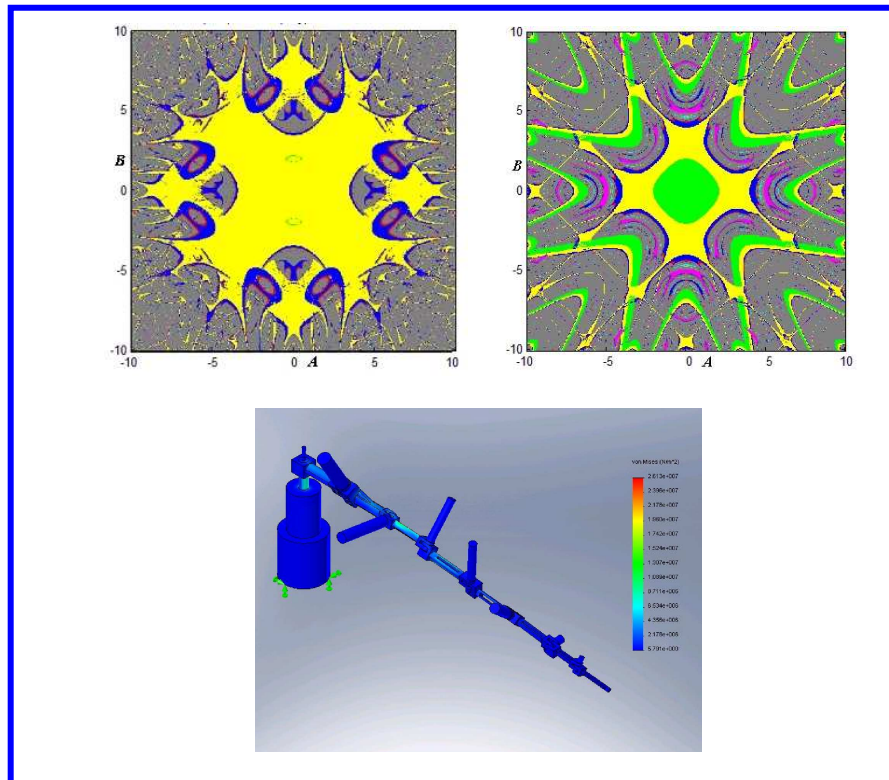


PROGRAM

Of the RFBR and DST Sponsored
"The 2-nd Russian-Indian Joint Workshop
on Computational Intelligence and Modern Heuristics in
Automation and Robotics"
10 – 13 September, 2011



Coordinators

Prof. Vadim A. Zhmud

Prof. R. Venkata Rao

Organized by



Department of Automation
Novosibirsk State Technical University
Novosibirsk, Russia



Department of Mechanical Engineering
S.V. National Institute of Technology
Surat, Gujarat State, India

Novosibirsk, Russia

Program of SIMHAR-2011

Novosibirsk, NSTU, VII – 2

Time	N	Authors and Title of the reports
The 1-st day: 10 September 2011, Saturday		
9-00	i	Yevgenyi Tsoy. Greeting from Vice-rector for International Relations in Novosibirsk State Technical University
9-10	ii	R.V. Rao. Inauguration
9-20	iii	V.A. Zhmud. Greeting words
Session-1: Intelligent Systems and Control, Optimization of the regulators, Adaptive regulators, Modern Heuristics, Artificial Intelligence, Data Mining in automation and industrial applications; and Neural / Fuzzy / Evolutionary approaches in automation.		
9-30	1-1	R.V. Rao. Industrial robot selections using a fuzzy multiple attribute decision-marking method
10-00	1-2	R. V. Rao, V. D. Kalyankar. Parameters optimization of automatic submerged arc welding process using TLBO algorithm
10-30	1-4	G.A. Frantsuzova, Lyudmila Prushenova. Modelling of discrete-time extremum-seeking system based on the localization principle
11-00		Tea / Coffee-break
11-15	1-5	A.V. Chekhonadskih, A. A. Voevoda. Control system stabilization via root simplex graph illustrated by example of double inverted pendulum
11-45	1-6	A.A. Voevoda, V.V. Voronoy. Low order controllers synthesis using the "reverse derivative"
12-15	1-7	A.S. Vostrikov, A.A. Ponomarev. Research and synthesis of control for seven degree air-gas circuit model
12-45	1-8	V.D. Yurkevich. Singular Perturbation Approach to Pulse-Width Modulated Control for Industrial Applications
	1-3	D. Datta. Data cleaning and estimation of mean and variance with non detects using data mining. As a poster report
	2-2	D. Datta. Setting of Tolerance Limits to establish high precision in measurement uncertainty in engineering problems. As a poster report
13-15		Dinner
Session-2: Modern heuristics methods in factory automation based on predictive, adaptive control, recognition, navigation, motion control, competitive, self-organizing learning, and clustering.		
14-00	2-1	R. V. Rao and V. Patel. Application of teaching-learning-based optimization for multi objective optimization of rotary regenerator
14-30	2-3	R. V. Rao, B. K. Patel. Flexible manufacturing system selection using multiple attribute decision making methods
15-00	2-4	T.V. Avdeenko. Structural identifiability analysis of linear systems with parameter space separators
15-30	2-5	T.V. Avdeenko, M.A. Vasiljev. Multiagent approach for modelling the processes of wholesale electricity and power market
16-00		Tea / Coffee-break
16-15	2-6	V.A. Zhmud, A.A. Voevoda, V.M. Semibalamut, D.O. Tereshkin. New structures of adaptive feedback systems
16-45	2-7	V.A. Zhmud, A.A. Voevoda, V.M. Semibalamut, D.O. Tereshkin. Adaptive control of object with delay
17-15		Departure to the hotel, supper.

