 days

- 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 Cedex 13, FR, 10 days

- Vojnar Tomáš, Ing., Ph.D., Laboratoire d'Informatique Algorithmique: Fondements et Applications, Université Paris 7/CNRS, UMR 7089, London, Great Britain, and Paris, France, 14 days

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 between LIAFA, Université Paris 7 - Denis Diderot/CNRS (Prof. A Boujjani) and FIT BUT in Brno (Prof. M. Češka, Dr. T. Vojnar).

- A bilateral agreement on co-operation within the Socrates/Erasmus programme made with Universität Siegen, Germany

- A bilateral agreement on co-operation within the Socrates/Erasmus programme made with LIAFA, Université Paris 7.

Membership in Organizations and Societies

- Češka Milan, prof. RNDr., CSc.,

    o TC 10 IFIP Committee - Computer systems technology

    o IFIP WG 10.1 Computer Aided System Theory

    o Body of editors of the International Journal of General Systems, Gordon and Breach Science Publisher, USA

    o Research Board of Advisors, American Biographical Institute

    o Gesellschaft für Informatik, Germany

    o Czech and Slovak Simulation Society (CSSS) in the framework of EUROSIM

    o ACM

- Hanáček Petr, Dr. Ing.,

    o CIS (Czech and Slovak Information Society)

    o Czech and Slovak Simulation Society (CSSS)

    o ACM - SIGSAC - Special Interest Group on Security, Audit and Control

    o CEO (Centre for Electronic Commerce)

- Janoušek Vladimír, Ing., Ph.D.,

    o Czech and Slovak Simulation Society (CSSS)

    o Czech and Slovak Smalltalk Users Group (CSSUG)

- Jiří Kunovský, doc.Ing.,CSc.,

    o Czech and Slovak Simulation Society (CSSS)

- Peringer Petr, Dr. Ing.,

    o Czech and Slovak Simulation Society (CSSS)

- Rábová Zdeňka, doc. Ing., CSc.,

    o Committee of the Czech and Slovak Simulation Society (CSSS) in the framework of EUROSIM

    o AFCEA member

- Vojnar Tomáš, Ing., Ph.D.

    o Czech and Slovak Simulation Society (CSSS)

- Zbořil František, doc. Ing., CSc.,

    o Czech and Slovak Simulation Society (CSSS)

Publications

Books:

Bonfig Karl Walter, Drahanský Martin: Biometrie, Kreuztal, DE, 2004, p.153, ISBN 3-33609-02-X

Book Chapters:

Bouajjani Ahmed, Habermehl Peter, Vojnar Tomáš: Abstract Regular Model Checking, Computer Aided Verification – CAV 2004, Berlin, DE, Springer, 2004, pp. 372-386, ISBN 0302-9743

Drahanský Martin, Nötzel Ralf: A simple technique for parameter identification on example of hydraulic press, Sensoren, Signale, Systeme, Band 5, Kreuztal, DE, 2004, pp. 71-82, ISBN 3-933609-19-4

Drahanský Martin, Nötzel Ralf: Sensors for Fingerprint Recognition, Sensoren, Signale, Systeme, Kreuztal, DE, 2004,pp. 49-60, ISBN 3-933609-19-4

Orság Filip: Future Vision, Biometrie, Kreutztal, DE, bQuadrat, 2004, pp. 131-145, ISBN 3-933609-02-X

Journals:

Drahanský Martin, Smolík Luděk: Biometric Certificates, In: DSM Data Security Management, Vol. 8, No. 5, CZ, pp. 20-22, ISSN 1211-8737

Hanáček Petr: ISO IS Security Evaluation, In: e-biz, Vol. 2004, No. 2, Brno, CZ, pp. 57-58, ISSN 1213-063X

Conferences:

Češka Milan, Haša Luděk: Improvements in Model Checking for Object-Oriented Petri Nets, In: Proceedings of the ISAS CITSA 2004, Volume III, Communications, Information and Control Systems, Technologies and Applications, Orlando, US, IIIS, 2004, pp. 269-274, ISBN 980-6560-19-1

Drahanský Martin, Orság Filip, Zbořil František: Biometrics in Security Applications, In: Proceedings of 38th International Conference MOSIS '04, Ostrava, CZ, MARQ, 2004, p. 6, ISBN 80-85988-98-4

Drahanský Martin, Orság Filip: Biometric Security Systems: Robustness of the Fingerprint and Speech Technologies, In: BT 2004 - International Workshop on Biometric Technologies, Calgary, CA, 2004, pp. 99-103

Drahanský Martin, Smolík Luděk: Entropic Numbers from the Fingerprint, In: Entropic Numbers from the Fingerprint, London, GB, 2004, p. 20

Drahanský Martin: Multibiometric Systems, In: Proceedings of the 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, FIT BUT, 2004, p. 5, ISBN 80-214-2635-7

Drahanský Martin: Usage of biometrical data for generation of personal bounded cryptographical keys, In: BIOSIG 2004, Darmstadt, DE, FHG-IGD, 2004, p. 30

Florián Vladimír, Hanáček Petr, Slavíček Pavel: Analysing methods for modelling attacks on security devices, In: Proceedings of 38th International Conference MOSIS'04, Ostrava, CZ, MARQ, 2004, pp. 261-265, ISBN 80-85988-98-4

Florián Vladimír, Slavíček Pavel: Roles of visualization tools in distributed simulations, In: Proceedings of the 10th conference STUDENT EEICT 2004, Brno, CZ, BUT, 2004, pp. 339-343, ISBN 80-214-2635-7

Habermehl Peter, Vojnar Tomáš: Regular model checking using inference of regular languages, In: Proceedings of 6th International Workshop on Verification of Infinite-State Systems - INFINITY 2004, London, GB, 2004, pp. 61-71

Hanáček Petr, Peringer Petr, Rábová Zdeňka: Analysis of simulation data from cryptographic module, In: Proceedings of ASIS 2004, Ostrava, CZ, MARQ, 2004, p. 6

Hanáček Petr, Peringer Petr, Rábová Zdeňka: Usage of models for security analysis of cryptographic modules, In: NETSS2004, Ostrava, CZ, MARQ, 2004, pp. 115-120, ISBN 80-85988-92-5

Hanáček Petr, Zbořil František, Zbořil František ml.: Secure communication of agents-robots in hostile environment, In: NETSS2004, Ostrava, CZ, MARQ, 2004, pp. 91-95, ISBN 80-85988-92-5

Hanáček Petr: Securing Web Services, In: Proceedings of ISIM04 - Tutorial, Ostrava, CZ, MARQ, 2004, pp. 1-20, ISBN 80-86840-01-8

Hanáček Petr: Smart Card Testing and Security Standards, In: Proceedings of SmartWorld 2004, Zlín, CZ, 2004, p. 3

Hrubý Martin, Peringer Petr, Rábová Zdeňka: Modelling of Tamper-Proof Devices, In: Proceedings of 38th International Conference MOSIS'04, Ostrava, CZ, MARQ, 2004, p. 6, ISBN 80-85988-98-4

Janoušek Vladimír, Kočí Radek: Towards an Open Implementation of the PNtalk System, In: Proceedings of the 5th EUROSIM Congress on Modeling and Simulation, Paris, FR, EUROSIM, 2004, p. 6, ISBN 3-901608-28-1

Kočí Radek: Open Implementation of the Simulation Framework, In: Proceedings of 38th International Conference MOSIS'04, Ostrava, CZ, MARQ, 2004, pp. 73-80, ISBN 80-85988-98-4

Kunovský Jiří, Řezáč David, Melkes František: Modern Taylor Series Method, In: Proceedings of 38th International Conference MOSIS '04, Ostrava, CZ, MARQ, 2004, pp. 9-20, ISBN 80-85988-98-4

Kunovský Jiří, Řezáč David, Tomica Petr: Non-autonomous Example of Stiff System, In: Proceedings of the sixth international scientific conference Electronic Computers and Informatics ECI 2004, Košice, SK, TU Košice, 2004, pp. 81-85, ISBN 80-8073-150-0

Kunovský Jiří, Řezáč David: TKSL and Stiff System Detection, In: Proceedings of the 3rd International Conference Aplimat, Bratislava, SK, STUBA, 2004, pp. 621-626, ISBN 80-227-1995-1

Kunovský Jiří, Zacios Dalibor, Tomica Petr: Modern Taylor Series Method and Coefficients of Fourier Transform Series, In: Proceedings of 38th International Conference MOSIS '04, Ostrava, CZ, MARQ, 2004, pp. 87-92, ISBN 80-85988-98-4

Martinek David: General Hierarchical Network, In: Proceedings of 38th International Conference MOSIS '04 Modelling and Simulation of Systems, Ostrava, CZ, MARQ, 2004, pp. 81-86, ISBN 80-85988-98-4

Martinek David: Japetus - a Platform for Heterogeneous Modelling, In: Proceedings of XXVI International Autumn Colloquium ASIS 2004 Advanced Simulation of Systems, Ostrava, CZ, MARQ, 2004, pp. 203-206, ISBN 80-86840-03-4

Rogalewicz Adam, Vojnar Tomáš: Tree Automata In Modelling And Verification Of Concurrent Programs, In: Proceedings of ASIS 2004, Ostrava, CZ, MARQ, 2004, pp. 197-202, ISBN 80-86840-03-4

