
UNIVERSITY TECHNOLOGY DIALOGUE – 2013 : RUSSIA-JAPAN-USA-CANADA

and

INNOVATIONS IN INFORMATION AND
COMMUNICATION SCIENCE AND TECHNOLOGY,
The Third Postgraduate Consortium International
Workshop – IICST 2013

September 2 - 5, 2013

OFFICIAL LANGUAGE: ENGLISH

Day 1 — September 2, 2013

Innovations in Information and Communication Science and Technology (IICST 2013 — Third Postgraduate Consortium International Workshop)

Location: House of Scientists, 45 Sovetskaya Street

09:30 - 10:00 **Transfer to Tomsk Special Economic Zone**

10:00 - 12:00 **Introduction to Tomsk Innovation Infrastructure**

by invitation only

13:00 - 14:00 **Lunch**

14:00 - 14:30 **Registration**

14:30 – 14:45 **Opening**

Prof. Alexander Uvarov , IICST General Co-Chair, TUSUR University Vice-Rector

Prof. Victor Kryssanov, IICST General Co-Chair, Ritsumeikan University,

14:45 – 16:30 **Plenary Discussion: Matching the University research with future industry needs**

Moderator: *Prof. Eric Cooper, Ritsumeikan University, Japan*

Dr. Gennady Kobzev, TUSUR University, Russia

Discussion topics:

- Selection of the most promising research directions for international recognition and valorization
- Feedback from the most technologically advanced international corporations
- Foresights for future technology advancements
- University-Industry-Government interaction for technological innovation development

Participants:

- A. Uvarov, TUSUR University, Russia
- I. Koutsaroff, Murata Electronics, Japan
- Y. Nakatani, Ritsumeikan University, Japan
- A. Pozdnyakov, Elecard Group, Russia
- A. Knyazev, Vice Governor for Tomsk Region Administration, Russia (to be confirmed)
- W. N. Mureithi, Polytechnique Montreal, Canada
- T. Whitaker, Motion Analysis Corporation, USA
- M. Pinoti Barbosa, Federal University of Minas Gerais, Brazil

16:30 – 18:00 **Invited talk: Bioengineering: Engineering Knowledge and Solutions for life**

Prof. M. Pinoti Barbosa, Federal University of Minas Gerais, Brazil

Day 2 — September 3, 2013

Location: House of Scientists, 45 Sovetskaya Street

09:00 – 10:00 **Invited Tutorial: Multi-sensory Brain Computer Interfaces: State of the Art and Future Challenges**

Prof. Tomasz M. Rutkowski, University of Tsukuba, Japan

10:00 – 11:10 Session 1a: IT in Medicine and Healthcare

Moderator: *Prof. F. Rinaldo, Ritsumeikan University, Japan*

Commentators: *H. Murao, Y. Izuno*

Parallel Computing on GPU for Solving Computer Tomography Problems

— *Martyushev A.P., Khandorin A.A.*

Human Activity Recognition System, based on Acceleration Data Obtained from a Smartphone

— *Miyamoto S., Ogawa H.*

Morphometric test-system for outcome prediction of ischemic cardiomyopathy

- *Gutor S.*

Prediction of Protein Phosphorylation Sites by Support Vector Machine

— *Ishino T., Nishikawa I., Tohsato Y., Fukuchi S., Nishikawa K.*

Entropic methods in study of adaptation processes in the human body

- *Murzina S.*

11:10 - 11:20 Coffee Break

11:20 - 12:00 Session 1b: IT in Medicine and Healthcare (continued)

Moderator: *Prof. F. Shibata, Ritsumeikan University, Japan*

Commentators: *J.-H. Lee, T. Rutkowski*

Study on Human Attribute Recognition by Applying the LPC Cepstrum Analysis to Human Gait

— *Su Y., Murao H.*

The use of 3D-slicer for investigation of expansive processes in the brain

- *Shchadenko S.*

Construction of an Interactive Hepatectomy Supporting System

— *Miyawaki K., Shindo T., Kaibori M., Matsui K., Tsuda T., Kwon A.-H., Chen Y.-W.*

12:00 - 13:00 Invited talk: HEVC (High Efficiency Video Coding) upcoming standard for video compression

Dr. Andrey Pozdnyakov, Elecard Co-Founder, President

13:00 – 14:00 Lunch Time

14:00 – 15:00 Invited Talk: VIRTUAL VISTAS: Digital Training in the Virtual World

Tom Whitaker, Motion Analysis Corporation, President, CEO, USA

15:00 – 16:30 Session 2: Application Software

Moderator: *Prof. E. Cooper, Ritsumeikan University, Japan*

Commentators: *H. Ogawa, D.M. Marutschke*

Implementation of Element Model Libraries in the INDESYS Framework

— *Salnikov A.S., Kalentyev A.A., Goryainov A.E.*

Locking Dance Instruction Support Method for Teachers Inexperienced in Street Dance

