

DEPARTMENT OF CYBERNETICS AND ARTIFICIAL INTELLIGENCE

<http://www.tuke.sk/kkui/>
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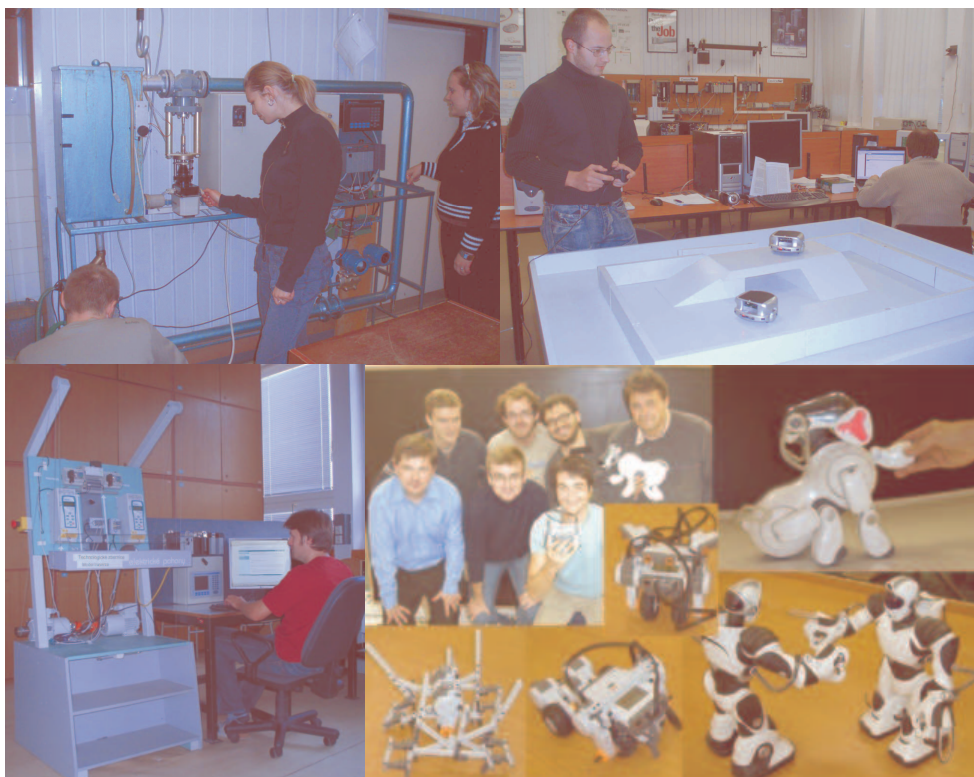
Head of Department
prof. Ing. Ján Sarnovský, CSc.
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1 DEPARTMENT'S PROFILE

The Department (DCAI) is responsible for education in the following bachelor and/or master and/or PhD-study programs: Cybernetics, Artificial Intelligence, Automation, and together with Faculty of Economics also for study program Business Informatics. Students are prepared for creative application of basic as well as advanced intelligent techniques to practical applications in all major application areas.

The main research topics at the Department are intelligent methods and algorithms for control and modeling of large-scale systems, risk-sensitive diagnosis of uncertain systems, computational intelligence techniques for modeling of intelligent systems and miscellaneous applications, intelligent decision support systems, pattern recognition, knowledge discovery, knowledge technologies for information retrieval and knowledge management.



The predecessor of the Department was founded in 1964. Department of Cybernetics and Artificial Intelligence was adapted in 1989. Currently it has 23 staff members, 20 internal and 20 external Ph.D. students. There are 3 sections within the department: Cybernetics, Artificial Intelligence, and Automation. Within the Department there are active two research Centers: Centre for Cybernetics (<http://cybernetics.fei.tuke.sk/cybervirtlab/>) and Centre for Intelligent Technologies (www.ai-cit.sk).

The Department is involved in a number of research and educational projects. The following types of projects were under way in 2006: 7 European IST projects (2 integrated projects, 2 STREPs, 2 Networks of Excellence and 1 Specific Support Action), 1 Socrates thematic network, 1 bilateral USA-Slovak research project, and 1 bilateral Slovak-Czech project, 3 grants awarded by Cultural and Educational Grant Agency, and 5 grants awarded by Science Grant Agency.

2 STAFF

Professors:
prof. Ing. Dušan Krokavec, CSc.
prof. Ing. Ladislav Madarász, CSc.
prof. RNDr. Eva Ocelíková, CSc.
prof. Ing. Tomáš Sabol, CSc.
prof. Ing. Ján Sarnovský, CSc.
prof. Ing. Peter Sinčák, CSc.

Associate Professors:
doc. Ing. Július Csontó, CSc.
doc. Ing. Anna Filasová, CSc.
doc. Ing. Anna Jadlovská, PhD.
doc. Ing. Ján Jadlovský, CSc.
doc. Ing. Marián Mach, CSc.
doc. Ing. Ján Paralič, PhD.
doc. Ing. Iveta Zolotová, CSc.

Assistant Professors:
Dr. Ing. Vratislav Hladký
Ing. Rudolf Jakša, PhD.
Ing. Norbert Kopčo, PhD.
Ing. Stanislav Laciňák, PhD.
Ing. Ján Liguš, PhD.
Ing. Kristína Machová, CSc.
Dr. Ing. Ján Vaščák

Researchers:
Ing. Rudolf Andoga, PhD.
Ing. Peter Bednár
Ing. Marián Bučko, CSc.
Ing. Marek Bundzel, PhD.
Ing. Peter Butka
Ing. Marek Duľa
Ing. Jana Ligušová, PhD.
Ing. Gabriel Lukáč

Technical Staff:
Imrich Balogh
Tatiana Baňasová
Mária Feješová

Ph.D. Students:	Ing. Marián Bakoš	Ing. František Babič
	Ing. Oľga Duřová	Ing. Zoltán Ďurčik
	Ing. Juraj Eperješi	Ing. Ladislav Fözö
	Ing. Ján Galdun	Ing. Daniel Hládek
	Ing. Juraj Chovaňák	Ing. Pavol Jasem
	Ing. Ľubomír Jasenovec	Ing. Nikola Kabakov
	Ing. Peter Kica	Ing. Pavol Kocsis
	Ing. Marek Lapko	Ing. Richard Lonšćák
	Ing. Jana Modrovićová	Ing. Pavol Maliňák
	Ing. Ľuboš Popovič	Ing. Michal Raček
	Ing. Martin Sás	Ing. Martin Sarnovský
	Ing. Peter Smatana	Ing. Ladislav Takáč
	Ing. Beáta Tomoriová	Ing. Matúš Užák
	Ing. Jozef Vrana	Ing. Jana Výrostková
	Ing. Younes Alfitorey Mousa	

3 EQUIPMENT

3.1. Teaching and Research Laboratories

- Centre for Intelligent Technologies: Laboratory of Autonomous Systems (LAS-CIT), Laboratory of Humanoid Robots (LHR-CIT) (www.ai-cit.sk)
- Centre of Cybernetics (L-513) (<http://cybernetics.fei.tuke.sk/cybervirtlab/>)
- Laboratory of Intelligent Information and Control Systems (L-535)
- Laboratory of Distributed Control Systems - ROCKWELL AUTOMATION LABORATORY (L-536)
- Laboratory of Intelligent Control Networks (L-509)
- Laboratory of Speech and Pattern Recognition (V-147)
- Perception and Cognition Laboratory (V-31) <http://pcl.tuke.sk>
- Laboratory of Knowledge Technologies (V-101a)
- Laboratory of One-Chip-Computers (V-101b)

