Andrii Riazanov

✉ riazanov@cs.cmu.edu

Education

2017–Present Ph.D. in Algorithms, Combinatorics, Optimization (3rd year), **Carnegie Mellon University**, *Computer Science Department*.
Advisor: Venkatesan Guruswami
Research interests: coding theory, information theory, combinatorics, semidefinite programming, combinatorial optimization.

2013–2017 Bachelor of Science, **Moscow Institute of Physics and Technology**.
Department of Control and Applied Mathematics

Publications

V. Guruswami, A. Riazanov, M. Ye. "Arıkan meets Shannon: Polar codes with near-optimal convergence to channel capacity"
Preprint, arXiv:1911.03858.

V. Guruswami, A. Riazanov. "Beating Fredman-Komlós for perfect k-hashing"
ICALP 2019, ECCC TR18-096.

A. Riazanov, Y. Maximov, M. Chertkov. "Belief Propagation Min-Sum Algorithm for Generalized Min-Cost Network Flow"
ACC 2018, arXiv:1710.07600.

A. Riazanov, M. Vyalyiy. "Exploring the bounds on the positive semidefinite rank"
Manuscript (2017), arXiv:1704.06507.

A. Riazanov, M. Karasikov, S. Grudinin. "Inverse Protein Folding Problem via Quadratic Programming"
ITaS 2016, arXiv:1701.00673.

Research talks

Jul 2019 **ICALP 2019**, *Patras, Greece*.
"Beating Fredman-Komlós for perfect k-hashing"

Jun 2017 **The Second Alan Turing Contest in Theoretical Computer Science and Discrete Mathematics**, *St. Petersburg*.
"Exploring the bounds on the positive semidefinite rank", *2nd Prize Award*.

Jun 2017 **Ninth Traditional school "Control, Information, Optimization"**, *Moscow*.
"Exploring the bounds on the positive semidefinite rank"

Sep 2016 **Information Technologies and Systems 2016**, *St. Petersburg*.
"Inverse Protein Folding Problem via Quadratic Programming"

Jun 2016 **Eighth Traditional school "Control, Information, Optimization"**, *St. Petersburg*.
"Inverse Protein Folding Problem via Quadratic Programming"

Internships

Jan 2017 – Mar 2017   **Research Internship**, *Los Alamos National Laboratory*, Theoretical Division.
Hosts: Michael Chertkov, Yury Maximov.

Oct 2016 – Aug 2017   **Research Intern**, *Skolkovo Institute of Science and Technology*, Center for Energy Systems.
Development of numerical optimization techniques for power flow problems

Teaching Experience

Fall 2019   **Teaching Assistant**, *Carnegie Mellon University*.
15-455, Undergraduate Complexity Theory

Spring 2017   **Teaching Assistant**, *Moscow Institute of Physics and Technology*.
Seminars on *Algorithms* for undergraduate students

Awards and Honors

Fall 2016 – Spring 2017   **Increased State Academic Scholarship**, *for research achievements*.

Spring 2014 - Spring 2016   **Abramov Fund Scholarship**, *for learning progress and achievements*.

2013   **International Mathematical Olympiad (IMO)**, *Bronze Medal*, Colombia, Santa Marta.

2012, 2013   **Romanian Masters of Mathematics**, *Honorable Mention*, Romania, Bucharest.

2011, 2012, 2013   **National Ukrainian Olympiad in Mathematics**, *1st, 3rd, 2nd Diplomas*, Ukraine.