— *Takesue T., Izumi T., Nakatani Y.*

Street Lighting Simulation

— *Litvinova M.N., Malomuj P.V., Soldatkin V.S., Tuv V.I.*

Efficiency and Sensitivity Analysis of Distributed Power Networks

— *Suzuki M., Sakakibara K., Nishikawa I.*

GRID: Building a BOINC-based Virtual Campus Supercomputer

— *Naumenko R.I.*

16:30 – 16:40 Coffee Break

- 16:40 - 17:40 Round table: Innovative Educational Technologies**
Moderator: *Dr. Gennady Kobzev, TUSUR University, Russia*
Exploring Innovative Educational Technologies
 — Amaldas C., Shankaranarayanan A., Rinaldo F., Gemba K.
Project-based group learning at TUSUR University
 - Cherkachin M.
Elite Engineering Education at Tomsk Polytechnic University
 - Zamiatina O.
CDIO Implementation at TUSUR University
 - Afanasyeva M.
- 18:00 – 20:00 Public Lecture: Bioengineering: New Science shapes the future**
Prof. Marcos Pinoti Barbosa, Federal University of Minas Gerais, Brasil
Location: *Tomsk Library, 14, Karl Marx Street*

Day 3 — September 4, 2013

Location: House of Scientists, 45 Sovetskaya Street

- 09:00 – 10:00 Invited talk: Waveguide Optical Devices & Systems for Information Processing**
Prof. V.M. Shandarov, TUSUR University, Russia
- 10:00 – 11:20 Session 3: Nano and optoelectronics**
Moderator: *Prof. V. M. Shandarov, TUSUR University, Russia*
Commentators: *F. Rinaldo, I. Koutsaroff*
Simulation of the PDLCDiffraction Structure Characteristics under the Influence of Spatially Non-uniform Control Field
 — Semkin A.O., Sharangovich S.N.
Spatial Self-action of Light Field in a Nonlinear Fabry-Perot Interferometer
 — Perin A.S., Shandarov V.M., Batrshin V.F.
Design of a 1.2-1.8 GHz MMIC Low Noise Amplifier using gMatch Synthesis Tool for Matching Networks
 — Kalentyev A.A., Dobush I.M., Garays D.V., Goryainov A.E., Babak L.I.
A New Analytical Technique for Bias-Dependent Drain Resistance Extraction for HEMTs
 — Kokolov A.A.
- 11:15 – 11:30 Coffee Break**
- 11:30 - 12:30 Invited Talk: Total Quality and Risk Management in Microelectronic Production: Recent Developments of Advanced Process Control (APC) Techniques and toward Automatic Virtual Metrology (AVM) Systems**
Dr. Ivo(y)l P. Koutsaroff, Murata Electronics, Japan
- 13:00 – 14:00 Lunch Time**
- 14:00 – 15:00 Invited Talk: Hydrodynamics and Fluid-structure Interaction: Complex Flow Modeling and Control**
Prof. N. Mureithi, Politechnique Montreal, Canada
- 15:00 – 16:50 Session 4: Robotics and AI**
Moderator: *Prof. F. Rinaldo, Ritsumeikan University, Japan*
Commentators: *I. Nishikawa, Y. Nakatani*
A Solution for a Car Model for the FreeScale Smart-Car Cup
 — Yakushin D.O., Pekarskih E.A., Shandarov E.S.

A Teleoperated Manipulator for Supporting Independent Living of People with Disabilities
 — Morishita M., Miyoshi T., Ando N., Lee J.-H.
Robot-Assistant Behavior Analysis for Robot-Child Interactions
 — Zimina A.N., Ermakova P.S., Shandarov E.S.
Preliminary Experiments with a Brain-Computer Interface to Control a Robot
 — Koike T., Hayashi K., Ono K., Ogawa H.
Synchronization System for a Group of Robobuilder Robots
 — Ushakov A.S., Shepeleva N.E., Shandarov E.S.
Adopting Scouting and Heuristics to Improve the AI Performance in STARCRAFT
 — Wang Z., Nguyen Q.K., Thawonmas R., Rinaldo F.
Application of Gamification in Knowledge Economies
 — Shankaranarayanan A., Amaldas C., Rinaldo F., Gemba K.