3.2. Special Measuring Instruments and Computers

About 80 PCs and 20 servers (e.g. Cybernetics, MatlabWebServer), programmable logic automates of various types (2 x ControLogix with redundant power supply, 1 x Micrologix, 5 x PLC-5/20E, 2 x SLC 5/04, 2 x SLC-5/03, 2 x SLC5/01, TSX-47/40, TSX-17, SIMATIC S5-90U, SIMATIC S5-95U), far connectors, industrial visualization terminals and intelligent measurement elements, block of far I/O based on modules PLC, 2 x industrial terminal Panel-View-550, 1 x industrial PanelView Plus 600, 3 x analogue computers MEDA-50, three-phase drive Rockwell-Automation, models: for measurement and regulation of hot water supply, ball&plate, helicopter, magnetic levitation, intelligent house, traverse, portal crane, cableway, ball in the tube, 3 x KEPHER mobile robots, magnet, asynchronous drive, PowerMonitor equipments, resources and programs for image processing and recognition resources for infrared images recognition: 2 x PC-LabCard 812, 8 x single-chip-computer configurations based on I-80552, 10 x set TEMS-51 LAB based on I-8031, three application on-chip-computer configurations 196 LAB based on I-80196, 3 x 3-channel oscilloscope, 3 x generator of signals, 3 x variable voltage supply, Lego mind-storm system, 4 x kit based on ADSP - 2100 signal processor; 4 x kits based on ADSP - 2181 signal processor. Oracle Server 10g. Equipment for

auditory perceptual experiments including Echo Darla sound processor and Etymotic Research headphones, Crown A-75 amplifier and Bose Acoustimass speakers.

4 TEACHING

4.1. Undergraduate Study (Bc.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Computers and Algorithms	2 nd	2/2	Jadlovská, Jadlovský
Foundations of Automatic Control	3 rd	3/2	Madarász
Simulation Systems	3 rd	2/2	Jadlovská
Office Information Systems	3 rd	1/2	Zolotová
Foundations of Automatic Control	3 rd	2/2	Madarász
Identification and Modeling	5 th	2/3	Filasová
Foundations of Theory of Automation	5 th	2/2	Filasová
Artificial Intelligence	5 th	2/2	Sinčák, et al.
Simulation Programming Tools Seminar	5 th	2/2	Jadlovská
Application Programming	5 th	2/1	Jakša
Cybernetics and Management	5 th	2/2	Sarnovský
Stochastic Processes in Dynamic Systems	6 th	2/2	Krokavec, D.
Single-chip Microcomputers in Control	6 th	2/3	Jadlovský
Knowledge-Based Systems	6 th	3/2	Machová
Elements of Control Systems	6 th	2/2	Hladký
Introduction to Non-linear Systems	6 th	2/2	Jadlovská
Protocols and Interfaces	6 th	2/2	Jadlovský
Computer Vision	6 th	2/2	Zolotová, Tomori
Scheduling and Logistics	6 th	2/2	Paralič, J.
Introduction to Neurosciences	6 th	2/2	Kopčo
Computational Intelligence	6 th	2/2	Sinčák
Control of Technological Processes	6 th	2/2	Liguš, J.
Intelligent Control Networks	6 th	2/2	Liguš, J.

4.2. Graduate Study (Ing.)

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Computer Tools for Technological Systems Control	7 th	2/3	Jadlovský
Theoretical Foundations of Artificial Intelligence	7 th	2/3	Sabol

Subject	Semester	Lectures/exercises (hours per week)	Name of lecturer
Neural Networks	7 th	3/2	Sinčák
Discrete-time System Theory	7 th	3/2	Krokavec, D.
Database Management System Applications	7 th	3/2	Ocelíková
Machine Learning	7 th	2/2	Machová
AI Programming Languages Seminar	7 th	1/1	Paralič, J.
Control System Design Seminar	7 th	0/2	
Fuzzy Systems in Control	7 th	2/2	Vaščák
Robot Control Systems	7 th	2/2	Kováč
XML Technology Seminar	8 th	0/2	Mach
Knowledge Management	8 th	2/2	Paralič, J.
Optimal and Adaptive Control Theory	8 th	3/2	Sarnovský
Multicriterial Decision Making	8 th	3/2	Ocelíková
Evolutionary Algorithms	8 th	3/2	Mach
Intelligent Sensor Systems	8 th	3/2	Krokavec, D.
Control and Visualization of Processes	8 th	2/2	Zolotová
Control and Artificial Intelligence	8 th	2/2	Jadlovská
Knowledge Discovery	8 th	2/2	Paralič, J.
Online Identification	8 th	2/2	Krokavec, D., Filasová
System Analysis and Synthesis	8 th	2/2	Madarász
Robust Control	8 th	2/2	Filasová
Information Transmission	8 th	2/2	Krokavec, D.
Computational and Cognitive Neuroscience	8 th	2/2	Kopčo, N.
Biocybernetics	9 th	3/1	Csontó
Applications of the Semantic Technologies	9 th	1/3	Machová
Complex Systems Control	9 th	2/2	Hladký
Complexity and Decision Making	9 th	2/2	Madarász
Distributed Control Systems	9 th	2/3	Jadlovský
Dynamic Systems Diagnostics	9 th	3/2	Krokavec, D.
Speech Recognition	9 th	2/2	Krokavec, D.
Neuro-fuzzy Systems	9 th	2/2	Vaščák
Project Management	9 th	2/2	Sabol
Electronic Commerce	10 th	3/2	Sabol, Kováč

4.3. Undergraduate and Graduate Study for Foreign Students (In English Language)

All subjects listed in previous two subsections are offered also In English language for foreign students.

5 RESEARCH PROJECTS

- *Knowledge Practices Laboratory (KP-Lab)* is an integrated project funded by the European Commission within the IST Program (6th Framework Program) IST-2000-29207, coordinator: University of Helsinki. duration: 2006-2011, Team members from DCAI: Ján Paralič (team leader), František Babič, Peter Smatana, Peter Bednár, Martin Sarnovský. Activity: KP-Lab is an ambitious project that focuses on developing a learning system aimed at facilitating innovative practices of sharing, creating and working with knowledge in education and workplaces. KP-Lab presents a unifying view of human cognition. It is based on the assumption that learning is not just individual knowledge acquisition or social interaction, but shared efforts of transforming ideas and social practices. The objective of the KP-Lab project is to develop theories, tools, and practical models to elicit deliberate advancement and the creation of knowledge, as well as the corresponding transformation of knowledge practices in education and workplaces. The essential way of developing the collaborative technologies is through a co-evolutionary process involving researchers, technological developers and users. Web page: <http://www.kp-lab.org>
- *HYDRA (IST-2005-034891), Networked embedded system middleware for heterogeneous physical devices in a distributed architecture*, is a research project funded by the European Commission within the IST Program (6th Framework Program, IP). Team members from DCAI (in cooperation with the Faculty of Economics): Tomáš Sabol, Marián Mach, Peter Butka, Martin Sarnovský. Activity: The aim of the project is to research, develop and validate middleware for networked embedded systems that allows developing cost-effective, high-performance ambient intelligence applications for heterogeneous physical devices, and a software development kit enabling developers to develop innovative applications based on the middleware. Web page: <http://www.hydra.eu.com/>
- *Access-eGov, Access to e-Government Services Employing Semantic Technologies*, is a research project funded by the European Commission within the IST Program (6th Framework Program) FP6-2004-27020, coordinator: Tomáš Sabol. duration: 2006-2008, TUK team members (in cooperation with the Faculty of Economics): Marián Mach, Peter Bednár. Activity: Access-eGov addresses one of the main objectives of the Action Plans eEurope and eEurope+ "Government on-line: electronic access to public services" by "bringing administrations closer to citizens and businesses through the use of Internet" while putting user at the centre. Access-eGov is a thirty-six months EU-funded research and development project that aims to develop and validate a platform for composition of government services into complex process definitions (covering life events/business episodes) enabling semantic interoperability of particular e-Government services. Web page: <http://www.accessegov.org>
- *DEMO-Net* is a Network of Excellence project funded under the European Commission's sixth framework program: Information Society Technologies IST (FP6-2004-27219). The project started on January 1, 2006, will be funded for 4 years and has a detailed workplan for the first 30 months. Contact person: Tomáš Sabol (in cooperation with the Faculty of Economics). Web page: <http://www.demo-net.org>
- *SAKE (FP6-2004-27128), Semantic-enabled Agile Knowledge-based E-*

government, is a research project funded by the European Commission within the IST Program (6th Framework Program, STREP). TUK team members (in cooperation with the Faculty of Economics): Tomáš Sabol, Marián Mach, Peter Butka. Activity: The project addresses frequent changes in governments' regulations trying to resolve changes in a systematic manner. Specifying, developing and deploying a holistic framework and supporting tools for agile knowledge-based e-government are addressing the adaptation. The solution will comprise a semantic-based attention management system, semantic-based content management system, and a semantic-based groupware system. Web page: <http://www.sake-project.org/>

