

# Sergey Shershakov

+7 (916) 785-6603  
shershakovs@mail.ru

- Date of birth August 12, 1985  
Nationality Russian  
Marital status Single
- Aims and goals Development of hi-tech and knowledge-intensive products at reasonable environmental costs.
- Skills *Research in the following domains:* process mining, software process mining, business process intelligence, Petri nets and transition systems.  
*Development of scientific software* for conducting experiments in process mining. Selected projects are as follows: Transition Systems Reduction, Mining Hierarchical Hybrid UML Diagrams from Event Logs, VTMine Framework, VTMine4Visio Modeling Tool, DPMine Graphical Workflow Language.  
*Development of software* for process mining domain, modeling workflow, radio equipment control, information systems using multitier architectures, mobile and embedded applications.  
*Management of software development process:* managing a team of developers, analysis and building of business requirements, development of specifications, architecture design of information systems, development support, deployment and maintenance of developed systems. *Preferrable tools:* Redmine, Git, SVN.  
*Programming languages:* C/C++, Java, C#, Python, Assembler (IA-32, MCS51, ARM). *RDB:* MySQL, SQLite, PostgreSQL. *Mobile:* Android. *Web:* HTML, CSS, JavaScript; PHP. *Major frameworks and libraries:* STL, Boost, Qt, .NET, Spring, Django, MFC, WinAPI.  
*Development of digital technologies* with the use of microcontrollers (MCS51, ARM), EPLD, signal processors (AD). Altium Designer & Keil CADs. Extensive experience in programming interfaces USB (FTDI, SiLabs), RS-232/UART, LPT, SPI; TCP/IP stack protocols (including those in wireless solutions).  
*Special purpose OS:* Linux-based servers, OpenWRT, Windows CE/Embedded.

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## Education

### National Research University — Higher School of Economics

- 2013 – present **Doctoral candidate**, *Faculty of Computer Science*.
- Thesis title (tentative): Methods and Tools for Enhancing the Efficiency of Process Mining Algorithms.
  - Supervisor: Prof. Dr. I. A. Lomazova.
  - PhD thesis defense (tentative) — Spring 2018.

- 2010–2012 **M.Sc.**, *School of Software Engineering at the Faculty of Business Informatics*.  
Diploma with highest honors, GPA 5.0.
- Specialty: Software development management.
  - Master's thesis subject: An SDVRP Platform Verification Method for Microprocessor-based Systems Software.
  - Supervisor: Prof. Dr. I. A. Lomazova.

### Moscow Technical University of Communications and Informatics

- 2007–2008 **Engineer**, *Information Technologies Faculty*.  
Diploma with highest honors, GPA 5.0.
- Department: Mathematical Cybernetics and Information Technologies.
  - Specialty: Computers, Complexes, Systems and Networks; diploma with highest honors.
  - Graduation paper subject: Development of a hardware and software suite which functions as a high-frequency generator and an amplitude- and phase-frequency characteristics meter.
- 2002–2007 **B.Sc.**, *Information Technologies Faculty*.  
Diploma with highest honors, GPA 5.0.
- Major: Informatics and Computer Engineering; diploma with highest honors.
  - Graduation thesis subject: Using embedded computing systems to control measuring equipment.

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## Experience

### National Research University Higher School of Economics

- 2015–present **research fellow**, *Laboratory of Process-Aware Information Systems, Faculty of Computer Science*.
- 2014–present **senior instructor**, *School of Software Engineering, Faculty of Computer Science*.
- Teaching the following courses: Programming, Algorithms and Data Structures, Software Design (joint course with TU/e, Netherlands), Design and Analysis of Algorithms, Android Applications Development; supervising bachelor's and master's students preparing their term papers and graduation theses.
- 2013–2014 **research fellow**, *International Laboratory of Process-Aware Information Systems*.
- 2013–2014 **instructor**, *Software Development Management Department*.

### Moscow Technical University of Communications and Informatics

- 2006–2012 **junior research associate**, *Scientific Research Unit*.
- Software development for software and hardware suites (including dual-purpose ones).  
Software specialisation: radioelectronic test and communications (including GSM) equipment control, compression and transmission of video (Wavelet) and audio data, highly loaded systems of transmission, processing and storage of multimedia information.
- 2008–2009 **assistant**, *Computing Mathematics and Programming Department*.
- Teaching "Algorithmic languages and programming", "Informatics" to students; supervising students' coursework.

### Radiocomp Ltd. (part-time)

- 2007–2012 **senior software engineer**, *R&D department*.
- Development, implementation and support of a radio components content management system on the basis of three-tier architecture.

## OJSC Research, Development & Production Enterprise “Zvezda”

- 2004–2005 **computer operator**, *ACS Division*.
- Typing, layout, making-up, prepress of scientific and technical publications.

## Foreign languages

English	<b>advanced</b>	<i>general and scientific vocabulary</i>
Deutsch	<b>A1</b>	<i>general vocabulary</i>

## Membership

- 2013–present **IEEE Task Force on Process Mining**.

## Scholarships, Internships and Certificates

- 2013 **Department of Mathematics and Computer Science, TU/e, Netherlands**, *visiting researcher*, under the supervision of Prof. Dr. Wil van der Aalst.
- 2010 **IFSM Pre-Congress Advanced Microscopy School**, *scholarship award*.