Zbořil František jr., Zbořil František: Building of Multiagent Models, In: Peoceeding of 6th International Scientific Conference ECI 2004, Košice, SK, FEI TU Košice, 2004, pp. 388-393, ISBN 80-8073-150-0

Zbořil František jr.: Argumentation Base Selection, In: Proceedings of 38th International Conference MOSIS '04, Ostrava, CZ, MARQ, 2004, pp. 207-212, ISBN 80-85988-98-4

Research Projects:

Arnold Michael, Busch Christoph, Drahanský Martin, Ihmor Heinrich, Reinefeld Tom, Zwiesele Alexander: BioFinger - Evaluation of biometric systems (Fingerprint Technology), Darmstadt, DE, FHG-IGD, 2004, p. 273

Křena Bohuslav: Preliminaries of Model Checking Based on Symbolic Execution, Milano, IT, DISCo, LTA, 2004, p. 28

Dissertations:

Hrubý Martin: An Environment for Modelling of Heterogeneous Systems, Brno, CZ, FIT BUT, 2004, p. 93

Kočí Radek: Methods and Tools for Implementation of Open Simulation Systems, Brno, CZ, 2004, p. 105

Křena Bohuslav: Analysis Methods of Object Oriented Petri Nets, Brno, CZ, 2004, p. 128

Orság Filip: Biometric Security Systems: Speaker Recognition Technology, Brno, CZ, 2004, p. 109

Řezáč David: Stiff Systems of Differential Equations and Modern Taylor Series Method, Brno, CZ, FIT BUT, 2004, p. 148

Zbořil František jr.: Planning and Communication in Multiagent Systems, Brno, CZ, FIT BUT, 2004, p. 107

Presentations and Electronic Documents:

Martinek David: Do not make unnecessary mistakes in C language, Brno, CZ, 2004, p.55

Martinek David: Do not make unnecessary mistakes!, Brno, CZ, 2004, p.39

Zbořil František: Fundamentals of Artificial Intelligence, Brno, CZ, 2004, p.401

Zbořil František: Fundamentals of Artificial Intelligence, Brno, CZ, 2004, p.415

Seminars:

19.2.2004	**R. Kočí: PNtalk user's guide**
11.3.2004	**M. Kovár: Topology and topology methods in theoretical informatics**
20.5.2004	**Prof. Kevin Warvick – a seminar**
24.6.2004	**F. Zbořil, Jr.: Modelling of multi-agent systems**
16.9.2004	**V. Janoušek, R. Kočí, I. Schwarz: PNtalk workshop**
20.9.2004	**V. Janoušek,R. Kočí, I.Schwarz: PNtalk workshop**
23.9.2004	**V. Janoušek, R. Kočí, P. Slavíček,V. Florián, I. Schwarz:DEVS workshop**
30.9.2004	**R. Kočí: Open implementation of the PNtalk system and its application**
7.10.2004	**Nasibakhon Turakhojaeva: Petri nets for activity flow modelling in the workflow management systems**
7.10.2004	**F. Zbořil, Jr.:Formal models of agent systems and multi-agent systems**
14.10.2004	**B. Křena: Analysis methods of object-oriented Petri nets**
21.10.2004	**I. Schwarz: Distributed PNtalk with object mobility**
21.10.2004	**R. Kočí: Demonstration of the PNtalk system**
4.11.2004	**L. Grulich: Artificial intelligence and simulation applied for decision support in microeconomic systems**
11.11.2004	**D. Šafránek: Visual coordination diagrams**
18.11.2004	**F. Orság: Biometrics systems and robotics**
2.12.2004	**P. Peringer: Scilab demonstration**
16.12.2004	**P. Novosad: CESim: a tool for modelling and simulation of C-E Petri nets**

Other activities

- Participation in organizing ISIM 2004, an international conference on theory, modelling techniques and tools, methods of information systems design and database systems.
- Participation in organizing MOSIS 2004, an international conference focused on simulation, esp. the theory, tools, methods and applications.
- Participation in organizing ASIS 2004, an international conference focused on simulation theory, tools, methods and applications.

- Memberships of programme committees of international scientific conferences MOSIS 2004, ASIS 2004, and ISIM 2004.
- Membership of the CSSS (Czech and Slovak Simulation Society) Committee.

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
Janků Ladislava, Ing.
Assistant Professor
Burget Lukáš, Ing., Ph.D.
Herout Adam, Ing., Ph.D.
Kršek Přemysl, Ing., Ph.D.
Motlíček Petr, Ing., PhD.
Assistant Lecturer
Dobšík Martin, Ing.
Technical Staff
Otáhalová Sylva
Ph.D. Students
Beran Vítězslav, Ing.
Grézl František, Ing.
Chalupníček Kamil
Chudý Robert, MgA.
Kadlec Jaroslav, Ing.
Karafiát Martin, Ing.
Matějka Pavel, Ing.
Pečiva Jan, Ing.
Potúček Igor, Ing.
Schwarz Petr, Ing.
Sumec Stanislav, Ing.
Svojanovský Petr, Ing.
Szöke Igor, Ing.
Španěl Michal, Ing.

Equipment

- 3D Minolta VIVID 800 scanner for automatic scanning of objects up to the size of 1x1x1m with a computer-controlled revolving table for manipulation with the scanned objects. The scanner is connected to the Silicon Graphics Octane workstation.
- Software called SPEL - Speech Processing Electronic Library specialized IEEE software for speech signal processing.
- CAMEA DX6 with DSP TI C6711 and FPGA Virtex E-300 for acceleration of graphical computing.
- CAMEA UNI1-P-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.

Tuition

Abbr.	Course	Sem	Cr.	Hours	Lecturer
CZR	Digital Speech Processing	L	6	26-3-0-24-12	Černocký Jan, doc. Dr. Ing.
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	26-0-0-18-21	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.
POX	Computer graphics	L	8	39-0-0-39-0	Zemčík Pavel, doc. Dr. Ing.
ISS	Signals and systems	Z	6	39-0-0-12-14	Černocký Jan, doc. Dr. Ing.
SCS	Human-machine interface	Z	6	26-0-0-20-20	Zemčík Pavel, doc. Dr. Ing.
SX1	Systems, processes, and signals (for foreign students)	L	6	39-39-0-0-0	Černocký Jan, doc. Dr. Ing
ITU	User interface programming	Z	4	13-0-0-13-13	Zemčík Pavel, doc. Dr. Ing.
VIN	Visual creativity informatics	L	5	39-0-0-13-0	Zemčík Pavel, doc. Dr. Ing.
VI2D	Visual creativity informatics 2	L	0	100-0-0-0-0	Serba Ivo, prof. Ing., CSc.
IZG	Fundamentals of computer graphics	L	6	39-0-0-13-13	Kršek Přemysl, Ing., Ph.D.
ASD	Audio and speech processing by humans and machines	Z	0	39-0-0-0-0	Heřmanský Hynek, prof., Dr.Ing.

Research Projects

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, Potúček Igor, Schwarz Petr, Sumec Stanislav, Španěl Michal, Zemčík Pavel

Programmable hardware, CESNET, CESNET 34602/2004, 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, T400750408, 2004-2008
Team leader: Zemčík Pavel

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

Collaborative virtual environments, CESNET, 049/2003, 2003-2004
Research leader: Zemčík Pavel
Team leaders: Kašpárek Tomáš, Kršek Přemysl

Data driven and anthropic coding and recognition of speech, GAČR, GA102/02/D108, 2002-2005
Research leader: Černocký Jan

Voice technologies for support of information society, GAČR, GA102/02/0124, 2002-2004
Research leader: Černocký Jan
Team leaders: Burget Lukáš, Grézl František, Karafiát Martin, Motlíček Petr, Schwarz Petr

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

Development in area of creating FEM models of human tissues for biomechanics application, GAČR, GA201/01/D141, 2001-2004
Research leader: Kršek Přemysl

Research in information and control systems, CEZ MŠMT, MSM 262200012, 1999-2004
Research leader: Honzík Jan M.
Team leaders: Češka Milan, Zendulka Jaroslav, Zezulka František

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
- Teaching hospital Fakultní nemocnice u Sv. Anny, Brno, Clinic of Imaging Methods, Head of the Clinic doc. MUDr. Petr Krupa – 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)
- Oregon Health and Science University, Oregon Graduate Institute, Oregon, USA, prof. Misha Pavel – speech processing, robust detection of phonemes, exchange of Ph.D. students
- 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. Heikki Kälviainen, Lappeeranta University of Technology, Lappeeranta, Finland, an exchange of teachers within the SOCRATES/ERASMUS programme, 2 days

- Dr. Markus Grabner, Technische Universität Graz, Graz, Austria, an exchange of teachers within the SOCRATES/ERASMUS programme, 3 days

- Assoc. Prof. Mike Eboueya, University of La-Rochelle, La-Rochelle, France, a visit within the SOCRATES/IP project, 5 days

- Prof. Steve Renalds, University of Edinbourgh, Edinbourgh, Great Britain, a visit related to the opposition proceeding of the doctoral thesis completed by Ing. L. Burget

Visits of Staff Members to Foreign Institutions

- Beran Vítězslav, Ing., ADVANCED VISUAL INTERFACES 2004, Gallipoli (Lecce), Italy, IT, 6 days

- Beran Vítězslav, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 8 days

- Burget Lukáš, Ing., Ph.D., Insititut 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., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 8 days

- Burget Lukáš, Ing., Ph.D., 8th International Conference on Spoken Language Processing, the International Convention Center Jeju (ICC Jeju)in Jeju Island, Korea, KR, 15 days