- *European Network of Intelligent Technologies*. Thematic Network, European Commission within the IST Program (5th Framework Program) IST-2000-29207, coordinator: Free University Amsterdam, Netherlands, Computational Intelligence Group (CIG) is active node in this international project. Prof. Sinčák is a member of Technology Transfer EUNITE committee and is in charge of competition activities within the EUNITE. The CIG has organized the world-wide competition about electricity load forecast. The full information about this competition including the results can be found on Web page – <http://neuron-ai.tuke.sk/competition>. It was an interesting contribution to the problem of prediction using intelligent technologies. There are number of activities in EUNITE and their Web page is <http://www.eunite.org>.
- STAR-NET - it is EU-funded FP6 project for 2005-2007. This is a Specific Support Action and should be supportive to create an environment to help Slovak organization to get information about participation on IST projects. Technological Audits will be the main activity. These audits will be accomplished in various IT organizations and companies in SK.
- *EIE-Surveyor: Reference Point for Electrical and Information Engineering in Europe*, Project Nr. 225997-CP-1-2005-1-FR-ERASMUS-TNPP, Project funded by the European Commission (SOCRATES Thematic Network). Reflection and proposition on generic competences and subject-specific competences, methodology for accreditation, the multinational degrees, and the situation of the implementation of the Bologna-process and implementation of quality assessment methodologies in Electrical and Information Engineering (EIE) in Higher Education. Activities: Application of the TUNING methodology to EIE, to identify competences, observatory on the degrees available in EIE in Europe, and state of the implementation of the Bologna-process, quality assessment of some resources in EIE available through internet, analysis of existing accreditation procedures, proposition of a methodology.
- *Multidimensional Data Recognition and Classification with Use Information Technology*. Slovak-Czech scientific and technological co-operation project No. 03306, members: Eva Ocelíková (project leader), Iveta Zolotová, Ladislav Madarász, Jana Výrostková, Marián Bakoš. Collaboration with Institute of Theory and Automation, Academy of Sciences of the Czech Republic. Duration 2006 – 2007.
- *Multiagent Hybrid Control of Large-Scale Systems*, Scientific Grant Agency project No. 1/2183/05, duration: 2005 – 2007, members: Ján Sarnovský (project leader), Ladislav Madarász, Anna Filasová, Peter Sinčák, Ján Vaščák, Vratislav Hladký, Ján Liguš, Marián Bučko, Ján Jadlovský, Anna Jadlovská, Jana Ligušová, Marek Duľa, Rudolf Andoga, Marián Bakoš, Ladislav Fözö, Ján Galdun, Ľubomír Jasenovc, Nikola Kabakov, Tomáš Kasanický, Peter Kica,

Michal Raček, Ladislav Takáno. Activity: The goal of the project is the research and design of algorithms and methods of control and decision of automatic control systems, namely using modern paradigm of multiagent approached to control of large-scale systems using the principles and methods of artificial intelligence. The main goal is specified by the following sub goals: (1) Creating models of large-scale systems, namely from the viewpoint of modern approaches to control of subsystems, which are represented as agent model – hybrid dynamical subsystem model; (2) Formalization of control and decision processes using non-classical methods (fuzzy logic, neuron sets, etc.); (3) Decentralized methods and algorithms of control and decision in large-scale dynamic systems (decentralized fuzzy control, decentralized decision processes); (4) Programming means of intelligent control and decision for implementation of intelligent control agent in large-scale systems; (5) Implementation of algorithms of control and decision in the hierarchical distributed computers systems at the real laboratory physical objects.

- *Intelligent and Information Methods for Pattern Recognition, Scientific Grant Agency project No.1/2185/05, duration:* 2005 – 2007, *members:* Eva Ocelíková (project leader), Iveta Zolotová, Ladislav Madarász, Ján Jadlovský, Jana Ligušová, Turčan Andrej, Szappanos Tibor, Horváth Juraj, Horanský Karol, Andoga Rudolf, Raček Michal, Jana Výrostková, Marián Bakoš. Activity: Project focuses on design of new and modified methods and tools in decision support systems with emphasis on pattern recognition. It includes integrated chain of tasks starting with data acquisition, pre-processing and storing of input data, throughout knowledge discovery, to its presentation into decision-making link in a suitable user interface. The attention will be focused on selection of informative features for decision on methods of object classification and composite classifiers. From latest information technologies, emphasis will be put on Internet technology. Project implements theoretical-experimental analysis and integration of tools into the application areas for control of technological processes (situation control, SCADA/HMI systems, intelligent control and information systems), for ecology (remotely sensed data) and for medicine (cardiovascular illnesses, bio-medical images).
- *Multi-Model Based Fault Diagnosis of Parametrically Uncertain Systems, Scientific Grant Agency project No.1/2173/05, duration:* 2005 – 2007, *members:* Dušan Krokavec (project leader), Anna Filasová, Vratislav Hladký, Ján Liguš, Juraj Klacik, Martin Sás. Activity: The project is undertaken in the specific areas of fault detection and isolation, multi-model system structure identification and validation, control system reconfiguration, as well as functional diagnosis of parametrically uncertain linear and non-linear dynamic systems. The focal scientific points of the project are in the development of new methods and algorithms for the model-based residual generation in robust fault diagnosis and for the risk-sensitive and the risk-neutral control structure reconfiguration; the terminal scientific objectives are the application-oriented computational methods for residual evaluation, the sophisticated multi-model based control algorithms for uncertain dynamic systems as well as the appropriate procedures associated with combination of residual generation and the computational intelligence decision making strategy in control.
- *Computational Intelligence Tools in Agent Systems based on Multi-Modal Structure, Scientific Grant Agency project No. 1/2184/02, duration:* 2005 – 2007, *members:* Peter Sinčák (project leader) , Dr. Bundzel. Dr. Jaksa, Dr. Vaščák, 2 PhD students and 20 MSc. students, The project deals with theory and

applications of Computational Intelligence tools in Agent technology concept. We do study various approaches in utilization of Computational Intelligence in Autonomous systems and Humanoid Systems. It incorporates study and design of a learning system with ability to learn in incremental way. The project is devoted to demonstrate research and applications in mobile robots include LEGO MindSTORM, Aibo mobile robots and Robosapiens V2 Humanoid system. The project includes collaboration with selected and similar labs in Japan (Waseda University, Tokyo, Tokyotech, Tokyo etc.) some labs in USA, China, Germany, Hungary and Poland. (www.ai-cit.sk)

