Danil Sagunov

✉ danilka.pro@gmail.com
danilka.pro

Education

St. Petersburg Department of Steklov Institute of Mathematics of the Russian Academy of Sciences. 2019–2023

Ph.D. student, Laboratory of Mathematical Logic
- Advisor: Ivan Bliznets
- Major: Theoretical Computer Science

St. Petersburg Academic University of the Russian Academy of Sciences. 2017–2019

M.Sc., Department of Mathematics and Information Technology
- Thesis title: "Algorithms and Lower Bounds for the Target Set Selection Problem"
- Preprint (in Russian): link
- Advisor: Ivan Bliznets
- Major: Theoretical Computer Science

Saratov State University. 2013–2017

B.Sc., Department of Mathematical Cybernetics and Computer Science
- Graduation project: "Graphs as a Representation of Program Output Context"
- Preprint (in Russian): link
- Advisor: Alexander Ivanov
- Major: Software Engineering

Research interests

exact algorithms • parameterized complexity • kernelization • algorithms for NP-hard problems • algorithmic graph theory • computational complexity

Employment and Teaching

TCS Lab of ITMO University, *Senior Researcher*, St. Petersburg, Russia. **2024-present**

A. A. Markov Laboratory for Computer Science, Mathematics and Artificial Intelligence of Saint Petersburg State University, *Middle Researcher*, St. Petersburg, Russia. **2025-present**

Computer Science Space, *Academic Supervisor | Teacher*, St. Petersburg, Russia. **2025-present**

Saint Petersburg State University, *Algorithms and Theoretical Computer Science Teacher*, St. Petersburg, Russia. **2019-present**

Huawei Russian Research Institute, *Senior Research Engineer*, St. Petersburg, Russia. **2022-2025**

researching and developing advanced graph algorithms

JetBrains Research, *Senior Researcher*, St. Petersburg, Russia. **2021-2022**

St. Petersburg Department of Steklov Institute of Mathematics of the Russian Academy of Sciences, *Junior Researcher*, St. Petersburg, Russia. **2019-2022**

Higher School of Economics, *Algorithms and Computational Complexity Teacher*, St. Petersburg, Russia. 2019-2022
teaching students in computational complexity and modern algorithms

Saratov State University, *Algorithms and Programming Teacher*, Saratov, Russia. 2014–2017
preparing students for programming contests

HackerRank, *Problem Coordinator*. 2016-2017
preparing and testing programming contest rounds

Codeforces, *Problem Coordinator*. 2016
preparing and testing programming contest rounds

Displair Inc., *Android Software Developer*, Astrakhan, Russia. 2012
developing low-level Android emulation software

Selected Publications (full at [dblp])

- Fedor V. Fomin, Petr A. Golovach, Danil Sagunov, and Kirill Simonov. **Tree Containment Above Minimum Degree is FPT**. In *Proceedings of the 2024 ACM-SIAM Symposium on Discrete Algorithms, SODA 2024, Alexandria, VA, USA, January 7-10, 2024*, pages 366–376. SIAM, 2024.

- Fedor V. Fomin, Petr A. Golovach, Lars Jaffke, Geevarghese Philip, and Danil Sagunov. **Diverse Pairs of Matchings**. *Algorithmica*, 86(6):2026–2040, 2024.

- Ivan Bliznets, Danil Sagunov, and Kirill Simonov. **Fine-grained Complexity of Partial Minimum Satisfiability**. In *Proceedings of the Thirty-First International Joint Conference on Artificial Intelligence, IJCAI 2022, Vienna, Austria, 23-29 July 2022*, pages 1774–1780. ijcai.org, 2022.

- Fedor V. Fomin, Petr A. Golovach, William Lochet, Danil Sagunov, Kirill Simonov, and Saket Saurabh. **Detours in Directed Graphs**. In *39th International Symposium on Theoretical Aspects of Computer Science, STACS 2022, March 15-18, 2022, Marseille, France (Virtual Conference)*, 2022.

- Fedor V. Fomin, Petr A. Golovach, Danil Sagunov, and Kirill Simonov. **Approximating Long Cycle Above Dirac's Guarantee**. In *50th International Colloquium on Automata, Languages, and Programming, ICALP 2023, July 10-14, 2023, Paderborn, Germany*, volume 261 of *LIPIcs*, pages 60:1–60:18. Schloss Dagstuhl – Leibniz-Zentrum für Informatik, 2023.

- Ivan Bliznets and Danil Sagunov. **Solving Target Set Selection with Bounded Thresholds Faster than 2^n**. *Algorithmica*, 85(2):384–405, 2023.

- Fedor V. Fomin, Petr A. Golovach, Danil Sagunov, and Kirill Simonov. **Turán's Theorem Through Algorithmic Lens**. In *Graph-Theoretic Concepts in Computer Science - 49th International Workshop, WG 2023, Fribourg, Switzerland, June 28-30, 2023, Revised Selected Papers*, volume 14093 of *Lecture Notes in Computer Science*, pages 348–362. Springer, 2023.