- Burget Lukáš, Ing., Ph.D., University of Sheffield, University of Sheffield, Western Bank, Sheffield S10 2TN, UK, GB, 4 days

- Černocký Jan, doc. Dr. Ing., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, Cité Descartes BP 99, 93162 Nois-le-Grand, FR, 5 days

- Černocký Jan, doc. Dr. Ing., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Černocký Jan, doc. Dr. Ing., 4th International Conference on Language Resources and Evaluation, Centro Cultural de Belem, Lisabon, PT, 6 days

- Černocký Jan, doc. Dr. Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 4 days

- Černocký Jan, doc. Dr. Ing., 8th International Conference on Spoken Language Processing, the International Convention Center Jeju (ICC Jeju)in Jeju Island, Corea, KR, 9 days

- Černocký Jan, doc. Dr. Ing., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Dobšík Martin, Ing., Helsinki University of Technology, P.O.Box 1000, FIN-02015 HUT, FINLAND, FI, 11 days

- Dobšík Martin, Ing., Polish-Japanese Institute of Information Technology, Warsaw, PL, 6 days

- Grézl František, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, CH-1920 Martigny, CH, 9 months

- Herout Adam, Ing., Ph.D., Spring Conference on Computer Graphics, Budmerice, SK, 3 days

- Herout Adam, Ing., Ph.D., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 4 days

- Herout Adam, Ing., Ph.D., University of Bristol, Department of Computer Science, University of Bristol, Senate House, Bristol BS8 ITH, GB, 23 days

- Herout Adam, Ing., Ph.D., University of Bristol, Department of Computer Science, University of Bristol, Senate House, Bristol BS8 ITH, GB, 16 days

- Herout Adam, Ing., Ph.D., Polish-Japanese Institute of Information Technology,street Koszykowa 86, 02-008 Warsaw, PL, 4 days

- Herout Adam, Ing., Ph.D., University of Bristol, Department of Computer Science, University of Bristol, Senate House, Bristol BS8 ITH, University of Guildford, GB, 8 days

- Heřmanský Hynek, Prof., Dr.Eng., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Janků Ladislava, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 8 days

- Janků Ladislava, Ing., Auditory Scene Analysis and Speech Perception by Human and Machine, Hanse-Wissenschaftskolleg (HWK), Lehmkuhlenbusch 4, Delmenhorst, Germany, DE, 4 days

- Janků Ladislava, Ing., TNO TPD, Communications Department, Stieltjesweg 1,2628 CK Delft, NL, 2 days

- Jenderka Petr, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 8 days

- Kadlec Jaroslav, Ing., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Kadlec Jaroslav, Ing., Central European Seminar on Computer Graphics, Budmerice, SK, 3 days

- Kadlec Jaroslav, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 4 days

- Karafiát Martin, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 4 days

- Karafiát Martin, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 12 days

- Karafiát Martin, Ing., University of Sheffield, University of Sheffield, Western Bank, Sheffield S10 2TN, UK, GB, 4 months

- Karafiát Martin, Ing., 8th International Conference on Spoken Language Processing, the International Convention Center Jeju (ICC Jeju)in Jeju Island, Corea, KR, 15 days

- Kršek Přemysl, Ing., Ph.D., Ecole Superieure d'Engenieurs en Electrotechnique et Electronique, Cité Descartes BP 99, 93162 Nois-le-Grand, FR, 5 days

- Kršek Přemysl, Ing., Ph.D., Université de La Rochelle, Université de La Rochelle, FR, 5 days

- Kršek Přemysl, Ing., Ph.D., Polish-Japanese Institute of Information Technology, street Koszykowa 86, 02-008 Warsaw, PL, 5 days

- Kršek Přemysl, Ing., Ph.D., Technische Universität Graz, Rechbauerstr. 12, 8010 Graz, AT, 5 days

- Matějka Pavel, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny,Switzerland, CH, 8 days

- Motlíček Petr, Ing., PhD., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Motlíček Petr, Ing., PhD., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, Case Postale 592,CH-1920 Martigny, Switzerland, CH, 8 days

- Motlíček Petr, Ing., PhD., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Pečiva Jan, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny,Switzerland, CH, 4 days

- Pečiva Jan, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, Case Postale 592, CH-1920 Martigny, Switzerland, CH, 4 days

- Pečiva Jan, Ing., The University of Twente, Drienerlolaan 5 , Twente, NL, 3 days

- Potúček Igor, Ing., Computer Graphics International 2004, Hersonissos, Crete, GR, 6 days

- Potúček Igor, Ing., International Conference on Pattern Recognition, Cambridge, GB, 6 days

- Potúček Igor, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, Case Postale 592,CH-1920 Martigny,Switzerland, CH, 3 days

- Potúček Igor, Ing., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 17 days

- Schwarz Petr, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, Case Postale 592,CH-1920 Martigny, Switzerland, CH, 8 days

- Schwarz Petr, Ing., University of Sheffield, University of Sheffield, Western Bank, Sheffield S10 2TN, UK, GB, 4 days

- Sumec Stanislav, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, Case Postale 592, CH-1920 Martigny, Switzerland, CH, 4 days

- Sumec Stanislav, Ing., Computer Graphics International 2004, Hersonissos, Crete, GR, 6 days

- Sumec Stanislav, Ing., University of Edinburgh,Institute for Communicating and Collaborative Systems, University of Edinburgh, 2 Buccleuch Place, Edinburgh EH8 9LW, GB, 7 days

- Sumec Stanislav, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 3 days

- Sumec Stanislav, Ing., TNO TPD, Communications Department, Stieltjesweg 1, 2628 CK Delft, NL, 2 days

- Sumec Stanislav, Ing., Polish-Japanese Institute of Information Technology, street Koszykowa 86, 02-008 Warsaw, PL, 5 days

- Svojanovský Petr, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, CH-1920 Martigny, Switzerland, CH, 12 months

- Španěl Michal, Ing., Université de La Rochelle, Université de La Rochelle, FR, 5 days

- Španěl Michal, Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4, Case Postale 592, CH-1920 Martigny, Switzerland, CH, 4 days

- Zemčík Pavel, doc. Dr. Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Trone, 98, Brussels, BE, 2 days

- Zemčík Pavel, doc. Dr. Ing., Technical Educational Institute, Heracleion, Greece, Valladolid, Spain, ES, 5 days

- Zemčík Pavel, doc. Dr. Ing., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Zemčík Pavel, doc. Dr. Ing., Spring Conference on Computer Graphics, Budmerice, SK, 3 days

- Zemčík Pavel, doc. Dr. Ing., Central European Seminar on Computer Graphics, Budmerice, SK, 1 day

- Zemčík Pavel, doc. Dr. Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Simplon 4,Case Postale 592,CH-1920 Martigny, Switzerland, CH, 2 days

- Zemčík Pavel, doc. Dr. Ing., Lappeenranta University of Technology, Skinnarilankatu 34, FIN-53850, Lappeenranta, FI, 7 days

- Zemčík Pavel, doc. Dr. Ing., Technischen Universität München, TUM, Arcis Straße 21, 80333 Munich, DE, 4 days

- Zemčík Pavel, doc. Dr. Ing., Insititut Dalle Molle d'Intelligence Artificielle Perceptive, Rue du Trone, 98, Brussels, BE, 2 days

- Zemčík Pavel, doc. Dr. Ing., Technische Universität Graz, Rechbauerstr. 12, 8010 Graz, AT, 5 days

Agreements

Co-operation agreements within the Socrates/Erasmus programme made with:
- Helsinki University of Technology, http://www.hut.fi/English/, Finland
- Lappeenranta 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, 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
- Technological Educational Institute of Crete, http://www.teicrete.gr, Greece

Membership in Organizations and Societies

- Černocký Jan, doc. Dr. Ing.,

    o IEEE (Secretary of the Czech Section)

    o ISCA (International Speech Communication Assocation).

- Dobšík Martin, Ing.,

    - [ACM](),

    - SIGGRAPH

    - ISCA

    - Czech and Slovak Simulation Society (CSSS)

- Potúček Igor, Ing.,

    - Fgnet – IST-2000-26434 (Face and Gesture Recognition Working Group)

    - M4 – Multimodal Meeting Manager

    - AMI – Augmented Multi-party Interaction

Publications:

Journals:

Kadlec Jaroslav, Chudý Robert: Spatial Interface Design, In: ElectronicsLetters.com, Vol. 2004, No. 1, Brno, CZ, p. 13, ISSN 1213-161X

Matějka Pavel, Szöke Igor, Schwarz Petr, Černocký Jan: Automatic Language Identification using Phoneme and Automatically Derived Unit Strings, In: Lecture Notes in Computer Science, Vol. 2004, No. 3206, DE, p. 8, ISSN 0302-9743

Pečiva Jan: Open Inventor Tutorial, In: ROOT, informace nejen ze světa Linuxu, Vol. 2004, No. 2210, Praha, CZ, p. 100, ISSN 1212-8309

Schwarz Petr, Matějka Pavel, Černocký Jan: Towards Lower Error Rates in Phoneme Recognition, In: Lecture Notes in Computer Science, Vol. 2004, No. 3206, DE, p. 8, ISSN 0302-9743

Tišnovský Pavel: OpenGL Imaging Subset, In: ROOT, informace nejen ze světa Linuxu, Vol. 2004, No. 2068, Praha, CZ, p. 50, ISSN 1212-8309