- *Methods for annotation, search, creation, and accessing knowledge employing metadata for semantic description of knowledge, Scientific Grant Agency project No. 1/4074/07, duration: 2007 – 2009, members: Marián Mach (project leader), Tomáš Sabol, Ján Paralič, Kristína Machová, Ján Hreňo, Peter Bednár, Peter Butka, Martin Sarnovský, František Babič, Peter Smatana, Pavol Jasem, Jozef Vrana; activity: Project focuses on work with knowledge in form of metadata. This metadata enable to define content of information entities (most often in form of textual documents) in a way suitable for machine processing. Emphasis is put on domain theories in form of ontological knowledge models, parts of which may be used for annotation of information. Project should bring progress in the following research areas: Annotation of knowledge by means of classification and clustering algorithms; Automatic abstracts' generation; Web mining using knowledge models; Design of conceptual ontological models; Retrieval in the environment with semantically described knowledge; Support of knowledge creation processes; Text mining in distributed environment.*
- *Uni-modal and cross-modal control of strategic attention: behavioral experiments and modeling. Scientific Grant Agency project No. 1/3134/06, duration: 2006 – 2008, members: Norbert Kopčo (Principal Investigator), Marek Dobeš (Institute of Social Sciences, Slovak Academy of Sciences), Peter Kostelník, Rudolf Andoga Summary: In everyday environments our senses are exposed to a variety of complex concurrent stimuli. Strategic attention enables us to effectively orient in such environments by means of optimally choosing behaviorally important stimuli and by concentrating the limited cognitive brain capacity to process these stimuli. The goal of this project is to study, behaviorally and theoretically, the mechanisms of strategic attentional control of visual and auditory spatial perception as well as cross-modal interactions between these modalities.*
- *Contextual plasticity in spatial auditory maps. National Institutes of Health - National Institutes of Deafness and Communication Disorders (USA) # 1 R03 TW007640-01, duration: 2006 – 2009, members: Barbara Shinn-Cunningham (Boston University), Norbert Kopčo (Principal Investigator), Rudolf Andoga. Summary: The proposed research has two main goals. The first goal is scientific: to gain new knowledge about the dynamic processes involved in human spatial auditory perception. Such knowledge is important for practical reasons (e.g., for the design of improved auditory prosthetic devices) as well as because it will improve basic understanding of the role of plasticity and dynamic processes in auditory processing. The second goal of this proposal is to further develop the existing collaboration between the Auditory Neuroscience Laboratory (ANL) at Boston University (BU) and the newly established Perception and Cognition Laboratory (PCL) at the Technical University of Kosice, Slovakia (TUK).*

- *New Forms of University Teaching in the branch of AI in Slovakia, Cultural and Education Grant Agency project* No. 3/3135/05, duration: 2005 – 2007, Prof. Sinčák (project leader). The project deals with new forms of pedagogical approach in teaching AI. It tends to demonstrate the study about the improved concept for AI teaching to attract students for this study. The outputs of the study are in methodology of leading the diploma thesis, E-Learning modules in AI branch using E-learning standard e.g. MOODLE or ULEARN. The project is under collaboration with Faculty of Informatics, Slovak Technical University in Bratislava (prof. Kvasnička). The project is also includes collaboration with University of Dortmund (prof. Moraga) who has lots of experience with AI teaching mainly in neural networks and evolutionary domain.
- *CyberVirtLab – Monitoring real and supervisory control of simulated systems, Cultural and Education Grant Agency project* No. 3/4230/06, duration: 2006 – 2008, members: Iveta Zolotová (project leader), Anna Jadlovská, Ján Liguš, Jana Ligušová, Vratislav Hladký, Ján Jadlovský, Marián Bakoš, Nikola Kabakov, Ladislav Takáč, Ján Galdun, Richard Lonščák, Juraj Horváth, Marek Duľa, Peter Kica, Stanislav Laciňák, Activity: The aim is remote and virtual access to monitoring and supervisory control of simulated and real systems, e.g. Ball&plate, heat system, magnet, crane, traversa.
- *Virtual laboratory for supply/demand chain management, Cultural and Education Grant Agency project* No. 3/3124/05, duration: 2005 – 2007, members: Radoslav Delina (project leader – Economical Faculty), Ján Paralič (contact person for the Faculty of Electrical Engineering and Informatics), Marián Mach, Kristína Machová, Peter Bednár, Peter Butka. Activity: Main goal of the project is to design and develop a virtual laboratory (i.e. a web based application) for e-management of supply/demand chain, compatible with other European laboratories of similar nature. This virtual laboratory will effectively support education of students from business informatics and other related study programs by improving their practical experiences with innovative business.

6 CO-OPERATION

6.1. Co-operation in Slovakia

- Department of Automatic Control Systems Bratislava, Slovak University of Technology, Bratislava
- Institute of Intelligent Systems, Faculty of Informatics, Slovak University of Technology, Bratislava
- Institute of Computer Science, Slovak Academy of Sciences in Bratislava
- Department of Biophysics IEP Slovak Academy of Science
- Institute of Computer Science, University of P.J. Šafárik, Košice
- Economic University, Faculty of Business Economics, Košice
- Košice self-governing region
- Local Authority City Ward Ťahanovce, Košice
- The City of Košice
- Tatrabanka, a.s.

6.1.1. Visitors to the Department

- Dana Klimešová – Academy of Sciences of Czech Republic, Prague, Czech

Republic

- Lubomir Soukup – Academy of Sciences of Czech Republic, Prague, Czech Republic

6.2. International Co-operation

- The Open University, Knowledge Media Institute, United Kingdom
- University of Vaasa, Finland
- Helsinki University of Technology, Dipoli, Finland
- Department of Software Engineering and Interactive Systems, Vienna University of Technology, Austria
- University of Regensburg, Germany
- Hearing Research Center and Dept. of Cognitive and Neural Systems, Boston University, USA
- Center for Cognitive Neuroscience and Department of Psychology, Duke University (Jennifer Groh)
- Institute of Pathological Physiology, 1st Faculty of Medicine, Charles University, Prague (Petr Marsalek)
- Austrian Academy of Sciences, Acoustics Research Institute (Bernhard Laback, Brian Gygi)
- University of Dortmund, Germany
- Waseda University, Tokyo, Japan
- Technical University of Czestochowa
- Tokyo Institute of Technology, Japan
- Kyushu Institute of Technology, Japan
- Université Joseph Fourier Grenoble, IUT 1 (Institut Universitaire de Technologie 1), Grenoble, France
- Heudiasyc UMR CNRS 6599, UTC, Compiègne, France
- Université Henri Poincaré, Laboratoire CRAN (Centre de Recherche en Automatique de Nancy), Nancy 1, France
- Department of Informatics, Technical University, Ostrava, Czech Republic
- Department of Control Systems and Instrumentation, Faculty of Mechanical Engineering Technical University of Ostrava, Czech Republic
- Department of Cybernetics, Czech Technical University Prague, Czech Republic
- Department of Control Engineering, Czech Technical University, Prague, Czech Republic
- Institute of Information Theory and Automation, Academy of Sciences of Czech Republic, Prague, Czech Republic
- Department of Information Engineering, Faculty of Economics and Management, Czech University of Agriculture, Prague, Czech Republic
- University of Hradec Králové, Czech Republic
- Faculty of Mechanical Engineering, Department of Automation, Institute of Information, University of Miskolc, Hungary
- Budapest Tech, Hungary
- Budapest University of Technology and Economics, Hungary
- California Institute of Technology, Jet Propulsion Laboratory (Dr. Antal, K. Bejczy), USA, California
- Hungarian Academy of Sciences, Computer and Automation Research Institute, Hungary (prof. Gyorgy Kovács)
- Regional Association of the Hungarian Academy of Sciences, Miskolc, Hungary

- Austrian Academy of Sciences, Acoustics Research Institute (Bernhard Laback)
- Auditory Neuroscience Group, Department of Physiology, University of Sydney

