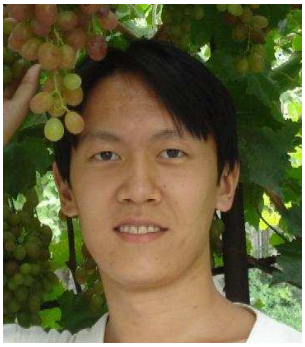
CURRICULUM VITAE



Personal Information

Name:	Yury R. Tsoy
Sex:	male
Date of birth:	May 02, 1981
Nationality	Korean
Citizenship:	Russian

Contacts

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Scientific Interests: Evolutionary Computation, Neuroevolutionary Algorithms, Machine Learning, Self-Organization and Complexity, Image Processing.

Education

- *September, 2004 – August, 2007*: **PhD in Computer Science**, thesis "Neuroevolutionary Algorithm and Software for Image Processing"[1]. Defence: May 16, 2007. Supervisor: Prof. Vladimir Spitsyn.
- *September, 2002 – July, 2004*: **Master of Technique and Technologies** with honours, thesis "The Development of Genetic Algorithm for Neural Networks Design and Tuning"[2]. Defence: June 2004. Supervisor: Prof. Vladimir Spitsyn.
- *September, 1998 – July, 2002*: **Bachelor of Technique and Technologies** with honours. Supervisor: Dr. Julius Katsman.

Work Experience

- *September, 2009 – till now*: **Assistant Professor**, Tomsk State University of Control Systems and Radioelectronics, Tomsk, Russia
- *March, 2008 – till now*: **Assistant Professor**, Tomsk Polytechnic University, Tomsk, Russia
- *June, 2007 – March, 2008*: **Senior Lecturer**, Tomsk Polytechnic University, Tomsk, Russia
- *September, 2006 – June, 2007*: **Assistant**, Tomsk Polytechnic University, Tomsk, Russia

Languages

- Russian (mother language)
- English (fluent)
- French (reading with vocabulary)

Grants

- Grant by the Human Capital Foundation "Automated adaptive image categorization method", Russia, 2010. *Head*.
- Grant by the Russian Foundation for Basic Research, project no. 09-08-00309-a, "Development of software complex for the automated image processing and pattern recognition on the base of artificial neural networks, regulatory networks and evolutionary algorithms", 2009-... (ongoing). *Implementer*.
- Grant by the Russian Foundation for Basic Research, project no. 09-01-99014-r_ofi, "Development of approaches to increase efficiency of pattern recognition methods and algorithms and their quality estimation", 2009-2010. *Implementer*.

[1] http://qai.narod.ru/Dissertation/tsoy_phd.thesis.zip
[2] http://qai.narod.ru/Publications/tsoy_mthesis.pdf

- Grant by the Russian Foundation for Basic Research, project no. 06-08-00840, "Development of automation technologies of digital images enhancement on the base of evolving artificial neural network application", 2006-2008. *Implementer*.
- Individual grant for young scientists by the Tomsk Polytechnic University, "Development of the neural networks based method for enhancement of digital images", 2007. *Head*.
- Grant by the Russian Foundation for Basic Research, project no. 07-01-00452-a, "Development of technology of problems solving connected on expert conclusion and based on logical tests as well as means of cognitive graphics in intelligent system", 2007-2009. *Implementer*.

Selected Academic Awards

1. Laureate of the National competition "Best Engineer - 2010", 2011.
2. Letter of gratitude from the Tomsk Polytechnic University, 2010.
3. Laureate of the Award of the State Duma of Tomsk Region, 2009.
4. Award by the Kapitsa Foundation for the best work in the "Mathematics and Informatics", 2006.
5. Bronze medal by the Tomsk Polytechnic University for excellence in study, 2004.
6. Best student research by the Russian association for artificial intelligence, 2004.

Scientific service

1. **Conference reviewer**: International Joint Conference On Neural Networks (Canada, USA, 2005-2007, 2011), Neuroinformatics (Russia, 2006-2011).
2. **Member of organizing committee**: Workshop on Bionic Information Systems and their Applications (Dubna, Russia, 2008), Workshop on Bionic Information Systems and their Applications (Tver', Russia, 2010), Prospects of Development of Fundamental Sciences (Tomsk, Russia, 2009-2010).
3. **Co-founder**: Tomsk Lecture Series on Computational Intelligence[3] (held once in 2 months since October, 2009).
4. **Founder and owner** of one of the oldest and most informative Russian web-sites about genetic algorithms and evolutionary computation[4] (since February 2003).
5. **Founder** of the discussion group ECEtc[5] on Google Groups, dedicated to evolutionary computation, neuroevolutionary algorithms and metaheuristics (launched at Dec, 2006, 62 members as for February 02, 2011).