The 2-nd Day: 11 September 2011, Sunday

Excursions, welcome-party

The 3-rd Day: 12 September 2011, Monday

Session-2

- 9-00** **2-8** **V.A. Zhmud**, O.D. Yadryshnikov, A.N. Zavorin. The study of the influence of high-frequency part of logarithmic frequency response curve to the quality of the feedback controls system
- 9-30** **2-9** **A.A. Voevoda**, G.V. Troshina. Calculation of the Fisher information matrix on base of steady state for discrete-time systems in state-space description
- 10-00** **2-10** **V.V. Gubarev**. Non-linear probability models and data processing
- 10-30** **2-11** **T.V. Avdeenko**, A.V. Levchuk. Development and realization of the advanced object model for automatic code generation

11-00 **Tea / Coffee-break**

Session-3: Computational Intelligence in wireless automation protocols such as Bluetooth, WiFi, and ZigBee; Computational Intelligence in security, reliability, and fault-tolerance in automation; Cloud calculations.

- 11-15** **3-1** **V. A. Zhmud**, D. O. Tereshkin, E.V. Prokhorenko, A.V. Liapidevskiy. Precision fault-tolerant phase measurements for radio frequency and laser measurers of the super small displacements
- 11-45** **3-2** **A.A. Voevoda**, A.V. Markov, D.O. Romannikov. Petri nets modelling with supporting of system history storing
- 12-15** **3-3** **V.I. Guzhov**, K.O. Bazhenov, S.P. Ilinykh, A.R. Vagizov. Cloud computing security issues

Session-4: Ant colonies optimization and swarm intelligence in automation; Petri Nets, Chaos, Markov models, Support Vector Machines, and Expert Systems

- 12-45** **4-1** **R. V. Rao**, Vivek Patel. Design optimization of shell and tube heat exchanger using teaching-learning-based optimization algorithm
- 13-15** **Dinner**
- 14-00** **4-2** A. K. Sood, **S.S. Mahapatra**. Bayesian regularization based Levenberg-Marquardt neural model combined with BFOA for improving surface finish of FDM processed part
- 14-30** **4-3** **E.V. Rabinovich**. Chaotic dynamics of the system of two coupled harmonic mappings

Session-5: Machine Vision and Intelligence, Actuators and Motion Control, Multisensory Fusion and Integration

- 15-00** **5-1** R. V. Rao, **V. D. Kalyankar**. Laser beam welding process parameters optimization using TLBO algorithm
- 15-30** **5-2** **R.V.Rao**, S. D. Bendale. Design optimization of shell and tube heat exchangers using Shuffled Frog Leaping Algorithm
- 16-00** **Чай / Кофе-брейк**
- 16-15** **5-3** V.A. Orlov, M.D. Parushkin, D.O. Tereshkin, Yu.N. Fomin, **V.A. Zhmud**. The usability of the laser methods in monitoring of Earth seismic dynamics
- 16-45** **5-4** **V.I. Guzhov**, S.P. Ilinykh, A.R. Vagizov, R.A. Kuznetsov. Increasing of accuracy of definition of coordinates in robotic vision
- 17-15** Departure to the hotel, supper.

The 4-th Day: 13 September 2011, Tuesday

Session-6: Intelligent Robots and Systems, Human-robot interaction, Robot vision, Cognitive robotics, and Cooperative and Collaborative robotics

- 9-00** **6-1** S. Tripathi, D. S. Chauhan, **V. K. Gupta**. Design and fabrication of a simple 5-DOF biped walking machine
- 9-30** **6-2** R. V. Rao, **V. J. Savsani**. Multi-objective design optimization of a robot gripper using TLBO technique
- 10-00** **6-3** **R.V. Rao**, P. J. Pawar. Optimum control of movement of redundant manipulators using particle swarm optimization algorithm
- 10-30** **6-4** **R.V. Rao**, P. J. Pawar. Improving the performance of universal motor using hybrid ABC-SA algorithm
- 11-00** **Tea / Coffee-break**
- 11-15** **6-5** **E. Singla**, A. Singla, B. Dasgupta. A Posteriori analysis tool for Redundant Manipulators
- 11-45** **6-6** **M. G. Grif**, O. O. Korolkova, **Ye. B. Tsoy**. On Peculiarities of the Russian Language Computer Translation into the Russian Sign Language for Deaf People
- 12-15** **6-7** **R. V. Rao**, D. Singh. The material handling equipment selection using grey relational analysis
- 7-2** V.A. Zhmud. On the Relativist Corrections of Processed Data from the Global Cosmic Systems GPS and GLONASS **As a poster report**
- 7-3** P.S. Stashevsky, I.N. Shvaykova. Automation of Decision Support in Medical Information Systems **As a poster report**
- 7-4** V. A. Zhmud, A.V. Liapidevskiy, Ye.V. Maksyutova (Zhmud). Cloud Computing, SaaS, IaaS and Free Software for Science, Medicine, Industry, Business and Strategy Control: pro and contra **As a poster report**
- 13-15** **Dinner**
- 14-00** **6-8** R.V. Rao, **Anil Kumar Mahto**. Robot Trajectory Planning Using Teaching-Learning-Based-Optimization Technique
- 14-30** **7-1** Panel discussion
- 16-00** **Tea / Coffee-break**
- 16-15** Sizing up, open discussion, closing of the Workshop
- 17-00** Departure to the hotel, supper.