6.2.1. Visits of Staff Members to Foreign Institutions

- Butka: University of Reading, School of Systems Engineering, UK
- Butka: Fraunhofer Institute, Secure Information Technology (SIT), Darmstadt, Germany
- Kopčo, N.: Auditory Neuroscience Group, Department of Physiology, University of Sydney
- Kopčo, N.: Hearing Research Center and Dept. of Cognitive and Neural Systems, Boston University, USA
- Lukáč, G.: Forschungszentrum Informatik (FZI), Karlsruhe, Germany
- Ocelíková E.: Academy of Sciences of Czech Republic, Prague, Czech Republic
- Ocelíková E.: Faculty of Economics and Management, Czech University of Agriculture, Prague, Czech Republic
- Paralič, J.: Hebrew University in Jerusalem, Israel
- Paralič, J.: Eötvös Loránd University, Budapest, Hungary
- Sarnovský, M.: University of Reading, School of Systems Engineering, UK
- Sarnovský, M.: Fraunhofer Institute, Secure Information Technology (SIT), Darmstadt, Germany
- Sarnovský, M.: University of Aarhus, Department of Computer Science, Denmark

6.3. Membership in International Organizations and Societies

- Kopčo, N.: Association for Research in Otolaryngology, Acoustical Society of America, German Acoustics Association
- Kopčo, N.: Society for Neuroscience, Association for Research in Otolaryngology, Acoustical Society of America
- Liguš, J.: EAEEIE – European Association for Education in Electrical and Information Engineering
- Madarász, L.: Honorary Member of the Board of Hungarian Academy of Sciences (2000)
- Madarász, L.: Chairmanship member of the Technical Section, Association of Hungarian Professors (2001)
- Madarász, L.: Honorary Professor, Bánky Donát Polytechnic, Budapest, Hungary (1999)
- Madarász, L.: Membership of Associate Editors, Acta Polytechnica Hungarica, Budapest Tech, Hungary (2004)
- Madarász, L.: Honorary Membership in Hungarian Fuzzy Association, Budapest Hungary (2002)
- Madarász, L.: American Biographical Institute, Gold Record of Achievement, Control of Large Scale Systems, USA (1997)
- Madarász, L.: The American Biographical Institute, The Research Board of Advisors (1996)
- Ocelíková, E.; Sinčák, P.; Zolotová, I.: CPRS - Czech Pattern Recognition Society
- Ocelíková, E.; Zolotová, I.: CSSS - Czech and Slovak Society for Simulation
- Machová, K.: ACM – Association of Computer Machinery
- Paralič, J.: ACM – Association of Computer Machinery, IEEE
- Sabol, T.: Information Society Technologies Program Committee (IST PC), 5th

Framework Program, Brussels

- Sarnovský, J.: IEEE
- Sarnovský, J.: INES - International Network of Engineers and Scientists for Global Responsibility
- Sarnovský, J.: Principia Cybernetica Web PRNCYB-L
- Sarnovský, J.: SWIIS - Supplementary Ways for Improving International Stability
- Sinčák P.: European Society of Neural Networks
- Sinčák P.: IEEE, Computational Intelligence Society
- Vaščák, J.: IEEE, Robotics and Automation Society, Systems, Man, and Cybernetics Society
- Zolotová, I.: EAEEIE - European Association for Education in Electrical and Information Engineering
- Zolotová, I.: IEEE, Education Society

6.4. Membership in Slovak Organizations and Societies

- The whole Department of Cybernetics and Artificial Intelligence is a team member of:
 - Slovak Society for Cybernetics and Informatics
 - Slovak AI Society
- Filasová, A.: Slovak Society for Cybernetics and Informatics
- Krokavec, D.: Slovak Electrical Engineering Society
- Krokavec, D.: Scientific Grant Agency of Slovak Republic
- Krokavec, D.: Member of the Editorial Board of the Journal AT&P, Bratislava
- Madarász, L.: Member of the Editorial Board of the Journal AT&P, Bratislava
- Madarász, L.: Slovak Society for Cybernetics and Informatics
- Jadlovská, A; Ocelíková, E.; Sarnovský, J.; Zolotová, I.: Slovak Society for Cybernetics and Informatics
- Paralič, J.: Slovak Society for Computer Science
- Sabol, T.: Board of the Open Society Fund, Bratislava

6.5. International Networks and Exchange Programmes

- Central European Exchange Programme for University Studies (CII-CZ-0031-01-0506), mobility network - collaboration with: Brno University of Technology (coordinator), Czech Republic, Technical University of Gabrovo, Bulgaria, Technical University of Sofia, Branch Plovdiv, Bulgaria, Technical University Czech Technical University Prague, Czech Republic, University of Split, Croatia, University of Maribor, Slovenia, University of Zagreb, Croatia, University of Miskolc, Hungary, Lublin University of Technology, Poland and Kielce University of Technology, Poland; Duration: 2006 – 2007, contact person: Vratislav Hladký
- EIE-Surveyor, REFERENCE POINT FOR ELECTRICAL AND INFORMATION ENGINEERING IN EUROPE, Project Nr. 225997-CP-1-2005-1-FR-ERASMUS-TNPP, Project funded by the European Commission (SOCRATES Thematic Network), Contact person: Ján Liguš
- Socrates - Erasmus agreement between TU of Košice and Universitat Autònoma de Barcelona, Spain, 2006 - 2007, contact person: Iveta Zolotová
- Socrates - Erasmus agreement between TU of Košice and University of Hradec Králové, Czech Republic, 2006 - 2007, contact person: Ján Vaščák

7 THESES

7.1. Masters Theses

1. Andráš Dušan: Evolutionary algorithms with a probabilistic model (M. Mach)
2. Andrek Stanislav: Internet Application of Neural Networks for Modeling and Control of Dynamic Systems (A. Jadlovská)
3. Borták Peter: Image classification approaches based on the learning systems (P. Sinčák)
4. Cimbora Richard: Decentralized Control of Dynamic systems with improved reliability (J. Sarnovský)
5. Čigáš Tomáš: Face Detection on the image-based information with utilization of convolutional neural networks (P. Sinčák)
6. Čuj Jozef: Supervisory monitoring and controlling real and virtual processes (I. Zolotová)
7. Dančíková Jana: Internet Industrial Portal and its Integration to Supervisory Control of Systems (I. Zolotová)
8. Daňo Marek: Educational model Magnetic Levitation – modification, completing and integration to CyberVirtLab (V. Hladký)
9. Dvořák Rastislav: Residual generators based on state-space observers (D. Krokavec)
10. Duřová Oľga: Active Contours – Image Segmentation – Algorithms Greedy (I. Zolotová)
11. Dunajský Tomáš: Composed Classifiers (E. Ocelíková)
12. Ďurčík Zoltán: Decomposition of fluorescence spectral matrices of biological materials (J. Paralič)
13. Eperješi Juraj: Gait Optimization of AIBO Robot Based on Interactive Evolutionary Computation (P. Sinčák)
14. Fedorčák Jozef: Realization of programming module to solve a direct and inverse kinematic task of manipulator (J. Jadlovský)
15. Fejko Pavol: Rivers flow prediction in basin of Bodrog (Július Csontó)
16. Frančák Štefan:
17. Interactive Evolutionary Computation for Medical Image Database Search (R. Jakša)
18. Harman Juraj: The Competitive Principle of the Machine Learning and Clustering Methods in the Internet User Support (K. Machová)
19. Hašta Ján: Numerical optimization using evolutionary algorithms (M. Mach)
20. Horváth Martin: Control of Dynamic Systems Using Artificial Intelligence (A. Jadlovská)
21. Chovaňák Juraj: Control and visualization of a set of manipulators model at dispatching and information level (J. Jadlovský)
22. Jágerský Ján: Inference in Bayesian networks (M. Mach)
23. Jasem Pavol: Automatic gathering and structuring of data for research of inheritance diseases (J. Paralič)
24. Janura Tomáš: Intelligent retrieval in data for research of inheritance diseases (J. Paralič)
25. Juhász Miroslav: Modeling and design of hybrid control of heat in the building of kindergarten (V. Hladký)
26. Kacian Richard: Fuzzy Rule Extraction from RBF Neural Networks (J. Vaščák)
27. Kapusta Michal: Satellite Images Processing Using Curiosity Algorithms (R. Jakša)
28. Keltiková Martina: Tools for Support of Knowledge Creation Processes