Scientific societies membership

- Member of the Russian Neural Networks Society.
- Member of the Russian Association for Fuzzy Systems and Soft Computing, Vice-president for Neural Computation (since May, 2011).
- Member of the Russian Association for Pattern Recognition and Image Analysis.

Teaching

- **Lecturer** for "High level programming languages", "Decision making", "Systems theory and system analysis", "Statistics for applications" courses.
- **Labs** for "High level programming languages", "Data representation in information systems", "Data Protection and Information Security" courses.

Technical skills

- **Programming**: C/C++ (9 years), C#: (7 years), Matlab, Assembler (x86, x96, x196), Python (basics), Java (basics).
- **Databases** (essentials): SQL, MS SQL Server, ADO.NET.
- **Parallel Programming**: OpenMP.

[3] http://qai.narod.ru/TomskWorkshop/index.html (in Russian)
[4] http://qai.narod.ru (most contents is in Russian)
[5] http://groups.google.com/group/ecetc?hl=ru (in Russian)

- **Other:** programming for processing medical images in the DICOM file format.

References

- **Prof. Dr. Vladimir Red'ko**
  Center of Optical Neural Technologies of Scientific Research Institute for System Analysis
  Russian Academy of Sciences
  44/2, Vavilova St.
  Moscow, Russia
  119333
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- **Prof. Dr. Lyudmila Zinchenko**
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  Moscow, Russia
  105005
  E-mail: lzinchenko@bmstu.ru
- **Prof. Dr. Matthias Dehmer**
  Institute for Bioinformatics and Translational Research, UMIT
  Eduard Wallnoefer Zentrum 1, 6060
  A-Hall in Tyrol, Austria
  E-mail: Matthias.Dehmer@umit.at

Selected Publications

Tutorials & Lectures:

1. Tsoy Y.R. *Neuroevolutionary Algorithms.* // Tomsk Lecture Series on Computational Intelligence. Tomsk, June, 2011. In Russian.
   http://qai.narod.ru/TomskWorkshop/lecture_06_2011.pdf
2. Tsoy Y.R. *Algorithms NEAT and Hyper-NEAT.* // Tomsk Lecture Series on Computational Intelligence. Tomsk, June, 2011. In Russian.
   http://qai.narod.ru/TomskWorkshop/neat_hneat_06_2011.pdf
3. Tsoy Y.R. *Neuroevolutionary Algorithms and Complex Adaptive Systems.* // Scientific Session of MEPHI - 2011. National scientific-technical conference "Neuroinformatics-2011": Lectures on Neuroinformatics. – Moscow, MEPHI, 2011. – P. 14-43. In Russian.
4. Tsoy Y.R. *Black Box Optimization Benchmarking - 2009 competition results.* // Tomsk Lecture Series on Computational Intelligence. Tomsk, April, 2010. In Russian.
   http://qai.narod.ru/TomskWorkshop/bbob2009_04_2010.pdf
5. Tsoy Y.R. *Artificial Neural Networks* // Tomsk Lecture Series on Computational Intelligence. Tomsk, March, 2010. In Russian. http://qai.narod.ru/TomskWorkshop/lecture_02_2010.pdf
6. Tsoy Y.R. Modern *Open-Source Libraries for Evolutionary Computation* // Tomsk Lecture Series on Computational Intelligence. Tomsk, December, 2009. In Russian.
   http://qai.narod.ru/TomskWorkshop/osea_12_2009.pdf
7. Tsoy Y.R. *Evolutionary Computation: History, State-of-the-art, and the Future* // Tomsk Lecture Series on Computational Intelligence. Tomsk, October, 2009. In Russian.
   http://qai.narod.ru/TomskWorkshop/lecture_10_2009.pdf
8. Tsoy Y.R. *An Introduction to Neuro-Evolutionary Approach: Main Concepts and Applications* // Scientific Session Of Mephi - 2007. Pan-Russian Scientific-Technical Conference "Neuroinformatics-2007": Lectures on Neuroinformatics, Vol. 2. – Moscow, Mephi, 2007. – P. 43-76. In Russian.
9. Spitsyn V.G., Tsoy Y.R. *Evolving Artificial Neural Networks* // IV Conf. For Students and Young Scientists "Youth And Modern Inf. Tech.". Tomsk, 2006. Pp. 411-413. In Russian.

