Doct oral Theses


The Year 2007

The year 2007 is closing and it is a good time to look back and summarize what happened in TICSP during this year. The year was quite busy with 2 workshops, several lectures by visitors, and many other activities.

In June, TICSP and Institute of Signal Processing had the pleasure of hosting the Fifth IEEE International Workshop on Genomic Signal Processing and Statistics in Gustavsvård, Tuusula, Finland.

Another main event was TICSP International Workshop on Spectral Methods and Multirate Signal Processing, SMMS2007 held in Moscow, Russia in September. It concentrated on modern transforms and filter bank methods as well as multirate signal processing, their generalizations and applications. SMMS2007 gathered a good number of people working on signal processing to exchange ideas, and produced interesting papers.

I wish to thank all those who have participated and contributed to our activities. Jaakko Astola

TICSP Workshop LCS2008

The Fifth International Workshop on Computational Systems Biology, LCS2008 will be held in Leipzig, Germany on June 11–13, 2008. LCS2008 aims at bringing together the various communities involved in the different aspects of computational systems biology research, e.g. from (but not limited to) experimental biology, machine learning, signal processing, statistics and theoretical physics. The scientific program includes invited plenary talks as well as regular sessions with contributed research talks and posters.

Following the four successful previous events (WCSB '03 - '06) hosted by Tampere University of Technology, the next LCS2008 event will take place at the University of Leipzig, Germany.

The keynote speakers at the workshop are Prof. Stéphane Robin, AgroParisTech, Paris, France, Prof. Darren Wilkinson, School of Mathematics and Statistics, Newcastle University, UK. Prof. Olli Yli-Harja acts as the workshop chair.

For further information please visit the workshop homepage http://www.cs.tut.fi/wcsb08/.

Important Dates of the workshop are:
- Submission of abstracts for posters and contributed talks: January 15, 2008
- Notification of acceptance: January 31, 2008
- Submission of full papers: March 15, 2008
- Submission of camera-ready papers: April 30, 2008

TICSP Workshop LNLA 2008


Workshop topics include, but are not limited to statistical image analysis, natural image modelling, sparse and redundant (overcomplete) representations, directional, oriented, and anisotropic filters and transforms, adaptive transforms, higher-dimensional transforms, learned transforms, nonparametric approximations, fractal image coding, modelling of human vision, application and efficient implementation of adaptive approximations in imaging, image and video denoising, deblurring, and compression and inverse problems in imaging.

All accepted papers will be published by TICSP in its Proceedings and Reports Series.

You can find more information at the workshop homepage http://sp.cs.tut.fi/ticsp/lnla08/

Important Dates: Full paper (6-8 pages) March 17, 2008
Notification of acceptance: May 19, 2008
Dr. Andre S. Ribeiro was born in Luanda, Angola, in 1976. He graduated in Physics, at the Faculty of Sciences of the University of Lisbon, Portugal, in December of 1999.

In 1997 and 1998, he worked as a research technician at Department of Optoelectronics, Instituto of Technologies of Information, INETI, Portugal.

He attained the Phd in Physics at Institute Superior Tecnico, Technical University of Lisbon, Portugal, in July of 2004. His supervisors were Profs. F. Carvalho Rodrigues and J. Dias de Deus. The PhD, “Prone States for Intelligence Emergence in Systems” focused on conditions for intelligence emergence, using Information theory and Thermodynamics principles.

In 2000-2004 he lectured physics for engineers at University of IADE and University of Unl, and was a member of research unit UNIDCOM. In 2004-2007 he was a member of the research unit “Centre for Computational Physics”, University of Coimbra, Portugal.

In November 2004, he began to work as a Post Doctoral fellow under the supervision of Stuart A. Kauffman, at the Institute for Biocomplexity and Informatics of the University of Calgary, Canada. Among other topics, his work focused on modeling Gene Regulatory Networks and inference algorithms from gene expression data.

Recently, in November 2007, he joined the Computational systems biology research group, Institute of Signal Processing, TUT, where he now works as a senior researcher.

Dr Ribeiro is a member of the Portuguese Physics Society since 2001, and of the Canadian Society for Systems Biology, since 2006.

His current research efforts focus on gene regulatory networks, information propagation in systems, phenotypic variability arising from stochastic dynamics, general principles governing cells dynamics, information processing and organization, and emergent behaviours in cells within tissues.