16:50 – 17:00 **Coffee Break**

17:00 – 18:30 **Session 5: Simulation and Modeling**

Moderator: Prof. K. Nefedev, Far Eastern Federal University, Russia

Commentators: N. Mureithi, V. Kryssanov

Continuous Multistep Methods for Solving First Order Ordinary Differential Equations
 — Semenov D.E., Mohammed U., Semenov M.E.
Petri Net Modeling of Mass Service Systems in the MARS Simulation Environment
 — Istigecheva E.V., Grigorieva T.E., Korniyushina A.I.
Brute-Force and Monte-Carlo Ground State Calculation Methods of 2D Dipolar Magnetics
 — Shevchenko Y.A., Nefedev K.V.
Calculation of the Magnetoactive Elastomer Reaction on an External Magnetic Field
 — Andriushchenko P.D., Nefedev K.V.
Monte Carlo Simulation of Long-Range Interaction between Ising Spins on Flat Lattice
 — Nefedev K.V., Kapitan V.Yu. Numerical Approach to Research of Magnetic States of Disordered Systems of Spherical Dipoles on Plane and in Volume
 — Makarov A.G., Nefedev K.V.

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Day 4 — September 5, 2013

Location: House of Scientists, 45 Sovetskaya Street

09:00 – 10:00 **Invited Video-Tutorial: Computational Intelligence Methods for Architectural Design**

Prof. M. Zawidzki, University of Tokyo, Japan

10:00 – 11:20 **Session 6a: Smart systems**

Moderator: Prof. H. Ogawa, Ritsumeikan University, Japan

Commentators: F. Shibata, D.M. Marutschke

Linguistic Graph and its Application for Innovations
 — Ikeda H.
A Recommendation System for Server Maintenance Work based on Metadata
 — Takagi K., Ogawa H.
Clustering Words with Similar Sense using Information about their Syntactic Dependencies
 — Klyshinsky E.S., Kochetkova N.A., Logacheva V.K.
Prototype Development of a Mixed Reality Order Picking System for Warehouse Storage
 — Yamazaki K., Shibata F., Kimura A., Tamura H.
Synthesis of 3D Facial Expressions based on Statistical Learning of Two Subspaces
 — Osawa S., Duan D., Seo M., Igarashi T., Chen Y.W.

11:20 - 11:30 **Coffee Break**

11:30 – 12:30 **Invited Talk: Quality Control for Supply Chain Management — Omron Corporation**

	Experience <i>Yuki Izuno, Omron Corporation, Japan</i>
13:00 - 14:00	Lunch Time
14:00 – 15:00	Invited Talk: Collaboration between IT and the Humanities: Digital Humanities Center for Japanese Arts and Cultures <i>Prof. K. Hachimura, Ritsumeikan University, Japan</i>
15:00 - 16:20	Session 6b: Smart systems (continued) Moderator: <i>Prof. J.-H. Lee, Ritsumeikan University, Japan</i> Commentators: <i>Y. Nakatani, H. Murao</i> <i>Forecasting the Evolution of Financial Time Series by using Filtration Methods</i> — Istigecheva E.V., Aspembitova A.T. <i>Self-Teaching of Elementary Motions for Street Dance Beginners using Light Rays</i> — Tange. Y., Izumi. T., Nakatani. Y. <i>Ubiquitous Display 2.0: Improvements in Consideration of Stability, Comfort, and Interactivity</i> — Maegawa K., Shiotani T., Iwamoto K., Kasetani M., Noguchi T., Lee J.-H. <i>Cultural Characteristics of Knowledge Propagation in Scientific Publications – Japan, China, and Worldwide</i> — Marutschke D.M., Murao H. <i>Locality-Constrained Linear Coding Based Image Super-Resolution</i> — Taniguchi K., Han X.H., Nojima Y., Chen Y.W.
16:20 - 16:30	Coffee Break
16:30 - 17:00	Introduction of the TUSUR-Ritsumeikan Dual Master Degree Program (DMDP) <i>Program outline</i> - Gennady Kobzev, TUSUR University, Russia <i>Reflection on the experience of the DMDP joint development</i> - V. Kryssanov, Ritsumeikan University, Japan
17:00 - 17:30	Signing ceremony Welcome addresses by: <i>Prof. A. Uvarov, TUSUR University, Russia</i> <i>Prof. K. Hachimura, Ritsumeikan University, Russia</i>

Day 5- September 6, 2013

Location: Student Business Incubator ,147 Kranoarmeyskaya Street

10:00 - 12:00	Technology Entrepreneurship Game
12:00 - 13:00	Meeting with TUSUR University PhD students and young researchers
13:00 - 14:00	Lunch
14:00 - 15:00	Round Table Discussion on Production Quality Control and Certification Moderator: <i>Dr. E. Perevodchikov, TUSUR University, Russia</i> Discussion topics: - NQA Division for Cluster Certification - International Laboratory at TUSUR for Production Quality Control Participants: <i>Y. Izuno, Omron Corporation, Japan</i>

I. Koutsaroff, Murata Electronics, Japan
F. Rinaldo, Ritsumeikan University, Japan
Y. Nakatani, Ritsumeikan University, Japan
A. Uvarov, TUSUR University, Russia
NQA members