- (J. Paralič)
29. Kimák Viktor: Using AI approaches in mobile entertainment software for logic games solution (J. Csontó)
 30. Kocsis Pavol: Output state-space control design (D. Krokavec)
 31. Kováč Július: Image Database Search Using Self-Organising Maps and Multiscale Representation (R. Jakša)
 32. Knut Imrich : Automatic recognition of music styles (M. Bundzel)
 33. Lukáč Gabriel: Information extraction from texts (M. Mach)
 34. Maľarčík Peter: Recognition of hand written text (P. Sinčák)
 35. Mašlonková Zuzana: Design and realization of virtual laboratory for education in the area of control technique and automation (J. Liguš)
 36. Mičkanin Ján: Application of system of positional recognition of components of the IR-60 circuit breaker in automated assembly (L. Madarász)
 37. Miliczky Attila: Application of Adaboost with Neural Networks (M. Bundzel)
 38. Modrovičová Jana: Clustering Methods in the Internet User Cognitive Load Decreasing (K. Machová)
 39. Novák Martin: Face classification based on the learning systems (P. Sinčák)
 40. Palkovič Peter: ART-like Neural Networks in Learning Systems (P. Sinčák)
 41. Pangrác Ľubomír: Interactive Evolutionary Computation for Satellite Images Processing (R. Jakša)
 42. Paulen Peter: Robust pole-placement in state-observer design (D. Krokavec)
 43. Popovič Ľuboš: Identification and modelling of object of the kindergarten building and design of heat control (V. Hladký)
 44. Roth Roman: Realization of control and communication software for the purpose of operating a set of manipulators (J. Jadlovský)
 45. Rutrich Michal: Path Planning in Traffic Environment (J. Vaščák)
 46. Rutrich Martin: Utilization of Neural Gas Networks in Navigation (J. Vaščák)
 47. Sabol Jozef: Multiagent networked control systems (J. Ligušová)
 48. Safko Vladimír: Distributed clustering of textual documents on the Grid (J. Paralič)
 49. Sasák Erik: Control of Gait of Aibo Robot Using Neural Networks (R. Jakša)
 50. Stankovič Pavol: Developing the internet portal for model access administration in the DCAI laboratories based on Oracle products (J. Ligušová)
 51. Surgent Stanislav: Modelling of cognitive processes with focus on vision (N. Kopčo)
 52. Šelep Juraj: AI Tools for Applications in Financial Cybernetics (P. Sinčák)
 53. Štupák Peter: Časopriestorové faktory ovplyvňujúce počutie v zložitých podmienkách (N. Kopčo)
 54. Tkáč Erik: Distributed algorithm for hierarchy concept extraction on the Grid (J. Paralič)
 55. Tomčko Ladislav: LMI in dynamic systems control (A. Filasová)
 56. Tomoriová Beáta: Crossmodal attentional control in spatial hearing (N. Kopčo)
 57. Trojčák Miloš: Control of Nonlinear Systems – Internet Approach (A. Jadlovská)
 58. Vanacký Pavol: Distributed Visualization of Neural Networks Learning (R. Jakša)
 59. Vertal Igor: Reduction of Information in Neural Network Learning Visualization Based on Growing Neural Gas Method (P. Sinčák)
 60. Volčko Ján: Face Detection based on Learning System (P. Sinčák)
 61. Vrana Jozef: Software Means for the Semantic Web Support (K. Machová)
 62. Želinský Jozef: Neuron network in nonlinear systems control (A. Filasová)

8 OTHER ACTIVITIES

- 5th Slovak – Hungarian Joint Symposium on applied Machine Intelligence (SAMI 2007 - <http://www.sami.tuke.sk/2007>) has been organized in Poprad - AquaCity, Slovakia, January 25-26
- 2nd Workshop on Intelligent and Knowledge oriented Technologies (WIKT 2007 - <http://web.tuke.sk/fei-cit/wikt2007>) has been organized in Košice, Slovakia, November 15-16

9 PUBLICATIONS

9.1. Books

1. KROKAVEC, Dušan - FILASOVÁ, Anna: Dynamic System Diagnostic (in Slovak). 1. vyd. Košice: Elfa, 2007. 240 p. ISBN 978-80-8086-060-8
2. MADARÁSZ, Ladislav - BUČKO, Marián - FOZO, Ladislav: Foundations of Automatic Control (in Slovak). Košice: Elfa, 2007. 449 p. ISBN 80-8086-042-4
3. KOLCUN, Michal - SINČÁK, Peter - SZATHMÁRY, Peter: Predictive Systems (in Slovak). Košice: TU, 2007. 192 p. ISBN 978-80-8073-748-1

9.2. Journals

1. ANDOGA, Rudolf - FŐZŐ, Ladislav - MADARÁSZ, Ladislav: Digital Electronic Control of a Small Turbojet Engine MPM 20. In Acta Polytechnica Hungarica, Volume 4, Issue Number 4, 2007, ISSN 1785-8860, pp. 83-86
2. ANDOGA, Rudolf - FOZO, Ladislav - MADARÁSZ, Ladislav: Small turbojet engine - situational modeling and control. In: Acta Avionica. vol. 9, no. 13 (2007), p. 34-40. ISSN 1335-9479
3. FILASOVÁ, Anna - KROKAVEC, Dušan: State constrained LQ control systems. In: AT&P Journal Plus. vol. 12, no. 2 (2007), p. 6-9. ISSN 1336-5010
4. HRUBINA, Kamil - JADLOVSKÁ, Anna: Solving the identification problem of non-linear system using dynamic programming method. In: Acta Mechanica Slovaca. vol. 11, no. 1-a/2007 artep 2007 (2007), p. 115-121. ISSN 1335-2393
5. I-FAN, Lin - KOPČO, Norbert - GROH, Jennifer M. - SHINN-CUNNINGHAM, Barbara G.: Characteristics of visually-induced auditory spatial adaptation. In: Journal of the Acoustical Society of America. vol. 121, no. 5 (2007), p. 3095. ISSN 0001-4966
6. JADLOVSKÁ, Anna - KABAKOV, Nikola - ZOLOTOVÁ, Iveta: Predictive control algorithm based on state space models of dynamic systems - internet approach. In: Acta Electrotechnica et Informatica. vol. 7, no. 3 (2007), p. 46-52. ISSN 1335-8243
7. KOPČO, Norbert - BEST, Virginia - SHINN-CUNNINGHAM, Barbara: Sound localization with a preceding distractor. In: The Journal of the Acoustical Society of America. vol. 121, no. 1 (2007), p. 420-432. ISSN 0001-4966
8. KOPČO, Norbert - TOMORIOVÁ, Beáta - ANDOGA, Rudolf: Visual and auditory hemispheric cuing in horizontal sound localization. In: Journal of the Acoustical Society of America. vol. 121, no. 5 (2007), p. 3094. ISSN 0001-4966
9. KROKAVEC, Dušan: Residual generators design using eigenstructure