Book chapters:

1. Tsoy Y. *Neuroevolutionary algorithms and complex adaptive systems* / In Kureichik V., Red'ko V., Zinchenko L. (Eds): Bionic Information Systems and their Applications. – Moscow: Physmatlit, 2011. – P. 128-156. In Russian.
2. Tsoy Y., Red'ko V.G. *Estimating Speed and Efficiency of Evolutionary Algorithms* / In Kureichik V., Red'ko V., Zinchenko L. (Eds): Bionic Information Systems and their Applications. – Moscow: Physmatlit, 2011. – P. 110-127. In Russian.
3. Dehmer M., Emmert-Streib F., Tsoy Y., Varmuza K. *Quantifying Structural Complexity of Graphs: Information Measures in Mathematical Chemistry* / In Putz M. (Editor): Quantum Frontiers of Atoms and Molecules in Physics, Chemistry, and Biology. – Nova Science Publishers, 2010. – P. 467-485.

Journal Papers:

1. Kolesnikova S.I., Lakhodynov V.S., Tsoy Y. *Study of the stochastic system states recognition quality* // Information Systems, 2010, no. 6, pp. 56-62. In Russian.
2. Dehmer M., Emmert-Streib F., Tsoy Y., Varmuza K. *Novel Information Measure for the Analysis of Structure of Chemical Graphs* // Bulletin of the Tomsk Polytechnic University, 2010, vol. 316, no. 5, pp. 5-11. In Russian.
3. Tsoy Y.R., Spitsyn V.G. *Neuroevolutionary image quality enhancement* // Proceedings of TPU, 2009, no. 5, pp. 131-137.
4. Yankovskaya A.E., Tsoy Y.R. *Using Genetic Algorithms in Intelligent Recognizing Systems* // Vestnik TSU. Control, computers and informatics. 2009. Vol. 7, no. 2, pp. 76-84.
5. Red'ko V.G., Tsoy Y.R. *Efficiency Of Evolutionary Search In Quasispecies Model* // Fuzzy Systems And Soft Computing, 2007, no. 1.
6. Tsoy Y.R. *Approximate Calculation Of Local Mean And Deviation For Digital Images Processing* // Information Technologies, 2007, no. 4, pp. 28-32. In Russian.
7. Tsoy Y.R., Spitsyn V.G. *An Approach To Enhancement Of The Visual Quality Of Monochrome And Color Images Based On Application Of The Evolving Neural Network* // Information Technologies, 2006, no. 7, pp. 27-33. In Russian.
8. Tsoy Y.R., Spitsyn V.G. *Evolutionary Approach To Design And Training Of Neural Networks* // Neuroinformatics, 2006, vol. 1, no. 1, pp. 31-58. (On-Line Peer-Reviewed Journal[6]). In Russian.
9. Tsoy Y.R. *On Mathematical Models of the Evolutionary Algorithms* // Promising Information Technologies And Systems, 2006, no. 2, pp. 42-47. (On-Line Journal) In Russian. Journal Site
10. Red'ko V.G., Tsoy Y.R. *Estimation of Efficiency of Evolutionary Algorithms* // Proceedings Of The Russian Academy Of Sciences, 2005, vol. 404, no. 3, pp. 312-315. In Russian.
11. Tsoy Y.R., Spitsyn V.G. *Using Genetic Algorithm With Adaptive Mutation Mechanism For Neural Networks Design And Training* // Optical Memory And Neural Networks, 2004, vol. 13, no. 4, pp. 225-232.

Conference Papers:

1. Tsoy Y.R. Neuroevolutionary transform of a features space for neural classification problems // Proceedings of VI Conference on Integrated models and soft computing in artificial intelligence. (16-19 May 2011, Kolomna, Russia). Vol. 2. – Moscow: Physmatlit, 2011. – P. 669–676.
2. Tsoy Y.R. *Combining neuroevolutionary and gradient learning for solving classification problems* // Computational Intelligence (Results, Problems and Perspectives): Proceedings of the First International Conference (10-13 May 2011, Cherkasy, Ukraine). – Cherkasy: McLaut, 2011. – P. 75-76.
3. Tsoy Y.R. *Do Corner Pixels Contain Enough Information for Image Categorization?*// Proceedings of the 10th International Conference "Pattern Recognition and Image Analysis: New

[6] http://www.niisi.ru/iont/ni/Journal/ (in Russian)

Information Technologies" PRIA-10-2010 (December 5-12, 2010. St. Petersburg, The Russian Federation) Vol. 1. - St. Petersburg: POLITECHNIKA, 2010. - P. 363-366.