Conference Proceeding:

Potúček Igor, Rigoll Gerhard, Wallhoff Frank, Zobl Martin: Dynamic Tracking in Meeting Room Scenarios Using Omnidirectional View, Cambridge, GB, 2004, p. 4

Conference Contributions:

Baxant Petr, Sumec Stanislav: Program instruments for digital photography in photometry, In: Proceedings of 6th International Conference LIGHT - Světlo 2004, Brno, CZ, 2004, pp. 312-317, ISBN 80-238-8928-1

Beran Vítězslav, Potúček Igor: Real-Time Reconstruction of Incomplete Human Model Using Computer Vision, In: Proceeding of 10th Conference and Competition STUDENT EEICT 2004, Volume 2, Brno, CZ, 2004, pp. 298-302, ISBN 80-214-2635-7

Beran Vítězslav: Augmented Multi-User Communication System, In: Proceedings of the Working Conference on Advanced Visual Interfaces, Gallipoli, IT, 2004, pp. 257-260, ISBN 1-58113-867-9

Burget Lukáš: Combination of Speech Features Using Smoothed Heteroscedastic Linear Discriminant Analysis, In: Proceedings of 8th International Conference on Spoken Language Processing, Jeju island, KR, 2004, p. 4

Burget Lukáš: Measurement of Complementarity of Recognition Systems, In: Proceedings of 7th International Conference on Text, Speech and Dialogue, Brno, CZ, 2004, p. 8

Černochová Pavlína, Kaňovská Karin, Kršek Přemysl, Krupa Petr: Application of Biomodels for Teeth Autotransplantation, In: VII Brněnské implantologické dny, Brno, CZ, LF MUNI, 2004, p. 13-13, ISBN 80-210-3334-7

Dobšík Martin, Frydrych Michael: Biomechnically Based Muscle Model for Dynamic Computer Animation, In: International Conference on Computer Vision and Graphics 2004, Warsaw, PL, 2004, p. 8

Fousek Petr, Svojanovský Petr, Grézl František, Heřmanský Hynek: New Nonsense Syllables Database - Analyses and Preliminary ASR Experiments, In: Proc. 8th International Conference on Spoken Language Processing, Jeju Island, KR, Sunjin, 2004, p. 4, ISSN 1225-4111

Fučík Otto, Zemčík Pavel, Tupec Pavel, Crha Luděk, Herout Adam: The Networked Photo-Enforcement and Traffic Monitoring System, In: Proceedings of Engineering of Computer-Based Systems, Los Alamitos, US, IEEE CS, 2004, pp. 423-428, ISBN 0-7695-2125-8

Grézl František: Combinations of TRAP-based systems, In: Proc. Seventh International conference on Text, Speech and Dialogue, Brno, CZ, FI MUNI, 2004, pp. 323-330, ISBN 3-540-23049-1

Herout Adam, Zemčík Pavel, Beran Vítězslav, Kadlec Jaroslav: Image and Video Processing Software Framework for Fast Application Development, In: Joint AMI/PASCAL/IM2/M4 Workshop, Martigny, CH, 2004, p. 1

Herout Adam, Zemčík Pavel: Animated Particle Rendering in DSP and FPGA, In: SCCG 2004 Proceedings, Bratislava, SK, 2004, pp. 237-242, ISBN 80-223-1918-X

Herout Adam, Zemčík Pavel: Hardware Implementation of EWA, In: Proceedings of ICCVG 2004, Warsaw, PL, 2004, p. 6

Jenderka Petr, Potúček Igor, Sumec Stanislav: Meeting recordings at Brno University of Technology, In: AMI/PASCAL/IM2/M4 Workshop, Martigny, CH, 2004, p. 3

Kadlec Jaroslav: Lip detection in low resolution images, In: Proceeding of 10th Conference and Competition STUDENT EEICT 2004, Volume 2, Brno, CZ, 2004, pp. 303-306, ISBN 80-214-2635-7

Karafiát Martin, Grézl František, Černocký Jan: TRAP based features for LVCSR of meeting data, In: Proc. 8th International Conference on Spoken Language Processing, Jeju Island, KR, 2004, p. 4

Kršek Přemysl, Černochová Pavlína, Kaňovská Karin, Krupa Petr: Human Tissues 3D Geometry Models Application Possibilities in Dental Surgery, In: VII Brněnské implantologické dny, Brno, CZ, LF MUNI, 2004, p. 12-12, ISBN 80-210-3334-7

Kršek Přemysl, Molitor Martin, Krupa Petr: Application of 3D Human Tissues Models in Plastic Surgery, In: Celostátní sjezd plastických chirurgů 2004, Hradec Králové, CZ, 2004, p. 39-39, ISBN 80-86225-45-3

Kršek Přemysl: Flow Reduction Marching Cubes Algorithm, In: Proceedings of ICCVG 2004, Warsaw, CZ, 2004, p. 6

Matějka Pavel, Szöke Igor, Schwarz Petr, Černocký Jan: Automatic Language Identification using Phoneme and Automatically Derived Unit Strings, In: Proceedings of 7th International Conference Text, Speech and Dialogue 2004, Brno, CZ, Springer, 2004, p. 8, ISBN 3-540-23049-1

Molitor Martin, Veselý Jiří, Krupa Petr, Kršek Přemysl: Retinoblastom - Reconstruction Problem, In: Celostátní sjezd plastických chirurgů 2004, Hradec Králové, CZ, 2004, p. 29-29, ISBN 80-86225-45-3

Motlíček Petr, Černocký Jan: Multimodal Phoneme Recognition of Meeting Data, In: 7th International Conference, TSD 2004 Brno, Czech Republic, September 2004 Proceedings, Brno, CZ, Springer, 2004, pp. 379-384, ISBN 3-540-23049-1, ISSN 0302-9743

Pečiva Jan: Collaborative Virtual Environments, In: Collaborative Virtual Environments, Martigny, Switzerland, CH, IDIAP, 2004, p. 1

Potúček Igor, Sumec Stanislav, Španěl Michal: Participant Activity Detection by Hands and Face Movement Tracking in the Meeting Room, In: 2004 Computer Graphics International (CGI 2004), Los Alamitos, US, IEEE CS, 2004, p. 4, ISBN 0-7695-2717-1

Potúček Igor, Španěl Michal: Face Detection in Meeting Room Using Omni-Directional View, In: AMI/PASCAL/IM2/M4 Workshop, Martigny, CH, 2004, p. 3

Schwarz Petr, Matějka Pavel, Černocký Jan: Phoneme Recognition from a Long Temporal Context, In: poster at JOINT AMI/PASCAL/IM2/M4 Workshop on Multimodal Interaction and Related Machine Learning Algorithms, Martigny, CH, 2004, p. 1

Schwarz Petr, Matějka Pavel, Černocký Jan: Towards Lower Error Rates in Phoneme Recognition, In: Proceedings of 7th International Conference Text, Speech and Dialogue 2004, Brno, CZ, Springer, 2004, p. 8, ISBN 3-540-23049-1

Sumec Stanislav: Multi Camera Automatic Video Editing, In: Proceedings of ICCVG 2004, Warsaw, PL, 2004, p. 10

Sumec Stanislav: Multi View Person Localization, In: Proceedings of 10th Conference and Competition STUDENT EEICT 2004, Brno, CZ, 2004, p. 5

Sumec Stanislav: Simulation of Parallel Ray Tracing, In: Proceedings of 38th International Conference MOSIS'04, Ostrava, CZ, MARQ, 2004, p. 6, ISBN 80-85988-98

Zemčík Pavel, Herout Adam, Crha Luděk, Tupec Pavel, Fučík Otto: Particle Rendering Pipeline in DSP and FPGA, In: Proceedings of Engineering of Computer-Based Systems, Los Alamitos, US, IEEE CS, 2004, pp. 361-368, ISBN 0-7695-2125-8

Zemčík Pavel, Sumec Stanislav, Potúček Igor, Španěl Michal, Herout Adam, Pečiva Jan: Summary of Image/Video Processing for AMI Project in Brno, In: Summary of Image/Video Processing for AMI Project in Brno, Martigny, CH, IDIAP, 2004, p. 1-1

Research Projects:

Motlíček Petr: Visual Feature Extraction for Phoneme Recognition of Meetings, Brno, CZ, 2004, p. 14

Presentations and Electronic Documents:

Karafiát Martin, Grézl František, Burget Lukáš: Combination of MFCC and TRAP features for LVCSR of meeting data, Martigny, CH, 2004, p.1

Abstracts:

Motlíček Petr, Burget Lukáš, Černocký Jan: Phoneme Recognition of Meetings Using Audio-Visual Data, AMI Workshop, Martigny, CH, 2004, p. 6

Motlíček Petr: Spectral and Temporal Modelling for Speech Recognition, GACR 102/02/0124 "Voice Technologies for Support of Information Society", a Summary of Research Teams Activities, Praha, CZ, 2004, p. 1, ISBN 80-01-02957-3

Szöke Igor, Motlíček Petr: Very Low Bit-Rate Speech Coding, GACR 102/02/0124 "Voice Technologies for Support of Information Society", a summary of esearch teams activities, Praha, CZ, FEL ČVUT, 2004, p. 1, ISBN 80-01-02957-3

Products:
Medical Modelling System Transfer 3.0, 2004
Author: Kršek Přemysl

Seminars:

2004-05-07	**Hardware Acceleration of Point-Based Computer Graphics – Adam Herout**
2004-05-07	**Collaborative Virtual Environments – Jan Pečiva**
2004-05-07	**Lips Detection and Parametrization – Jaroslav Kadlec**
2004-05-07	**Human Parts Recognition and Tracking in Omni-Directional Images – Igor Potúček**
2004-05-12	**Lattice in Speech Recognition – Petr Jenderka**
2004-05-12	**Phoneme Recognition Using Long Temporal Context – Petr Schwarz**
2004-05-14	**Feature-Based Face Detection – prof. Heikki Kalviainen, Lappeenranta University of Technology, Finland**
2004-05-14	**Wheels Detection Using Pattern Matching – Vítězslav Beran**
2004-05-14	**Automatic Video Editing – Stanislav Sumec**
2004-05-14	**Visualization of Hierarchical Structures – Robert Chudý**
2004-05-14	**Medical Data Segmentation – Michal Španěl**
2004-06-02	**Simulation of a Point-Based Hardware Acceleration Algorithm – Julien Reptin, ESIEE Amiens, France**
2004-06-18	**3D Web Technologies – Markus Grabner, TU Graz, Austria**

Other activities:

- "Laboratory of Medical Engineering Applications" was built and focused on generating 3D geometrical models of tissues from CT/MR data and on production of physical models of tissues under the leadership of Dr. Ing. P. Krška

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 there is access to the Supercomputing Centre of BUT possible.