Dr. George Lekakos leads the Intelligent Media Lab, IML, which is a research group within the ELTRUN Research Center (http://www.elrun.gr) at the Athens University of Economics and Business, Greece. He is also an Adjunct Lecturer at the above University and teaching staff at the Greek Open University. During the previous three years he worked in adjunct and visiting teaching posts at the Department of Computer Science, University of Cyprus, and the Department of Technology Education and Digital Systems, University of Piraeus, Greece. He holds a B.Sc. in Mathematics, University of Thessaloniki, Greece, M.Sc. in Formal Methods in Software Engineering, University of London, UK, and Ph.D. in Interactive Television, Athens University of Economics and Business, Greece.

Dr. Lekakos' research is in the area of interactive television, personalized and adaptive systems, and human-computer interaction. He has published more than thirty papers in international journals and conferences, and he is co-editor of books and conference proceedings, and he serves as editorial board member of international journals. He is member of the EuroTV steering committee and the IFIP TC14 working group on interactive television (WG 14.6). For the last 8 years, he has been working in several EU funded projects and has been appointed as project reviewer by the European Commission and the General Secretariat of Research and Technology in Greece.

Dr. Michael Betser, France Telecom R&D, Rennes, France on “Sinusoidal Modeling and Applications to Audit Indexing Tasks” on July 24, 2007.

Prof. Tao Qian, Faculty of Science and Technology, University of Macau, Taipa, Macao, China on “Adaptive Decomposition of Signals I and II” on August 9, 2007.


Prof. Teodor Krenkel, Computer science Department, Moscow Technical University for Communications and Informatics, Russia on “Negative Refractive Index Metamaterials: Principles and applications” on August 21, 2007.

Prof. Tuomas Eerola and Dr. Olivier Martillot, Department of Music, University of Jyväskylä, Finland on “Music Information Retrieval at the University of Jyväskylä” on November 15, 2007.

Dr. Uwe Ligges, Department of Statistics, University of Dortmund, Germany on “Ad([d]s on R: A language and environment for statistical computing” on November 20, 2007.

Prof. Igor Aizenberg, Texas A&M University-Texarkana, Department of Computer and Information Sciences, Texas, USA on “Multi-Valued and Universal Binary Neurons: Theory and Applications” on December 11 and 13, 2007.

Dr. Andre S. Ribeiro, University of Calgary, Institute for Biocomplexity and Informatics, Canada on November 1, 2007 - 31.10.2010.

Dr. Marco Carli, University of Roma TRE University, Italy on November 19 - December 7, 2007.

Mr. Vyacheslav Voronin, M.Sc., South Russian State University of Economics and Science, Shakhty city, Russia on December 1, 2007 - August 31, 2008.

Prof. Corneliu Rusu, Faculty of Electronics, Telecommunications and Information Technology, Technical University of Cluj-Napoca, Romania on December 3 - 14, 2007.

Prof. Igor Aizenberg, Texas A&M University-Texarkana, Department of Computer and Information Sciences, USA on December 10 - 21, 2007.

Dr. George Lekakos, Department of Management Science and Technology, Athens University of Economics and Business, Greece several short visits during December 2007 - July 2008.

Dr. Edward Delp, Purdue University, Video and Image Processing Lab., School of Electrical and Computer Engineering, USA on August 15 - September 30, 2007.

Dr. Aram Danielyan, Yerevan State University, Department of Mathematics, Armenia on January 2 - December 31, 2008.

Prof. Eduard Danielian, Yerevan State University, Department of Mathematics, Yerevan, Armenia on January 7 - February 29, 2008.

Dr. Vladimir Lukin, Dr. Mykola Ponomarenko and Dr. Alexander Totisky, National Aerospace University, Ukraine on January 2 - 31, 2008.

Prof. Galina Malychkina, Engineering Cybernetics Faculty, Information and Measuring Technologies Department, St.Petersburg State Polytechnical University (SPbSU), Russia in February 2008.

Mr. Artem S. Migukin, Engineering Cybernetics Faculty, Information and Measuring Technologies Department, St.Petersburg State Polytechnical University (SPbSU), Russia on February 1 - April 30, 2008.

Prof. Radomir S. Stankovic, University of Nis, Department of Computer Science, Faculty of Electronics, Nis, Serbia on March 1 - April 30, 2008.