4. Tsoy Y.R. *On Adaptive Increase of the Features Space Dimensionality*// 12th Int. Conf. with Int. Participation on Artificial Intelligence (CAI-2010), Vol. 4. – Moscow: Physmathlit, 2010. – P. 134-140. In Russian.
5. Spitsyn V.G., Tsoy Y.R., Bolotova Y.A. *Neuroevolutionary Enhancement and Segmentation of Aerial Images* // Proceedings of the 12-th International Conference "Digital Signals Processing and its Applications". - Moscow, 2010. - P. 342-345. In Russian.
6. Tsoy Y.R. *Neuroevolutionary Approach to Image Quality Assessment* // Pan-Russian Sci.-Tech. Conf. "Neuroinformatics-2010": Proc., Vol. 2. – Moscow, Mephi, 2010. – P. 467-485. In Russian.
7. Tsoy Y.R., Spitsyn V.G. *Fast Neuroevolutionary Digital Image Enhancement* // 2009 USNC/URSI National Radio Science Meeting: Abstracts - Charleston, USA. - June 1-5, 2009. - Charleston: URSI. - 2009. - c. 345
8. Tsoy Y.R. *On Evolving Neural Networks and Modelling of Open-Ended Evolution* // Scientific Session of MEPHI - 2009. Pan-Russian scientific-technical conference “Neuroinformatics-2009”: Proceedings, vol. 1. – Moscow, MEPHI, 2009. – P. 201. In Russian.
9. Tsoy Y.R. *Computational Regulatory Networks and Self-Adaptive Neuroevolutionary Algorithm* // 11th Int. Conf. with Int. Participation on Artificial Intelligence (CAI-2008), Vol. 3. – Moscow: LENAND, 2008. – P. 50-57.
10. Tsoy Y.R. *Computational Regulatory Networks* // Scientific Session of MEPHI - 2008. Pan-Russian scientific-technical conference “Neuroinformatics-2008”: Proceedings, vol. 1. – Moscow, MEPHI, 2008. – P. 148. In Russian.
11. Tsoy Y.R., Spitsyn V.G., Chernyavsky A.V. *No-Reference Image Quality Assessment Through Interactive Neuroevolution* // Proc. of Int. Conf. on Comp. Graphics (Graphicon-2007), June 23-27, 2007, Moscow State University, Moscow, Russia, P. 156-159.
12. Tsoy Y.R. *ECWorkshop – An Instrumental Classes Library for Evolutionary Computation* // Proc. of the Joint Int. Sci.-Tech. Conf. "IEEE Artificial Intelligent Systems" and "Intelligent Computer Aided Design". – Moscow: Phizmatlit, 2007. – P. 94-101. In Russian.
13. Tsoy Y. R., Spitsyn V.G. *Digital Images Enhancement With Use of Evolving Neural Networks* // Proc. of the IX Int. Conf. Parallel Problems Solving From Nature (PPSN-IX), Reykjavik, Iceland, September 9-13, 2006. LNCS, Vol. 4193. – Berlin: Springer-Verlag, 2006. – P. 593-602.
14. Tsoy Y.R. On *Application of Neural Networks to Approximation of the Rules Table of Cellular Automata* // A.N. Gorban, E.M. Mirkes (Eds): Neuroinformatics and its Applications: Proc. of the XIV Pan-Russian Workshop, Oct., 6-8, 2006. – ICM SB RAS, Krasnoyarsk, 2006. – P. 129-130.
15. Tsoy Y.R. *One Method for Computing of Mixing Time of Genetic Crossing Operators* // Proc. of 10th National Conf. with Int. Participation on Artificial Intelligence (CAI-2006), Vol. 3. – Moscow: Phizmatlit, 2006. – P. 1047-1054.

Translations into Russian (author’s permission granted):

1. Mitchell M. *Exact Mathematical Models of Simple Genetic Algorithms* / Chapter 4.3 from Mitchell M. An Introduction to Genetic Algorithms. Cambridge, MA: The MIT Press, 1996
2. Mitchell M. *Statistical Mechanics Approaches* / Chapter 4.4 from Mitchell M. An Introduction to Genetic Algorithms. Cambridge, MA: The MIT Press, 1996.
3. Luke S. *Essentials of Metaheuristics. A Set of Undergraduate Lecture Notes*. 2009 (http://cs.gmu.edu/~sean/book/metaheuristics/)

Family

- **Married** (since December 2, 2006)
- Wife: **Olga Tyan** (born May 24, 1985)
- Children: son **Andrei** (born April 23, 2008)
  son **Artyom** (born February 15, 2011)

Other

- **Driving licence**: Category B.
- **Interests**: Guitar playing, Reading, Sport version of “What? Where? When?”.