Staff

Head of Department
Dvořák Václav, prof. Ing., DrSc.

Deputy Head of Department
Kotásek Zdeněk, doc. Ing., CSc.

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.
Bilík Jiří, Ing.
Crha Luděk, Ing.
Faltýnek Pavel, Ing.
Herrman Tomáš, Ing.
Jaroš Jiří, Ing.
Kobliha Miloš, Ing.
Kořenek Jan, Ing.
Kubek Ján, Ing.
Kutálek Vladimír, Ing.
Martínek Tomáš, Ing.
Mika Daniel, Ing.
Ohlídal Miloš, Ing.
Pečenka Tomáš, Ing.
Škarvada Jaroslav, Ing.

Equipment

Laboratory of Embedded Systems

6 work sites equipped with FUJITSU DevKit16 for the development of advanced embedded applications including special peripheries in FPGA, and use of modern design systems "Processor Expert", UNIS.

8 benches equipped with 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

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

The 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

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

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

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

Digital interfaces bench - cards for PC / devices with RS-232, RS-485, RS-422, GPIB.

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	39-0-0-8-18	Schwarz Josef, doc. Ing., CSc.
AMC	Applied microcomputers	L	6	26-0-26-0-13	Schwarz Josef, doc. Ing., CSc.
ARP	Computer architecture	Z	6	39-16-0-0-10	Dvořák Václav, prof. Ing., DrSc.
CIO	Digital and impulse circuits	Z	6	26-14-0-12-13	Schwarz Josef, doc. Ing., CSc.
ICI	Digital and impulse circuits	Z	6	26-13-0-26-0	Schwarz Josef, doc. Ing., CSc.
CZS	Digital signal processing	Z	6	39-0-0-10-16	Fučík Otto, Dr. Ing.
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.

LOS	Logical systems	Z	5	39-18-0-0-8	Eysselt Miloš, Ing., CSc.
IMP	Microprocessors and embedded systems	Z	6	39-0-8-6-12	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	Z	5	26-0-0-26-0	Kotásek Zdeněk, doc. Ing., CSc.
INP	Design of computer systems	Z	5	39-5-0-4-4	Drábek Vladimír, doc. Ing., CSc.
INP	Design of computer systems	L	5	39-13-0-0-0	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	39-0-0-0-0	Kotásek Zdeněk, doc. Ing., CSc.
PZ1	Peripheral devices 1	L	6	39-0-12-0-14	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	26-0-0-39-0	Kotásek Zdeněk, doc. Ing., CSc.
PON	Computer design	Z	5	26-0-0-10-16	Schwarz Josef, doc. Ing., CSc.
PPP	Practical parallel programming	L	5	39-0-0-26-0	Dvořák Václav, prof. Ing., DrSc.
PTD	Principles of testable circuits synthesis	Z	0	39-0-0-0-0	Kotásek Zdeněk, doc. Ing., CSc.
P3X	Semester project (abroad)	Z	5	0-8-0-0-31	Eysselt Miloš, Ing., CSc.
SZZ	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.
SOD	Fault-tolerant systems	Z	0	39-0-0-0-0	Drábek Vladimír, doc. 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.
IVH	VHDL Seminar (in the EU)	L	6	0-26-0-0-13	Fučík Otto, Dr. Ing.
VPO	Computer architecture	Z	6	39-14-6-0-6	Drábek Vladimír, doc. Ing., CSc.
VPO	Computer architecture	L	6	39-14-6-0-6	Drábek Vladimír, 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

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

New principles of system testing based on the Boundary Scan method, FRVŠ MŠMT, FR1701/2004/G1, 2004
Research leader: Tupec Pavel
Team leader: Kotásek Zdeněk

Programmable hardware, CESNET, CESNET 34602/2004, 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, T400750408, 2004-2008
Team leader: Zemčík Pavel

Compound Laboratory for Computer Hardware Teaching, FRVŠ MŠMT, FR1687/2004/A, 2004
Research leader: Drábek Vladimír
Team leader: Růžička Richard

Formal approach to digital circuits test scheduling, GAČR, GA102/03/P176, 2003-2005
Research leader: Růžička Richard

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

Parallel system performance prediction and tuning, GAČR, GA102/02/0503, 2002-2004
Research leader: Dvořák Václav

Research in information and control systems, CEZ MŠMT, MSM 262200012, 1999-2004
Research leader: Honzík Jan M.
Team leaders: Češka Milan, Zendulka Jaroslav, Zezulka František

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. The long-term co-operation with Dr. Ralph Ford resulted in an arrangement for his visit at the FIT in the summer semestre of 2005, thanks to Dr. Fučík, Dr. Sekanina and doc. Zemčík, and at expense of Fulbright Fund

- Cell Matrix Corp., 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, Spain

- Computational 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

- Prof. Francois Hesdin, ESIEE Amiens, France, 3rd June 2004, A presentation of the ESIEE Amiens School: Implementation of New Master's Programmes

- Prof. Jonah Z. Lavi, CBSE Associates (Israel), 21st May 2004, a lecture on: System Modelling and Requirements Specification Using ECSAM: A Method for Embedded Computer-Based Systems Analysis

Visits of the Staff in Other Institutions

- Crha Luděk, Ing., The 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Tatranská Lomnica, SK, 5 days

- Crha Luděk, Ing., The International Conference on Field- Programmable Logic and Applications, Antwerp, Belgium, BE, 5 days

- Crha Luděk, Ing., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, SK, 3 days

- Drábek Vladimír, doc. Ing., CSc., The 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Tatranská Lomnica, SK, 5 days

- Drábek Vladimír, doc. Ing., CSc., Informatics and Information Technology, Tajovského 40, 974 00 Banská Bystrica, SK, 3 days

- Drábek Vladimír, doc. Ing., CSc., A workshop and seminar for Ph.D. students of Computer Architecture and Diagnostics, 2004, Kaštiel Moravany nad Váhom, Slovakia, SK, 3 days

- Drábek Vladimír, doc. Ing., CSc., Riga Technical University, Jurmala, LV, 5 days

- Dvořák Václav, prof. Ing., DrSc., 3rd International Conference on Networking, Creole Beach Hotel, Gosier, GP, 9 days

- Dvořák Václav, prof. Ing., DrSc., Faculty of Electrical Engineering and Informatics Slovak Technical University in Bratislava, Slovakia, Bratislava, SK, 1 day

- Jaroš Jiří, Ing., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, Slovakia, SK, 3 days

- Kořenek Jan, Ing., XXV. Autumn Conference Europen, Klášter premostrátů, Teplá u Mariánských lázní, CZ, 2 days

- Kotásek Zdeněk, doc. Ing., CSc., Slovak Academy of Sciences, Bratislava, Slovakia, SK, 3 days

- Kotásek Zdeněk, doc. Ing., CSc., The 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems, Slovak Academy of Sciences, Hotel ACADEMIA, Stará Lesná, Slovakia, SK, 5 days

- Kotásek Zdeněk, doc. Ing., CSc., IEEE European Test Symposium, Ajaccio, Korsika, FR, 6 days

- Kotásek Zdeněk, doc. Ing., CSc., A workshop and seminar for Ph.D. students of Computer Architecture and Diagnostics, 2004, Kaštiel Moravany nad Váhom, Slovakia, SK, 3 days

- Kutálek Vladimír, Ing., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, SK, 3 days

- Kutálek Vladimír, Ing., Slovak Academy of Sciences, Smolenice Castle, Congress Centre of the Slovak Academy of Sciences, SK, 5 days

- Linhart Miroslav, doc. Ing., CSc., University of Zilina, Žilina, Slovakia, SK, 1 day

- Martínek Tomáš, Ing., The International Conference on Field- Programmable Logic and Applications, Antwerp, Belgium, BE, 5 days

- Martínek Tomáš, Ing., XXV. Autumn Conference Europen, Klášter premostrátů, Teplá u Mariánských lázní, CZ, 2 days

- Mika Daniel, Ing., The 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Stará Lesná, Tatranská Lomnica, SK, 5 days