- Fedor V. Fomin, Petr A. Golovach, Danil Sagunov, and Kirill Simonov. **Algorithmic Extensions of Dirac's Theorem**. In *Proceedings of the 2022 ACM-SIAM Symposium on Discrete Algorithms, SODA 2022, Virtual Conference | Alexandria, VA, USA, January 9 - 12, 2022*, pages 406–416. SIAM, 2022.

- Fedor V. Fomin, Petr A. Golovach, Danil Sagunov, and Kirill Simonov. **Longest Cycle Above Erdős-Gallai Bound**. In *30th Annual European Symposium on Algorithms, ESA 2022, September 5-9, 2022, Berlin/Potsdam, Germany*, volume 244 of *LIPIcs*, pages 55:1–55:15. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2022.

- Fedor V. Fomin, Danil Sagunov, and Kirill Simonov. **Building Large k-Cores from Sparse Graphs**. In *45th International Symposium on Mathematical Foundations of Computer Science, MFCS 2020, August 24-28, 2020, Prague, Czech Republic*, volume 170 of *LIPIcs*, pages 35:1–35:14. Schloss Dagstuhl - Leibniz-Zentrum für Informatik, 2020.

Additional projects

School programming team coach, Saratov, Russia. 2016

Jury member of regional stage of the All-Russian Olympiad in Informatics, Saratov, Russia. 2015–2016

Jury member of regional stage of the All-Russian Team Olympiad in Informatics, Saratov, Russia. 2015–2016

Developer of The Mana World & Evol Online open-source projects, on-line. 2011-2019

Honors and awards

Eighth Place in Google Hash Code Final Round, Dublin, Ireland. 2018

Second Degree Diploma in ACM ICPC Northeastern Europe Subregional Contest, St. Petersburg, Russia. 2016

Fourteenth Place in The 40th Annual ACM-ICPC World Finals, Phuket, Thailand. 2016

Ninth Place in ACM ICPC Northeastern Europe Subregional Contest, St. Petersburg, Russia. 2015

Schools and conferences attended

Summer Program for Students at MIPT, Dolgoprudny, Moscow, Russia. July 2025

The 28th International Computing and Combinatorics Conference (COCOON 2022), on-line. October 2022

14th Latin American Theoretical Informatics Symposium (LATIN 2020), on-line. January 2021

45th International Symposium on Mathematical Foundations of Computer Science (MFCS 2020), on-line. August 2020

The 25th International Computing and Combinatorics Conference (COCOON 2019), Xian, China. August 2019

45th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2019), Vall de Núria, Spain. June 2019

The 17th Annual Winter School in Algorithms, Graph Theory and Combinatorics, Finse, Norway. March 2019

ALGO 2018, Helsinki, Finland. **August 2018**

Summer School on Algorithms and Lower Bounds, Prague, Czech Republic. **July 2018**

Recent Advances in Algorithms (RAA 2018), St. Petersburg, Russia. **May 2018**

Talks

Two Generalizations of Proper Coloring: Hardness and Approximability, *The 28th International Computing and Combinatorics Conference (COCOON 2022)*, on-line. **October 2022**

Algorithmic Extensions of Dirac's Theorem, *Frontiers of Parameterized Complexity*, on-line, talk record on YouTube. **March 2021**

Algorithmic Extensions of Dirac's Theorem, *Parameterized Complexity Seminar*, on-line, talk record on YouTube. **February 2021**

Maximizing Happiness in Graphs of Bounded Clique-Width, *14th Latin American Theoretical Informatics Symposium (LATIN 2020)*, on-line, talk record on YouTube. **January 2021**

Building Large k-Cores from Sparse Graphs, *45th International Symposium on Mathematical Foundations of Computer Science (MFCS 2020)*, on-line, talk record on YouTube. **August 2020**

Lower Bounds for the Happy Coloring Problems, *The 25th International Computing and Combinatorics Conference (COCOON 2019)*, Xian, China. **August 2019**

On Happy Colorings, Cuts, and Structural Parameterizations, *45th International Workshop on Graph-Theoretic Concepts in Computer Science (WG 2019)*, Vall de Núria, Spain. **June 2019**

Parameterized Complexity of the Happy Coloring Problems, *The 17th Annual Winter School in Algorithms, Graph Theory and Combinatorics*, Finse, Norway. **March 2019**

Solving Target Set Selection with Bounded Thresholds Faster than 2^n., *IPEC 2018*, Helsinki, Finland. **August 2018**

Lower bounds and exact exponential algorithms for the Target Set Selection problem, *Workshop of Summer School on Algorithms and Lower Bounds, ICALP 2018*, Prague, Czech Republic. **July 2018**

References

Ivan Bliznets (advisor), iabliznets@gmail.com.
University of Groningen

Fedor V. Fomin, fomin@ii.uib.no.
Department of Informatics at University of Bergen