- assignment. In: AT&P Journal Plus. vol. 12, no. 2 (2007), p. 72-74. ISSN 1336-5010
10. KROKAVEC, Dušan - FILASOVÁ, Anna: Pole assignment in robust state observer design. In: AT&P Journal Plus. vol. 12, no. 2 (2007), p. 75-78. ISSN 1336-5010
 11. MACH, Marián - SABOL, Tomáš: Semantic based platform for e-Government services. In: EGov: The e-Government magazine for Asia and the Middle East. vol. 3, no. 1 (2007), p. 38-42. ISSN 0973-161X
 12. MACHOVÁ, Kristína - BEDNÁR, Peter - MACH, Marián: Various approaches to web information processing. In: Computing and Informatics. vol. 26, no. 3 (2007), p. 301-327. ISSN 1335 – 9150
 13. MACHOVÁ, Kristína - ILLIÁŠ, Peter: Movement optimization of cooperating ant colony: A study in agentbased social simulation. In: Studies in Informatics and Control. vol. 16, no. 4 (2007), p. 401-412. ISSN 1220-1766
 14. PARALIČ, Ján: Foreword. In: Computing and Informatics. vol. 26, no. 3 (2007), p. 221-223. ISSN 1335-9150
 15. SARNOVSKÝ, Ján: Research and quality of universities (in Slovak). In: AT&P Journal. vol. 14, No. 9 (2007), p. 11. ISSN 1335-2237.
 16. SARNOVSKÝ, Ján: Universities and Research have not been and are not a priority of any Government (in Slovak). In: AT&P Journal. vol. 14, no. 10 (2007), p. 4-5. ISSN 1335-2237.
 17. SARNOVSKÝ, Ján: Connections between Cybernetics, Informatics and AI (in Slovak). In: AT&P Journal. vol. 14, no. 6 (2007), p. 11. ISSN 1335-2237.
 18. SARNOVSKÝ, Ján: Theory and Practice of Automation Control (in Slovak). In: AT&P Journal. vol. 14, no. 3 (2007), p. 7. ISSN 1335-2237.
 19. VAŠČÁK, Ján: Navigation of mobile robots using potential fields and computational intelligence means. In: Acta Polytechnica Hungarica: Journal of Applied Sciences at Budapest Tech Hungary. vol. 4, no. 1 (2007), p. 63-74. ISSN 1785-8860
 20. VAŠČÁK, Ján - SZÁSZI, Tomáš: Navigation of Mobile Robots by Harmonic Potential Fields (1). In: AT&P Journal. vol. 14, no. 2 (2007), p. 58-60. ISSN 1335-2237
 21. VAŠČÁK, Ján - SZÁSZI, Tomáš: Navigation of Mobile Robots by Harmonic Potential Fields (2). In: AT&P Journal. vol. 14, no. 3 (2007), p. 74-75. ISSN 1335-2237
 22. VÍCEN, Peter - JASENOVEC, Ľubomír - PAULÍK, Ján: Automatic transport vehicles guided by laser navigation system. In: AT&P Journal. vol. 14, no. 8 (2007), p. 26-28. ISSN 1335-2237.

9.3. Conferences

1. ANDOGA, Rudolf - KOPČO, Norbert: Cortical structures and mechanisms of the control of strategic attention (in Slovak). In: Mind, Intelligence and Life. Bratislava: STU, 2007. p. 121-127. ISBN 978-80-227-2643-6.
2. SARNOVSKÝ, Ján: Complexity (Cybernetic View). In: Mind, Intelligence and Life. Bratislava. Bratislava: STU, 2007. p. 317-327. ISBN 978-80-227-2643-6.
3. LAPKO, Marek - JAKŠA, Rudolf: Control of four-wheeled vehicle on ice surface using attention-gated reinforcement learning (AGREL). In: Cognitive and neural

- systems: Eleventh international conference: Proceedings: May 16 - 19, 2007, [Boston]. [Boston: Boston university], 2007. p. 37.
4. MALIŇÁK, Pavol - JAKŠA, Rudolf: Combinations of gradient and evolutionary methods for neural network weights adaptation. In: Cognitive and neural systems: Eleventh international conference: Proceedings: Poster abstracts: May 16-19, 2007, [Boston]. [Boston: Boston University], 2007. p. 92.
 5. ANDOGA, Rudolf - MADARÁSZ, Ladislav - FOZO, Ladislav: Intelligent approaches in modeling and control of a small turbojet engine. In: INES 2007: 11th International Conference on Intelligent Engineering Systems: Proceedings: 29 June - 1 July, 2007, Budapest, Hungary. Budapest: Budapest Tech, 2007. 6 p. ISBN 1-4244-1147-5.
 6. ANDOGA, Rudolf - FOZO, Ladislav - MADARÁSZ, Ladislav: Approaches of artificial intelligence in modeling and control of a small turbojet engine. In: MicroCAD 2007: International Scientific Conference: University of Miskolc, 22-23 March 2007. Miskolc: Miskolc Egyetem, 2007. p. 1-6. ISBN 978-963-661-742-4.
 7. ANDOGA, Rudolf - FOZO, Ladislav - MADARÁSZ, Ladislav: Digital electronic control of a small turbojet engine MPM 20. In: Computational intelligence and informatics: Proceedings of the 8th international symposium of Hungarian researchers: 2007 November 15-17, Budapest. Budapest: Budapest Tech, 2007. p. 475-482. ISBN 978-963-7154-65-2.
 8. ANDOGA, Rudolf - MADARÁSZ, Ladislav: Safety issues of small turbojet engines solved by the methodology of situational modeling and control. In: MOSATT 2007: Modern Safety Technologies in Transportation: Proceedings of the International Scientific Conference: 25th - 27th September 2007, Zlata Idka. Košice: Robert Breda, 2007. p. 7-12. ISBN 978-80-969760-2-7.
 9. ANDOGA, Rudolf - TOMORIOVÁ, Beáta - KOPČO, Norbert: Influence of the modality of attentional control on spatial auditory perception. In: Cognition and artificial life 7: Proceedings: Smolenice, 28.-31. mája 2007. Opava: Slezská univerzita, 2007. p. 5-9. ISBN 978-80-7248-412-6.
 10. BABIČ, František: Modeling of knowledge creation processes through process ontology. In: 7th PhD Student Conference and Scientific and Technical Competition of Students of Faculty of Electrical Engineering and Informatics Technical University of Košice: Proceeding from Conference and Competition: 23.5.2007, Košice, Slovakia. Košice: FEI TU, 2007. p. 121-122. ISBN 978-80-8073-803-7.
 11. BABIČ, František - WAGNER, Jozef: Modeling of knowledge creation processes based on Activity theory. In: 1st Workshop on Intelligent and Knowledge Oriented Technologies: Proceedings: November 28 - 29, 2006, Bratislava, Slovakia. Bratislava: Institute of Informatics SAS, 2007. p. 131-134. ISBN 978-80-969202-5-9.
 12. BABIČ, František - PARALIČ, Ján: Knowledge practices laboratory (KP-Lab) project. In: Znalosti 2007: Proc. from 6th conference: Ostrava, February 2007. Ostrava: VŠB-TU, 2007. p. 364-367. ISBN 978-80-248-1279-3.
 13. BABIČ, František - WAGNER, Jozef - PARALIČ, Ján: New approach to collaborative work in education context. In: Information and Communication Technology in Education: Proceedings: Rožnov pod Radhoštěm, 17th - 20th September 2007. Ostrava: University of Ostrava, 2007. p. 153-156. ISBN 978-80-7368-388-7.
 14. BABIČ, František - FURDÍK, Karol - PARALIČ, Ján - WAGNER, Jozef: Support