- Mika Daniel, Ing., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, SK, 3 days

- Ohlídal Miloš, Ing., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, SK, 3 days

- Pečenka Tomáš, Ing., The 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Stará Lesná, Tatranská Lomnica, SK, 5 days

- Pečenka Tomáš, Ing., Fakulta elektrotechniky a informatiky, Technical University of Košice, Herľany, SK, 3 days

- Pečenka Tomáš, Ing., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, SK, 3 days

- Růžička Richard, Ing., Ph.D., Institute of Informatics, Slovak Academy of Sciences, Congress Centre Academia in Stará Lesná, Tatranská Lomnica, Slovakia, SK, 5 days

- Růžička Richard, Ing., Ph.D., Institut de recherche en informatique et systemes aléatoires, IRISA/INRIA Rennes, Campus Universitaire de Beaulieu, Avenue de Général Leclerc, 35042 Rennes Cedex – France, FR, 6 days

- Růžička Richard, Ing., Ph.D., Fakulta elektrotechniky a informatiky, Technical University of Košice , Herľany, SK, 3 days

- Růžička Richard, Ing., Ph.D., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, Slovakia, SK, 3 days

- Růžička Richard, Ing., Ph.D., 5th Workshop on RTL and High Level Testing, International House, Osaka 8-2-6 Uehonmachi Tennojiku Osaka, Japan, JP, 5 days

- Sekanina Lukáš, Ing., Ph.D., 1st European Workshop on Hardware Optimisation, Coimbra University, Portugal, PT, 6 days

- Sekanina Lukáš, Ing., Ph.D., The 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems , Stará Lesná, Tatranská Lomnica, SK, 5 days

- Sekanina Lukáš, Ing., Ph.D., The 2004 NASA/DoD Conference on Evolvable Hardware, Seattle, WA, US, 6 days

- Sekanina Lukáš, Ing., Ph.D., Jet Propulsion Laboratory, Los Alamos, Pasadena, US, 3 months

- Schwarz Josef, doc. Ing., CSc., Slovak Academy of Sciences, Moravany nad Váhom, SK, 3 days

- Strnadel Josef, Ing., Ph.D., Institute of Informatics, Slovak Academy of Sciences, Dúbravská cesta 9, 842 37 Bratislava, SK, 1 day

- Strnadel Josef, Ing., Ph.D., Slovak Academy of Sciences, Kaštieľ Moravany nad Váhom, SK, 3 days

- Strnadel Josef, Ing., Ph.D., ISoLA - 1st International Symposium on Leveraging Applications of Formal Methods , Paphos, CY, 5 days

Membership in Organizations and Societies

- Drábek Vladimír, doc. Ing., CSc.,

  o Czech Society for Cybernetics and Informatics

  o Czech Electrical Engineering Society

  o Czech and Slovak Simulation Society (CSSS)

  o EvoNet - The European Network of Excellence in Evolutionary Computing

- Dvořák Václav, prof. Ing., DrSc.,

  o IEEE - Computer Society, since 1991

  o Editorial Board JUCS, Journal of Universal Computer Science, since 1994

  o Editorial Board JEE - Journal of Electrical Engineering (Bratislava, Slovakia), since 1996

- Kotásek Zdeněk, doc., Ing., CSc.,

  o IEEE - Computer Society, since 2003

  o Member of the Opposition Board for ITEA – EMPRESS Project

  o Member of the Electronics and Cybernetics Subcommittee of the Grant Agency CR

  o Member of the Technical Sciences Committee of the Grant Agency CR

  o Member of the FRVŠ A Subcommittee

- Eysselt Miloš, Ing., CSc.,

    o IGIP (Internationale Gesellschaft für Ingenieurpädagogik / International Society for Engineering Education, A, Klagenfurt).

- Fučík Otto, Dr. Ing.,
    o IEEE - Computer Society, since 1998

- Růžička Richard, Ing., Ph.D.,

    o EvoNet - The European Network of Excellence in Evolutionary Computing

    o IEEE member

- Sekanina Lukáš, Ing., Ph.D.,

    o EvoNet - The European Network of Excellence in Evolutionary Computing

    o IEEE member

    o Czech Society for New Materials and Technology – Nano-science and Nanotechnology

- Schwarz Josef, doc. Ing., CSc.,

    o Czech and Slovak Simulation Society (CSSS)

    o EvoNet - The European Network of Excellence in Evolutionary Computing

    o IEEE – Computational Intelligence Society, 2004

    o Chairman of the Opposition Board to the Kontakt MŠMT ME 526 Project

- Strnadel Josef, Ing., Ph.D.,

    o IEEE , since 2004

Publications

Chapters in Books:

Dvořák Václav: Optimizing Communication Architectures for Parallel Embedded Systems, Design of Embedded Control Systems Berlin, DE, Springer, 2004, pp.225-234, ISBN 0-387-23630-9

Journals:

Dvořák Václav, Švéda Miroslav, Rattray Charles, Rozenblit Jerzy: Formal Specifications of Computer-Based Systems - J.UCS Special Issue, In: Journal of Universal Computer Science, Vol. 9, No. 11, AT, pp. 1258-1260, ISSN 0948-6968

Sekanina Lukáš: Evolvable computing by means of evolvable components, In: Natural Computing, Vol. 3, No. 3, Dordrecht, NL, pp. 323-355, ISSN 15677818

Vašíček Zdeněk, Sekanina Lukáš: Evolutionary design of combinational circuits, In: Elektrorevue - www.elektrorevue.cz, Vol. 2004, No. 43, Brno, CZ, p. 6, ISSN 1213-1539

Conference Proceedings:

Antoš David, Kořenek Jan: Searching in IPv6 routers implemented in FPGA, Strážnice, CZ, 2004, p. 11

Dvořák Václav, Švéda Miroslav: Proceedings of the International IEEE Conference and Workshop ECBS'2004, Los Alamitos, CA, US, IEEE CS, 2004, p. 560, ISBN 0-7695-2125-8

Kotásek Zdeněk, Pečenka Tomáš, Sekanina Lukáš, Strnadel Josef: Evolutionary Design of Synthetic RTL Benchmark Circuits, Montpellier, FR, IEEE CS, 2004, pp. 107-108

Conference Articles:

Antoš David, Kořenek Jan: Hardware Router's Lookup Machine and its Formal Verification, In: Proceedings of the 3rd International Conference on Networking ICN '04, Colmar, FR, UHA, 2004, pp. 1002-1007, ISBN 0-86341-325-0

Antoš David, Kořenek Jan: String Matching for IPv6 Routers, In: SOFSEM 2004: Theory and Practice of Computer Science, Praha, CZ, CESNET, 2004,pp. 205-210, ISBN 80-86732-19-3

Bidlo Michal: Evolutionary Constructor Design for the Sorting Networks, In: Proceedings of 10th Conference and Competition Student EEICT 2004, Volume 1, Brno, CZ, FEKT BUT, 2004, pp. 260-262, ISBN 80-214-2634-9

Crha Luděk, Fučík Otto, Drábek Vladimír: Image filter implementation in FPGA used for the license plate, In: Proceedings of 38th International Conference MOSIS'04, Ostrava, CZ, MARQ, 2004, p. 6, ISBN 80-85988-98-4

Crha Luděk: Design and implementation of the memory scheduler for the FPGA - Based Router, In: Proceedings of the FPL 2004, Antwerp, BE, 2004, pp.1-6

Crha Luděk: System for the license plate detection and image compression using hardware, In: Proc. of the 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems, Bratislava, SK, SAV, 2004, p. 3, ISBN 80-969117-9-1

Dvořák Václav: Formal Specifications of an Extended Phase-Parallel Model of Stream Processing, In: Proc. of Joint Workshop on Formal Specifications of Computer-Based Systems, Stirling, GB, US, 2004, pp. 37-44, ISBN 1-85769-1970

Friedl Štěpán, Sekanina Lukáš: The First Circuits Evolved in a Physical Virtual Reconfigurable Device, In: Proc. of the 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems, Bratislava, SK, SAV, 2004, pp. 35-42, ISBN 80-969117-9-1

Fučík Otto, Zemčík Pavel, Tupec Pavel, Crha Luděk, Herout Adam: The Networked Photo-Enforcement and Traffic Monitoring System, In: Proceedings of Engineering of Computer-Based Systems, Los Alamitos, US, IEEE CS, 2004, pp. 423-428, ISBN 0-7695-2125-8

Gažar Roman: Neural Network Training using Genetic Algorithm, In: Mendel 2004 10th Internacional Conference on Soft Computing, Brno, CZ, 2004, p. 6, ISBN 80-214-2676-4

Herrman Tomáš: The utilization of optimalization techniques for the selection of register into SCAN chain, In: Proceedings of 10th Conference and Competition Student EEICT 2004, Volume 1, Brno, CZ, FEKT BUT, 2004, pp. 263-265, ISBN 80-214-2634-9

Jaroš Jiří, Schwarz Josef: Development tools for rapid prototyping of evolutionary algorithms, In: Proceedings of 38th International conference MOSIS'04, Rožnov pod Radhoštěm, CZ, MARQ, 2004, pp. 97-104, ISBN 80-85988-98-4

Kotásek Zdeněk, Mika Daniel, Strnadel Josef: The Identification of Registers in RTL Structures, In: Preliminary Proceedings of 1st International Symposium on Leveraging Applications of Formal Methods ISOLA 2004, Nicosia, CY, 2004, pp. 317-320

