

Boris Zolotov

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Research Interests

Theoretical computer science: algorithms, data structures, computational geometry, automated proof systems

Education

2021–present	Ph. D. student , St. Petersburg State University, Department of Mathematics and Computer Sciences, Researcher / Engineer , Euler International Mathematical Institute
2019–2021	MSc , St. Petersburg State University, Department of Mathematics and Computer Sciences, „Advanced Mathematics“ MSc programme Title Algorithms for Dynamic Voronoi Diagrams Supervisor Candidate of Physics and Mathematics E. A. Arseneva Grade Excellent
2015–2019	BSc , St. Petersburg State University, Department of Mathematics and Computer Sciences, „Mathematics“ BSc programme, bachelor’s thesis: Title Algorithmic Aspects of Alexandrov’s Uniqueness Theorem Supervisor Candidate of Physics and Mathematics E. A. Arseneva Grade Excellent

Student exchanges and internships

10.2020 — 01.2021	ULB, Brussels, Master en sciences informatiques, Faculté des Sciences (via competitive selection at SPBU)
Courses	Info-F409 Learning Dynamics Info-F420 Computational Geometry Info-F521 Graphs and Networks Info-F413 Data Structures and Algorithms Math-F513 Riemann Surfaces Info-Y085 Functional Programming

Grants

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| January 2020 | Russian Foundation for Basic Research (RFBR), participant. Project title: Problems on the Border of Combinatorics and Computational Geometry |
| September 2019 | 2019 competition of the Foundation for the Advancement of Theoretical Physics and Mathematics „BASIS“, participant |

Teaching experience

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| 2025–present | “Advanced Data Structures” ,
III–IV year undergraduates, SPbU |
| 2023–present | Seminars in Theoretical Computer Science ,
(algorithms, their implementation on C++, and related problems)
I–II semester undergraduates, SPbU |
| 09.–12.2022 | Seminars in Logic ,
V semester undergraduates, SPbU |
| 2015–present | Additional courses tutor ,
Laboratory for Continuous Mathematical Education, St. Petersburg |
| 2015–present | Supervisor of research projects for the youth,
Laboratory for Continuous Mathematical Education, St. Petersburg |
| 2015–present | Summer school courses tutor ,
Laboratory for Continuous Mathematical Education, St. Petersburg |
| 2018–2022 | Mathematics for Olympiads tutor ,
„Fractal“, St. Petersburg |

Programming projects

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| Fall 2022 | <i>Profitability and accounting of goods</i> , soap factory “Aist”,
Python, SQL |
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Schools and workshops

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| January 2025 | Lecturer , Winter Students’ School on mathematics and theoretical computer science, HSE, Moscow |
| June 2019 | Second Trans-Siberian Workshop on
Computational Geometry and Data Structures |
| November 2016 | Winter School on cubic plane curves, HSE, Moscow |

Community service

August 2021	Volunteer , Conference of International Mathematical Centers
August 2021	Volunteer , XX-th International Congress on Mathematical Physics and Young Researchers Symposium
April 2021	Local organising committee of EuroCG 2021
April 2018 — 2019	Assistant T_EX-er of Joint Projects of PJSC Gazprom Neft and Chebyshev Laboratory
2016–present	Supervisor of the project , „Mathematics Non-Stop“, Time for Science foundation
2016–2020	Organising committee and jury , Saint Petersburg tournaments of young mathematicians
02.2018, 2019, 2020	Jury , Baltic Science And Engineering Fair

Preprints and Work in Progress

2023–2024	“Doubly-periodic string comparison” (“Affine LCS”) (in <i>Combinatorial Pattern Matching</i> , with A. Tiskin and N. Gaevoy)
2023–present	“An Optimal Local Edit Distance Oracle” (with A. Tiskin and N. Gaevoy)
2025–present	“Speeding up the BSP Convex Hull Algorithm” (with A. Tiskin and P. Minkin)

Books and Brochures (in Russian)

February 2019	Б. А. Золотов, Д. Г. Штукенберг, И. А. Чистяков, А. В. Семенов, И. С. Алексеев, <i>Сборник задач олимпиады «Математика НОН-СТОП»</i> , 373 с., ISBN 978-5-906623-38-6
December 2019	Б. А. Золотов, Д. Г. Штукенберг, <i>Математика НОН-СТОП—2019. Решения задач олимпиады</i> , 72 с., ISBN 978-5-906623-47-8
December 2020	Б. А. Золотов, Е. И. Тодоров, Д. Г. Штукенберг, <i>Математика НОН-СТОП—2020. Решения задач олимпиады</i> , 80 с., ISBN 978-5-6045675-2-4

Publications and Conferences

- [1] Elena Arseneva, John Iacono, Greg Koumoutsos, Stefan Langerman, and Boris Zolotov. Sublinear Explicit Incremental Planar Voronoi Diagrams. In *The 22-nd Japan Conference on Discrete and Computational Geometry, Graphs, and Games*, pages 33–34, September 2019.
- [2] Elena Arseneva, John Iacono, Grigorios Koumoutsos, Stefan Langerman, and Boris Zolotov. Sublinear Explicit Incremental Planar Voronoi Diagrams. *Journal of Information Processing*, 28:766–774, 2020.
- [3] Elena Arseneva, Stefan Langerman, and Boris Zolotov. A Complete List of All Convex Polyhedra Made by Gluing Regular Pentagons. In *The 22-nd Japan Conference on Discrete and Computational Geometry, Graphs, and Games*, pages 33–34, September 2019.
- [4] Elena Arseneva, Stefan Langerman, and Boris Zolotov. A complete list of all convex polyhedra made by gluing regular pentagons. In *XVIII Spanish Meeting on Computational Geometry*, pages 26–29, July 2019.
- [5] Elena Arseneva, Stefan Langerman, and Boris Zolotov. A Complete List of All Convex Polyhedra Made by Gluing Regular Pentagons. *Journal of Information Processing*, 28:791–799, 2020.
- [6] Stefan Langerman, Nicolas Potvin, and Boris Zolotov. Enumerating All Convex Polyhedra Glued from Squares in Polynomial Time. In *CG Week Young Researchers Forum 2021*, pages 61–64, June 2021. Based on the project prepared during an exchange semester at ULB.
- [7] Stefan Langerman, Nicolas Potvin, and Boris Zolotov. Enumerating All Convex Polyhedra Glued from Squares in Polynomial Time. *arXiv.org*, April 2021.
- [8] Boris Zolotov. Another Solution to the Thue Problem of Non-Repeating Words. *arXiv.org*, May 2015.
- [9] Boris Zolotov. Algorithmic Aspects of Alexandrov’s Uniqueness Theorem. *Bachelor’s thesis at the Faculty of Mathematics and Computer Sciences, SPBU*, pages 1–31, 2019.
- [10] Boris Zolotov. Algorithms for Dynamic Voronoi Diagrams. *Master’s thesis at the Faculty of Mathematics and Computer Sciences, SPBU*, pages 1–29, 2021.
- [11] Boris Zolotov. On a local edit distance oracle. In *III-rd Conference of Mathematical centers of Russia*, 2023.
- [12] Boris Zolotov. Doubly periodic string comparison. In *IV-th Conference of Mathematical centers of Russia*, 2024.