- of Knowledge Creation Processes (in Slovak). In: DATAKON 2007: Proc. from conference: Brno, 20. - 23. September 2007. Brno: Masaryk University, 2007. p. 198-201. ISBN 978-80-7355-076-9.
15. BAKOŠ, Marián - ZOLOTOVÁ, Iveta: Possibilities of communication in information and control systems. In: SINTES 13: International symposium on systems theory: Proceedings: October 18-20, 2007, Craiova, Romania. Craiova: Editura Universitaria, 2007. p. 325-329. ISBN 978-973-742-839-4.
 16. BAKOŠ, Marián: Utilization of active contour methods. In: SINTES 13: International symposium on systems theory: Proceedings: October 18-20, 2007, Craiova, Romania. Craiova: Editura University, 2007. p. 213-216.
 17. BAKOŠ, Marián: Active contours and their utilization at image segmentation. In: SAMI 2007: 5th Slovakian - Hungarian Joint Symposium on Applied Machine Intelligence and Informatics, Poprad, Slovakia, January 25-26, 2007: Proceedings. [S.l.: S.n.], 2007. p. 313-317. ISBN 978-963-7154-56-0.
 18. BUTKA, Peter: Simple Method of Local Models Combination for identification of Text Documents' hierarchies (in Slovak). In: Znalosti 2007: Proc. from 6th conference: Ostrava, February 2007. Ostrava: VŠB-TU, 2007. p. 167-178. ISBN 978-80-248-1279-3.
 19. BUTKA, Peter - SARNOVSKÝ, Martin: Distributed clustering of textual documents based on the GHSOM algorithm. In: Znalosti 2007: Proc. from 6th conference: Ostrava, February 2007. Ostrava: VŠB-TU, 2007. p. 296-299. ISBN 978-80-248-1279-3.
 20. BUTKA, Peter: Visualization of textual documents using combination of GHSOM algorithm and Sammons mapping. In: Znalosti 2007: Proc. from 6th conference: Ostrava, February 2007. Ostrava: VŠB-TU, 2007. p. 292-295. ISBN 978-80-248-1279-3.
 21. BUTKA, Peter - HREŇO, Ján: Architecture of Groupware system in SAKE. In: Electronic Government: 6th international EGOV conference: Proceedings of ongoing research, project contributions and workshops: September 3-6, 2007, Regensburg, Germany. Linz: TRAUNER Druck GmbH & Co KG, 2007. p. 301-308. ISBN 978-3-85499-255-4.
 22. BUTKA, Peter - HREŇO, Ján: Semantic-based groupware system for SAKE. In: 1st Workshop on Intelligent and Knowledge Oriented Technologies: Proceedings: November 28 - 29, 2006, Bratislava, Slovakia. Bratislava: Institute of Informatics SAS, 2007. p. 71-73. ISBN 978-80-969202-5-9.
 23. BUTKA, Peter - HREŇO, Ján - MACH, Marián: Semantic-based analysis of discussions in SAKE. In: ITAT 2007: Proc. of the conference Information Technologies – Applications and Theory: September 2007, Poľana, Slovakia. Seňa: PONT, 2007. p. 59-62. ISBN 978-80-969184-6-1.
 24. DULÁ, Marek: Multiagent hybrid control of dynamic complex energy systems. In: 16th International Conference on Systems Science: Proceedings: 4-6 September 2007, Wroclaw, Poland. Wroclaw: Oficyna Wydawnicza Politechniki Wroclawskiej, 2007. p. 503-509. ISBN 978-83-7493-339-1.
 25. FILASOVÁ, Anna - KROKAVEC, Dušan: Discrete-time LQ principle in the modal control approach. In: Process Control'07: 16th International Conference: Štrbské Pleso, High Tatras, June 11-14, 2007. Bratislava: Slovak University of Technology, 2007. p. 099-1-099-5. ISBN 978-80-227-2677-1.
 26. FOZO, Ladislav - ANDOGA, Rudolf - MADARÁSZ, Ladislav: Digital control system for MPM 20 engine. In: ICCS 2007: 5th IEEE International Conference

- on Computational Cybernetics: Gammarth, Tunisia, October 19-20, 2007: Proceedings. S.l.: S.n., 2007. p. 281-284. ISBN 1-4244-1146-7.
27. FOZO, Ladislav - LAZAR, Tobiáš: Increasing safety of turbojet engines by the use of anytime control algorithms. In: MOSATT 2007: Modern Safety Technologies in Transportation: Proceedings of the International Scientific Conference: 25th - 27th September 2007, Zlata Idka. Košice: Robert Breda, 2007. p. 72-77. ISBN 978-80-969760-2-7.
 28. FOZO, Ladislav: Using anytime algorithms in the control of large scale systems. In: 7th PhD Student Conference and Scientific and Technical Competition of Students of Faculty of Electrical Engineering and Informatics Technical University of Košice: Proceeding from Conference and Competition: 23.5.2007, Košice, Slovakia. Košice: FEI TU, 2007. p. 113-114. ISBN 978-80-8073-803-7.
 29. FURDIK, Karol - SABOL, Tomáš - BEDNÁR, Peter: Framework for integration of e-Government services on a semantic basis. In: Electronic Government: 6th International EGOV Conference: Regensburg, September 3-6, 2007. Linz: Johannes-Kepler-Universität Linz, 2007. p. 71-78. ISBN 978-3-85499-255-4.
 30. GALDUN, Ján et al.: Definition and modeling of the communication architecture for the control of a helicopter-drone. In: Cost Oriented Automation: 8th IFAC symposium: Affordable automation systems: Ciudad de la Habana, Cuba, February 12 - 14, 2007. [s.l.]: [s.n.], 2007. 6 p. ISBN 978-959-286-002-5.
 31. GALDUN, Ján: Reliability analysis of the simple networked control system by using Petri nets. In: 7th PhD Student Conference and Scientific and Technical Competition of Students of Faculty of Electrical Engineering and Informatics Technical University of Košice: Košice, 23.5.2007: Proceedings from conference and competition. Košice: TU, 2007. p. 115-116. ISBN 978-80-8073-803-7.
 32. HLÁDEK, Daniel: Multiagent control of the robotic soccer using fuzzy logic. In: 7th PhD Student Conference and Scientific and Technical Competition of Students of Faculty of Electrical Engineering and Informatics Technical University of Košice: Proceeding from conference and competition: Košice, 23.5.2007. Košice: TU, 2007. p. 107-108. ISBN 978-80-8073-803-7.
 33. HLÁDEK, Daniel: Multi-agent fuzzy control of the robotic soccer. In: SAMI 2007: 5th Slovakian - Hungarian Joint Symposium on Applied Machine Intelligence and Informatics: Poprad, Slovakia, January 25-26, 2007: Proceedings. [s.l.]: [s.n.], 2007. p. 329-341. ISBN 978-963-7154-56-0.
 34. HRUBINA, Kamil - JADLOVSKÁ, Anna: Information technology and optimization of process control, In: Infotech'07: International Scientific-Technical Conference "Modern information and communication technology in education", part 2., PF University of Olomouc, 2007, p.571-574, ISBN 978-80-7220-301-7 2007, Stará Lesná. Košice: TU, 2007. p. 15-1-15-8. ISBN 978-80-8073-758-0.
 35. JADLOVSKÁ, Anna - KABAKOV, Nikola - LONŠČÁK, Richard: Optimal control design for laboratory helicopter model. In: Process Control '07: 16th international conference: Štrbské Pleso, High Tatras, Slovak Republic, June 11 - 14, 2007. Bratislava: Slovak university of technology, 2007. p. 124-1-124-8. ISBN 978-80-227-2677-1.
 36. JASENOVEC, Ľubomír: Methodology of description, design, simulation and realisation of networked control systems. In: 7th PhD Student Conference and Scientific and Technical Competition of Students of Faculty of Electrical Engineering and Informatics Technical University of Košice: Proceeding from Conference and Competition: 23.5.2007, Košice, Slovakia. Košice: FEI TU,

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