## Awards

- 2014, 2017 **Best Instructor**, *Higher School of Economics*, as voted by students.
- 2012 **Winner of the Student Research Projects Contest**, *Higher School of Economics*.

## Interests

Radioelectronics, digital equipment and technological processes of radio equipment production.

Lives a healthy lifestyle, does swimming. Interested in classical music, a pianist and a violin enthusiast. Regularly takes part in scientific conferences in Russia and abroad. Devotes his free time to travel to a considerable extent.

## Publications

- Sergey A. Shershakov, Anna A. Kalenkova, and Irina A. Lomazova. *Transition Systems Reduction: Balancing Between Precision and Simplicity*, pages 119–139. Springer Berlin Heidelberg, Berlin, Heidelberg, 2017.
- Ksenia V. Davydova and Sergey A. Shershakov. Mining hybrid UML models from event logs of SOA systems. In A.I. Avetisyan, editor, *Proceedings of the Institute for System Programming of the RAS*, volume 29, pages 155–174. ISP RAS, 2017.
- S. A. Shershakov. DPMine graphical language for automation of experiments in process mining. *Automatic Control and Computer Sciences*, 50(7):477–485, 2016.
- Sergey A. Shershakov, Anna A. Kalenkova, and Irina A. Lomazova. Transition systems reduction: Balancing between precision and simplicity. In W. van der Aalst, R. Bergenthum, and J. Carmona, editors, *CEUR Workshop Proceedings*, volume 1592 of *Algorithms & Theories for the Analysis of Event Data*, pages 78–95, 2016.
- Ksenia V. Davydova and Sergey A. Shershakov. Mining hierarchical UML sequence diagrams

from event logs of SOA systems while balancing between abstracted and detailed models. In Victor P. Ivannikov, editor, *Proceedings of the Institute for System Programming of the RAS*, volume 28, pages 85–102. ISP RAS, 2016.

- S. A. Shershakov and V. A. Rubin. System runs analysis with process mining. *Modeling and Analysis of Information Systems*, 22(6):818–833, December 2015.
- Sergey A. Shershakov. VTMine framework as applied to process mining modeling. *International Journal of Computer and Communication Engineering*, 4(3):166–179, May 2015.
- Polina Kim, Oleg Bulanov, and Sergey Shershakov. Component-based VTMine/C framework: Not only modelling. In Alexander Kamkin, Alexander Petrenko, and Andrey Terekhov, editors, *Proceedings of the 8th Spring/Summer Young Researchers' Colloquium on Software Engineering, SYRCoSE 2014*, pages 102–107. ISP RAS, 2014.
- S. Shershakov. DPMine/C: C++ library and graphical frontend for DPMine workflow language. In Alexander Kamkin, Alexander Petrenko, and Andrey Terekhov, editors, *Proceedings of the 8th Spring/Summer Young Researchers' Colloquium on Software Engineering, SYRCoSE 2014*, pages 96–101. ISP RAS, 2014.
- Alexey Mitsyuk, Anna Kalenkova, Sergey Shershakov, and Wil van der Aalst. Using process mining for the analysis of an e-trade system: A case study. *Business Informatics*, 29(3):15–27, 2014.
- S. A. Shershakov. DPMine graphical language for automation of experiments in process mining [in russian]. *Modeling and Analysis of Information Systems*, 21(5):102–115, 2014.
- Sergey Shershakov. DPMine/P: modeling and process mining language and ProM plug-ins. In Andrey N. Terekhov and Maxim Tsepkov, editors, *Proceedings of the 9th Central & Eastern European Software Engineering Conference in Russia*. ACM New York, NY, USA, 2013.
- S. Shershakov. DPMine: modeling and process mining tool. In *Proceedings of the 7th Spring/Summer Young Researchers' Colloquium on Software Engineering, SYRCoSE 2013*, 2013.
- S. A. Shershakov. *Principles of Development of an SDVRP System Component for Checking Safety Properties of ARM Microcontroller Firmware [in Russian]*, pages 112–128. Publishing house of the HSE, 2014.
- Sergey Shershakov. Verification of MCU-based systems software on an SDVRP platform. In *Proceedings of the International Conference on Electrical and Computer Systems. Ottawa, Canada, 22-24 August 2012. Paper No. 207*, 2012.
- Sergey Shershakov and Irina Lomazova. An SDVRP platform verification method for microprocessor-based systems software. In *Spring/Summer Young Researchers' Colloquium on Software Engineering (SYRCoSE 2012)*, 2012.
- V. N. Kochemasov, V. N. Kuleshov, V. G. Golubkov, A. V. Golubkov, and S. A. Shershakov. Measuring systems of scientific and educational purposes based on two-channel radio generator unit G4-RK2/150. *Proceedings of the Popov Russian Scientific-Technical Society of Radio Engineering, Electronics and Telecommunications*, LXV:128–130, 2010.
- V. G. Golubkov, A. V. Golubkov, A. V. Zakruzhnov, and S. A. Shershakov. Application of the G4-RK generator for producing LFM signals. In *Proceedings of the conference «The Information Society Technologies»*, page 69, 2007.