Kotásek Zdeněk, Pečenka Tomáš, Strnadel Josef, Mika Daniel, Sekanina Lukáš: An Overview of Research Activities in Digital Circuit Diagnosis and Benchmarking, In: Proceedings of the Sixth Internation Scientific Conference Electronic Computers nad Informatics 2004, Košice, SK, TU v Košiciach, 2004, pp. 229-234, ISBN 80-8073-150-0

Kotásek Zdeněk, Pečenka Tomáš, Strnadel Josef: Improving Testability Parameters of Pipelined Circuits Through the Identification of Testable Cores, In: Proc. of the 7th IEEE Workshop on Design and Diagnostics of Electronic Circuits and Systems, Bratislava, SK, SAV, 2004, p. 6, ISBN 80-969117-9-1

Kotásek Zdeněk, Tupec Pavel: New approach to the FPGA testing based on the Boundary Scan, In: Proceedings of 38th International Conference MOSIS'04, Ostrava, CZ, 2004, pp. 120-123, ISBN 80-85988-98-4

Kutálek Vladimír: Performance prediction and modelling of application-specific multiprocessor systems, In: Počítačové architektúry & diagnostika PAD 2004, Bratislava, SK, SAV, 2004, pp. 132-137, ISBN 80-969202-0-0

Martínek Tomáš, Kořenek Jan, Novotný Jiří: Passive network monitoring adapter intended for 10Gbps technology, In: Proceedings of XXV. Conference Europen, Plzeň, CZ, 2004, pp. 55-63, ISBN 80-86583-07-4

Mika Daniel: Graphic Tool for Parallel I-path Analysis, In: Proceedings of IEEE Design and Diagnostics of Electronic Circuits and Systems Workshop, Bratislava, SK, SAV, 2004, p. 3, ISBN 80-969117-9-1

Mika Daniel: The formal method exercising in design of the test controller for digital circuits, In: Počítačové architektúry & diagnostika PAD 2004, Bratislava, SK, SAV, 2004, pp. 144-149, ISBN 80-969202-0-0

Ohlídal Miloš, Schwarz Josef: Hybrid Parallel Simulated Annealing Using Genetic Operations, In: Mendel 2004 10th Internacional Conference on Soft Computing, Brno, CZ, FSI VUT, 2004,pp. 89-94, ISBN 80-214-2676-4

Ohlídal Miloš, Schwarz Josef: Parallel Simulated Annealing Applied to the Traveling Salesman Problem, In: Proceedings of 38th International conference MOSIS'04, Ostrava, CZ, MARQ, 2004, pp. 155-162, ISBN 80-85988-98-4

Ohlídal Miloš: Hybrid parallel simulated annealing using genetic operations, In: Proceedings from the seminar on Computer Architecture and Diagnostics, Bratislava, SK, SAV, 2004, pp. 48-53, ISBN 80-969202-0-0

Pečenka Tomáš: Evolutionary Design of Benchmark Circuits, In: Proceedings from the seminar on Computer Architecture and Diagnostics, Bratislava, SK, SAV, 2004, pp. 22-24, ISBN 80-969202-0-0

Růžička Richard, Sekanina Lukáš: A Platform for Demonstration of Analogue and Digital Circuits Evolution, In: Proceedings of the Sixth Internation Scientific Conference Electronic Computers nad Informatics 2004, Košice, SK, TU v Košiciach, 2004, pp. 158-163, ISBN 80-8073-150-0

Růžička Richard, Škarvada Jaroslav: RTL Testability Verification System, In: Proceedings of the Work In Progress Session of 30th Euromicro Conference, Linz, DE, JKUL, 2004, p. 2, ISBN 3-902457-05-8

Růžička Richard, Tupec Pavel: Formal Approach to Synthesis of a Test Controller, In: Proceedings of Eleventh International Conference and Workshop on the Engineering of Computer-Based Systems, Los Alamitos, California, US, IEEE CS, 2004, pp. 348-355, ISBN 0-7695-2125-8

Sekanina Lukáš, Drábek Vladimír: Theory and Applications of Evolvable Embedded Systems, In: Proc. of the 11th IEEE Int. Conference and Workshop on the Engineering of Computer-Based Systems, Los Alamitos, CA, US, ICSP, 2004, pp.186-193, ISBN 0-7695-2125-8

Sekanina Lukáš, Friedl Štěpán: On Routine Implementation of Virtual Evolvable Devices Using COMBO6, In: Proc. of the 2004 NASA/DoD Conference on Evolvable Hardware, Los Alamitos, US, ICSP, 2004, pp. 63-70, ISBN 0-7695-2145-2

Sekanina Lukáš: Evolutionary Design Space Exploration for Median Circuits, In: Applications of Evolutionary Computing, Berlin, DE, Springer, 2004, pp. 240-249, ISBN 3540213783

Sekanina Lukáš: Evolving Constructors for Infinitely Growing Sorting Networks and Medians, In: SOFSEM: Theory and Practice of Computer Science, Berlin, DE, Springer, 2004, pp. 314-323, ISBN 3-540-20779-1

Schwarz Josef, Jaroš Jiří: A Problem Knowledge Based Bayesian Optimization Algorithm Applied in Multiprocessor Scheduling, In: Mendel Conference on Soft Computing, Brno, CZ, FSI VUT, 2004, p. 83-88, ISBN 80-214-2676-4

Schwarz Josef, Očenášek Jiří, Jaroš Jiří: Advanced Bayesian Optimization Algorithms Applied in Decomposition Problems, In: Proceedings of ECBS 2004, Los Alamitos, US, IEEE CS, 2004, pp. 102-111, ISBN 0-7695-2125-8

Staroba Jiří, Dvořák Václav: Design of Low-Cost Communication Algorithms for Irregular Networks, In: Proceedings of the 3rd International Conference on Networking ICN '04, Colmar, FR, UHA, 2004, pp. 980-985, ISBN 0-86341-325-0

Strnadel Josef: Testability analysis and improvements of register-transfer level digital circuits, In: Proceedings from the seminar on Computer Architecture and Diagnostics, Bratislava, SK, SAV, 2004, pp. 138-143, ISBN 80-969202-0-0

Škarvada Jaroslav: RT level digital circuit design testability verification, In: Proceedings of 10th Conference and Competition Student EEICT 2004, Volume 1, Brno, CZ, FEKT BUT, 2004, pp. 275-277, ISBN 80-214-2634-9

Torresen Jim, Bakke Jorgen W., Sekanina Lukáš: Efficient Image Filtering and Information Reduction in Reconfigurable Logic, In: Proc. of 2004 Norchip conference, Oslo, NO, ICSP, 2004, pp. 63-66, ISBN 0-7803-8510-1

Torresen Jim, Bakke Jorgen W., Sekanina Lukáš: Efficient Recognition of Speed Limit Signs, In: Proc. of the 7th International IEEE Conference on Intelligent Transportation Systems, Los Alamos, US, ICSP, 2004, p. 5, ISBN 0000

Torresen Jim, Bakke Jorgen W., Sekanina Lukáš: Recognizing Speed Limit Sign Numbers by Evolvable Hardware, In: Proc. of the 8th Int. Conf. on Parallel Problem Solving from Nature (PPSN VIII), Berlin, DE, Springer, 2004, p. 10, ISBN 3540230920

Tupec Pavel, Fučík Otto: Software monitoring of the PCI bus, In: 6th International Workshop on Electronics, Control, Measurment and Signals, Liberec, CZ, TUL, 2004, pp. 310-314, ISBN 55-025-003

Zemčík Pavel, Herout Adam, Crha Luděk, Tupec Pavel, Fučík Otto: Particle rendering pipeline in DSP and FPGA, In: Proceedings of Engineering of Computer-Based Systems, Los Alamitos, US, IEEE CS, 2004, pp. 361-368, ISBN 0-7695-2125-8

Teaching Texts:

Dvořák Václav: Parallel system architecture and programming, Brno, CZ, VUTIUM, 2004, p. 170, ISBN 80-214-2608-X

Software:

Strnadel Josef, Kotásek Zdeněk: System ScanEduTool, a didactic instrument for education of scan technique principles, Brno, CZ, FIT BUT, 2004

Manuals:

Eysselt Miloš: Study Programme at the Faculty of Information Technology, IT - Information Technology: Follow-Up Master Study, MJ servis s.r.o., Brno, CZ, FIT BUT, 2004, p. 16

Eysselt Miloš: Study Programmes at the Faculty of Information Technology: EI - Electrical Engineering and Computer Science, Ac.Y. 2004/2005, MJ servis s.r.o., Brno, CZ, FIT BUT, 2004, p. 60

Eysselt Miloš: Study Programmes at the Faculty of Information Technology: IT - Information Technology, Ac.Y. 2004/2005, MJ servis, spol. s r.o., Brno, CZ, FIT BUT, 2004, p. 64

Eysselt Miloš: Study Programmes at the Faculty of Information Technology: IT - Information Technology, Review Booklet/Brochure, MJ servis s.r.o., Brno, CZ, 2004, p. 28

Dissertations:

Staroba Jiří: Parallel Performance Modelling, Prediction and Tuning, Brno, CZ, 2004, p. 83

Strnadel Josef: Testability Analysis and Improvements of Register-Transfer Level Digital Circuits, Brno, CZ, 2004, p.150

Seminars:

