

# Alexander Rubtsov

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Born: February 24, 1990—Aktyubinsk, Kazah USSR  
Nationality: Russian

## Current position

*Research Fellow*, Laboratory of Theoretical Computer Science  
Higher School of Economics - National Research University  
*Associate Professor*, Higher School of Economics - National Research University  
*Associate Professor*, Moscow Institute of Physics and Technology

## Areas of specialization

Formal languages, automata theory, computational complexity  
Web-development, system administration

## Appointments held

2014-now Higher School of Economics - National Research University  
2012-now Moscow Institute of Physics and Technology  
2008-2017 Moscow School №25

## Education

2016 CANDIDATE OF SCIENCES (EQUIVALENT TO PH.D.) in discrete mathematics and mathematical cybernetics. Thesis "On regular realizability problem" defended at MIPT (adviser: M. N. Vyalyi).  
2013 MASTER OF SCIENCE in applied mathematics and physics. Thesis "On regular realizability problem" defended at MIPT (adviser: M. N. Vyalyi).  
2011 BACHELOR OF SCIENCE in applied mathematics and physics. Thesis "On generalized nondeterminism automata model" defended at MIPT (adviser: M. N. Vyalyi).

## Grants, honors & awards

2018-2019 RFBR grant 17-51-10005 (joint project with Royal Society, project code: IEC\R2\170123 )  
2017-2019 RFBR grant 17-01-00300  
2016-2018 RFBR grant 16-01-00362  
2014-2016 RFBR grant 14-01-00641  
2011-2013 RFBR grant 11-01-00398-a

## Publications & talks

- 2018a *A Structural Lemma for Deterministic Context-Free Languages* // Developments in Language Theory. Cham : Springer International Publishing, 2018. Pp. 553–565
- 2018b *On Emptiness and Membership Problems for Set Automata* // Computer Science – Theory and Applications. Cham : Springer International Publishing, 2018. Pp. 295–307 (joint work with M. N. Vyalyi)
- 2017 *On Computational Complexity of Set Automata* // Developments in Language Theory: 21st International Conference, DLT 2017, Liège, Belgium, August 7–11, 2017, Proceedings. Cham : Springer International Publishing, 2017. Pp. 332–344 (joint work with M. N. Vyalyi)
- 2015a *Regular Realizability Problems and Context-Free Languages* // Descriptive Complexity of Formal Systems. Vol. 9118. Springer International Publishing, 2015. Pp. 256–267 (joint work with M. N. Vyalyi)
- 2015b *On regular realizability problems for context-free languages* // Problems of Information Transmission. 2015. Vol. 51, no. 4. Pp. 349–360 (joint work with M. N. Vyalyi)
- 2014 *Regular realizability problems and context-free languages* // Abstracts of Reports and other materials of the 7th School “Computer Science Days in Ekaterinburg” (Aug. 23–25, 2014). Ekaterinburg, Russia : Ural University Press, 2014. Pp. 25–27
- 2012 *Algorithmic Decidability of Automata Behaviour Processing Infinite Words (in Russian)* // Discrete Analysis and Operation Research. 2012. Vol. 19, no. 2. Pp. 3–18 (joint work with M. N. Vyalyi)

## Teaching

- 2018–2019 Joint program of HSE and London School of Economics: discrete mathematics (in English, lecturer)
- 2018–now MIPT: discrete mathematics (lecturer)
- 2018–now MIPT: Fundamental Algorithms (lecturer)
- 2014–now HSE: discrete mathematics (lecturer since 2017)
- 2012–now MIPT: theory and realization of programming languages
- 2017–2018 MIPT: Analytic geometry and linear algebra
- 2015–2016 Technosphere/Lomonosov MSU : algorithm and data structures
- 2014–2017 MIPT: calculus
- 2013–2017 MIPT: algorithm and computational models
- 2013–2017 Lomonosov MSU: formal languages and automata theory
- 2008–2017 School №25: mathematics
- 2008–2017 School №25: advanced courses in computer science

## Service to the community

- 2018 Member of organizing committee of [the 13th International Computer Science Symposium in Russia](#)
- 2015–now Statute Committee member of [RCEATCS](#) (Russian Chapter of European Association for Theoretical Computer Science)
- 2014–2017 First year students supervisor at DCAM MIPT

## Selected skills in programming languages

C/C++, Ruby/Ruby on Rails.