

YULIA MEDVEDEVA

Date of birth : 1983, November 24

Citizenship : Russian, in the process of obtaining Ukrainian citizenship

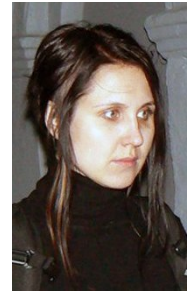
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Academic degrees :

2010 M Sc in Applied Mathematics

Siberian State University of Telecommunications and Information Sciences,
Novosibirsk, Russia

Advisor : Prof Boris Ryabko

Fast enumerative code for dklr-words

2015 Ph D (Candidate of Technical Sciences) in Theoretical Basis of Informatics

Institute of Computational Technologies, Siberian Branch of the Russian Academy of
Sciences, Novosibirsk, Russia

defended in Siberian State University of Telecommunications and Information Sciences,
Novosibirsk, Russia

Advisor : Prof Boris Ryabko

*Fast enumeration of combinatorial objects, which has application for information
transmission and storage systems*

Courses, taken during study : Linear Algebra, Mathematical Analysis, Theory of Complexity of Computational Processes and Structures, Theory of Computational Processes, Methods of Cryptographic Information Security, Discrete Mathematics, Data Structures and Algorithms, Mathematical Logic and Algorithm Theory, Numerical Analysis, Theory of Probability and Random Processes; Procedural Programming, Object-oriented Programming, Visual Programming, Functional Programming, Databases, Operating Systems.

Skills : C, C++, Javascript, Perl. LaTeX. Visual C++. Linux.

Languages : English, Russian, Ukrainian.

Summary of research :

My research is on design of fast enumerative coding algorithms for some classes of combinatorial objects. I have proposed the enumerative coding algorithms for run-length limited words, elements of Grassmannian, Dyck words. The proposed algorithms have significantly less computational complexity than known ones.

Employment history :

- 2005-2006** **Programmer**
State Regional Center for Standardization, Metrology and Testing in the Novosibirsk region, Russia
- 2012-2013** **Research engineer**
Siberian State University of Telecommunications and Information Sciences, Novosibirsk, Russia
- 2014** **Research engineer**
Department of Computational Technologies, Institute of Computational Technologies, Siberian Branch of the Russian Academy of Sciences, Novosibirsk, Russia
- 2015** **Senior lecturer**
Department of Applied Mathematics and Cybernetics, Siberian State University of Telecommunications and Information Sciences, Novosibirsk, Russia

Teaching experience :

Lectures and seminars for courses of Computer Science
Seminars for courses of Visual Programming
Department of Applied Mathematics and Cybernetics,
Siberian State University of Telecommunications and Information Sciences

Research grants and awards :

- 2008** Alcatel-Lucent Award for student research work
- 2009** Grant of Administration of the Novosibirsk region
- 2012-2013** Investigator, Grant of the Government of the Russian Federation under the leadership of the invited researchers under the agreement No. 12.740.1430 (contract 8504), Effective methods of construction of protected high-speed channels of digital data transmission for providing access to broadband multimedia services
- 2012-2013** Investigator, Grant No. 12-07-00125-a of Russian Foundation for Basic Research, Information theory methods of the analysis of text information and their application to problems of forecasting and information security
- 2014** NANUM 2014 Travel Grant for International Congress of Mathematicians (ICM 2014), Seoul, Korea

Conferences :

- 2009** IEEE International Symposium on Information Theory (ISIT'09), Seoul, South Korea.
- 2012** XI International Seminar "Discrete Mathematics and its Applications", Moscow, Russia.
- 2012** XIII International Symposium on Problems of Redundancy in Information and Control Systems, Saint-Petersbourg, Russia.
- 2014** International Congress of Mathematicians (ICM 2014), Seoul, South Korea.

Selected publications :

Y. Medvedeva, B. Ryabko. *Fast enumeration of run-length-limited words*.
Proceedings of IEEE International Symposium on Information Theory (ISIT'09), Seoul, South Korea, 2009, pp. 640–643. [Link](#)

Y. Medvedeva. *Fast enumeration for Grassmannian space*.
2012 XIII International Symposium on Problems of Redundancy in Information and Control Systems (RED), 2012, pp. 48–52. [Link](#)

Yu. S. Medvedeva, B. Ya. Ryabko. *Fast enumeration algorithm for words with given constraints on run lengths of ones*.
Problems of Information Transmission, 2010, 46 :4, pp. 390–399. [Link](#)

Y. S. Medvedeva. *Fast enumeration of Grassmannian elements*.
Computational Technologies, 2013, V. 18, N. 3, pp. 22–33. [Link](#)

Other publications :

Yu. S. Medvedeva. *Fast enumeration of words generated by Dyck grammars*.
Mathematical Notes, 2014, 96 :1-2, pp. 68–83.

Yu. S. Medvedeva. *Fast algorithm of enumerational encoding for main problems of information theory*.
All-Russian Conference of Young Scientists on Mathematical Modeling and Information Technologies, Tomsk, Russia, 2013.

Yu. Medvedeva. *Fast algorithm of enumerative encoding for main problems of information theory*.
Vestnik SibGUTI, 2013, N. 4, pp. 80–105.

Yu. Medvedeva. *Fast enumeration of Grassmannian elements*.
Proceedings of XI International Seminar "Discrete Mathematics and its Applications", Moscow, Russia, 2012.

Yu. Medvedeva. *Fast algorithm of enumeration of words with given constraint on series length*.
All-Russian Conference of Young Scientists on Mathematical Modeling and Information Technologies, Kemerovo, Russia, 2008.

Referees :

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