27.2.2004	**Genetic algorithms fast prototyping developmental tools - Ing. Jiří Jaroš** **Variants of parallel simulated annealing PSA and their testing - Ing. Miloš Ohlídal**
5.3.2004	**Evolution of combinational circuits – the first circuits evolved in the Czech Republic in a physical device - Ing. Štěpán Friedl** **FPGA reconfiguration options and their utilization – Ing. Tomáš Martínek**
12.3.2004	**Evolutionary design of RTL benchmark circuits - Ing. Tomáš Pečenka** **Reconfiguration and its utilization - Ing. Jan Kořenek**
26.3.2004	**A component detection-based system for sign detection and image compression in FPGA - Ing. Luděk Crha** **Utilization of boundary scan elements in test of RTL FPGA circuits - Ing. Pavel Tupec**
2.4.2004	**System simulations - Ing. Rudolf Čejka**
9.4.2004	**A formal approach to test controller synthesis - Ing. Richard Růžička, Ph.D.**
23.4.2004	**Parallel performance modeling, prediction and tuning - Ing. Jiří Staroba** **Analysis and testability enhancement of RT-level digital circuits - Ing. Josef Strnadel**
30.4.2004	**SCAN-chain registers selection methods for test plan - Ing. Daniel Mika** **Modeling and performance prediction of application-specific multiprocessor systems - Ing. Vladimír Kutálek**
7.5.2004	**Advanced modular architectures for Linux kernel - Ing. Tomáš Kašpárek** **Neural Network Training by Genetic Algorithm - Mgr. Roman Gažar**
14.5.2004	**New approaches to testing of RTL FPGA circuits by means boundary scan elements - Ing. Pavel Tupec** **A system for application-specific image compression - Ing. Luděk Crha**
21.5.2004	**Systems Modeling and Requirements Specification Using ECSAM: A Method for Embedded Computer-Based Systems Analysis - Prof. Jonah Z. Lavi**
4.6.2004	**Modeling, prediction and tuning of parallel performance - Ing. Jiří Staroba** **Metrics for advanced probability-based evolutionary algorithms - Ing. Jiří Jaroš** **Hybrid parallel simulated annealing using genetic operators - Ing. Miloš Ohlídal**
14.6.2004	**Reconfiguration and its utilization - Ing. Jan Kořenek** **Architectures of reconfigurable circuits - Ing. Jan Martínek** **Evolutionary design of test circuits - Ing. Tomáš Pečenka**
3.11.2004	**PhD study program: Information for new students - Ing. Richard Růžička, PhD.**
10.11.2004	**Introduction of new PhD students: Bidlo Michal, Bilík Jiří, Faltýnek Pavel**
26.11.2004	**Introduction of new PhD students: Herrman Tomáš, Kobliha Miloš, Kubek Ján, Škarvada Jaroslav**
3.12.2004	**Parallel evolutionary algorithms - Ing. Jaroš Jiří** **Hardware a software architectures of application-specific parallel systems II. - Ing. Kořenek Jan**
10.12.2004	**Soft computing – nontraditional computational techniques - Mgr. Gažar Roman** **Hardware a software architectures of application-specific parallel systems - Ing. Martínek Tomáš I.**
17.12.2004	**Developmental tools for fast prototyping of genetic algorithms – Ing.Jiří Jaroš** **Variants of parallel simulated annealing PSA and their testing - Ing. Miloš Ohlídal**

Other activities:

The 11th Annual IEEE International Conference and Workshop on the Engineering of computer-based Systems, ECBS 2004, took place in the BUT Centre on 24th-27th May 2004. It was the first time this conference was held in a Central European or East European country. The previous conferences were held in Huntsville (Alabama, USA), in Lund (Sweden), Jerusalem, Washington,D.C., Edinbourgh, etc. The fact that Brno had been chosen and the FIT entrusted with the conference organization in the year of our admission to the EU was significant for our joining both the European and world professional community. Both the content and organization of the conference were highly appreciated by the guests.

Prof. Miroslav Švéda (FIT UPSY) was the director of the conference, prof. Václav Dvořák (FIT UPSY)

was the Chairman of the Programme Committee and Dr. Lukáš Sekanina and Dr. Richard Růžička were the leaders of the Organization Committee.

- Kotásek Zdeněk, Doc., Ing., CSc., Head of a section at the IEEE DDECS Conference, on 18th – 21st April 2004
- Sekanina Lukáš, Ing., Ph.D.,
  - ❑ Fulbright scholarship for scientists and lecturers (NASA Jet Propulsion Laboratory, Pasadena, US, September – December 2004)
  - ❑ Invited paper Evolvable Hardware and Evolvable Computing, Pennsylvania State University, Erie, USA, on 18th November 2004
  - ❑ Invited paper Evolvable Hardware and Evolvable Computing, University of Arizona, Tucson, USA, on 16th November 2004
  - ❑ Invited paper Evolvable Hardware and Fulbright project with JPL – NASA JPL Lab, Pasadena, on 17th September 2004
  - ❑ Merit Award – Human-Competitive Awards in Genetic and Evolutionary Computation at 2004 Genetic and Evolutionary Computation Conference (GECCO-2004) in Seattle, USA

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
Habrdová Stella
Nečasová Milena
Nedělová Jana, Ing.
Pagová Ywetta
Samsonová Radomíra

Equipment

Teaching and Research Laboratories

- Laboratory with SUN Ultra 5 (10 workstations)
- Laboratories with personal computers and Windows XP/Linux systems (90 workstations)
- Multimedia laboratories equipped with 3D accelerators and Windows XP/Linux (22 workstations)

Open Computer Laboratories

- 2 unscheduled Internet laboratories open to all students of the Faculty (total of 42 computers + 10 connecting points for notebooks)
- WiFi net for access from students notebooks in the Centre as well as in lecture halls, library and other rooms.

Special Instrumentation and Computers

- IBM BladeCenter server with 12 modules each with two Intel Xeon 2,8GHz processors, 1 GB operational memory. The modules are linked to an internal gigabit switch and each of them has a capacity of a server.
- Three SuperMicro servers with RAID-5 disk arrays with a capacity of 5 TB, for speech signal storing and processing.
- Supermicro research server with 2 Intel Xeon processors 3,06 GHz and 2 GB oper. memory.
- Students' server (Web, email, file server), 2 Intel Pentium III/800 MHz 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.
- Computer network based on Ethernet gigabit switches at the 3rd level Extreme Networks Black Diamond 6808 and Summit 48. Most servers are connected by gigabit Ethernet.
- A3 HP LaserJet 8150 and A4 HP LaserJet 4300 high performance network printers, and Tektronix Phaser 740Plus colour printer.

Software

- 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.
OS2	Operating Systems 2	L	6	39-0-0-8-18	Lampa Petr, Ing.

Research Projects

IT support on BUT, RP MŠMT, MŠMT 631/2004, 2004
Research leader: Marušinec Jaromír
Team leaders: Hažmuk Ivo, Křivánek Vítězslav, Lampa Petr, Záhořík Vladimír

Programmable hardware, CESNET, CESNET 34602/2004, 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 Meeting data, CESNET, 119/2004, 2004-2006
Research leader: Motlíček Petr
Team leaders: Karafiát Martin, Kašpárek Tomáš, Sumec Stanislav

Equipment of the FIT BUT Library, MŠMT, 2004-2006
Research leader: Lampa Petr

Collaborative virtual environments, CESNET, 049/2003, 2003-2004
Research leader: Zemčík Pavel
Team leaders: Kašpárek Tomáš, Kršek Přemysl

Online lecture streaming in high-speed network, CESNET, CESNET045/2003, 2003-2004
Research leader: Lampa Petr
Team leader: Michal Bohumil

Parallel system performance prediction and tuning, GAČR, GA102/02/0503, 2002-2004
Research leader: Dvořák Václav

Research in information and control systems, CEZ MŠMT, MSM 262200012, 1999-2004
Research leader: Honzík Jan M.
Team leaders: Češka Milan, Zendulka Jaroslav, Zezulka František

Visits of Staff Members to Foreign Institutions

- Kašpárek Tomáš, Ing., Slovak Academy of Science, Kaštieľ Moravany nad Váhom, SK, 3 days

- Lampa Petr, Ing., Teracue, Odelzhausen, Terracue, DE, 2 days

- Skokanová Jana, Mgr., Teracue, Teracue, Odelzhausen, DE, 2 days

Membership in International Institutions and Societites

- Čejka Rudolf, Ing.,

    o Czech and Slovak Simulation Society (CSSS)

- Lampa Petr, Ing.,
  - o Usenix
  - o Sage

Publications

Conferences:

Kašpárek Tomáš: Fully modular architecture for OS kernel, In: Zborník príspevkov Česko-slovenského seminára pre študentov doktorandského štúdia Počítačové architektúry *&* Diagnostika (PAD), Bratislava, SK, SAV, 2004, pp. 88-93, ISBN 80-969202-0-0

Kašpárek Tomáš: New Model for OS Kernel Design, In: Proceedings of 38th International Conference MOSIS\'04, Ostrava, CZ, MARQ, 2004, pp. 147-153, ISBN 80-85988-98

Kašpárek Tomáš: Sun Grid Engine when computing much and long, In: Proceedings of OpenWeekend 2004, Praha, CZ, SU CVUT, 2004, pp. 71-76, ISBN 80-01-03085

Other acvivities:

The Computer Centre co-operates with the CVIS BUT to develop the backbone BUT network, identity card systems, BUT information system and is in charge of certification authority at BUT.