

Ludmila Glinskih

PhD in Computer Science, Software Engineer at Google Ads
with expertise in Computational Complexity and Differential Privacy
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Education

Boston University PhD , <i>Computer Science</i> M.Sc. , <i>Computer Science</i> Advisors: Dr. Sofya Raskhodnikova and Dr. Mark Bun Thesis: Circuits and Branching Programs in Meta-Complexity	2019 – 2024
St. Petersburg Academic University of the Russian Academy of Sciences M.Sc. , <i>Theoretical Computer Science</i> Thesis: Branching Program Complexity of Satisfiable Tseitin Formulas	2015 – 2017
Peter the Great Saint-Petersburg Polytechnic University B.Sc. , <i>Applied Mathematics and Computer Science</i> Thesis: Verification of Automata-Based Programs via Model Checking	2009 – 2014

Research Positions

Boston University Graduate Research Fellow Conducted research on computational complexity, differential privacy, formal methods, computational learning, and sublinear-time algorithms.	Sep 2019 – Jun 2024
Tumult Labs Scientist Intern Conducted research on automatic sensitivity bounding and differentially private algorithms.	May 2023 – Aug 2023
Simons Institute for the Theory of Computing, UC Berkeley Visiting Researcher Participated in a special semester on Meta-Complexity. Conducted research in circuit complexity and structural complexity.	Jan 2023 – May 2023
Google Sunnyvale Research Intern (<i>Anonymization Team</i>) Conducted research and ran analysis of efficiency and accuracy of various algorithms for sensitivity bounding of differentially private queries in ZetaSQL (https://github.com/google/zetasql).	May 2022 – Aug 2022
Google San Francisco Research Intern (<i>Cobalt</i>) Added a Golang library for optimal computations of privacy encoding parameters in Cobalt – a framework for differentially private telemetry collection (https://fuchsia.googlesource.com/cobalt). Implemented a Golang library for fast computations of privacy loss distribution.	May 2021 – Aug 2021
St. Petersburg Department of V.A. Steklov Institute of Mathematics RAS Graduate Researcher (<i>Laboratory of Mathematical Logic</i>) Conducted research in circuit complexity and proof complexity.	Oct 2017 – Sep 2019

Publications

Fast Agnostic Learners on the Plane

Talya Eden, Ludmila Glinskih, and Sofya Raskhodnikova
In submission

Partial Minimum Branching Program Size Problem is ETH-hard

Ludmila Glinskih and Artur Riazanov
ITCS 2025

MCSP is Hard for Read-Once Nondeterministic Branching Programs

Ludmila Glinskih and Artur Riazanov
LATIN 2022

The Complexity of Verifying Boolean Programs as Differentially Private

Mark Bun, Marco Gaboardi, Ludmila Glinskih
IEEE CSF 2022

On Tseitin Formulas, Read-Once Branching Programs and Treewidth

Ludmila Glinskih, Dmitry Itsykson
CSR 2019, **Best Paper Award winner**, invited to special issue of Theory of Computing Systems

Satisfiable Tseitin formulas are hard for nondeterministic read-once branching programs

Ludmila Glinskih and Dmitry Itsykson
MFCS 2017

Scholarships and Awards

CCC Travel Grant

To participate in the CCC 2023

July 2023

TCS for All Travel Scholarship

To participate in the ACM STOC 2023

June 2023

Early-Career AMS-NSF-Simons-ICM Travel Grant

To participate in the International Congress of Mathematicians

July 2022

Dean's Fellowship

Awarded to PhD students at Boston University

Fall 2019

CSR 2019 Best Paper Award

Paper: *On Tseitin Formulas, Read-Once Branching Programs and Treewidth*
Ludmila Glinskih, Dmitry Itsykson

July 2019

TCS Women Travel Scholarship

To participate in the ACM STOC 2018

June 2018

Yandex Research Fellowship

Awarded to Master's students at St. Petersburg Academic University RAS

Fall 2015 – Spring 2017

Teaching

Teaching Fellow <i>CS 530: Graduate Advanced Algorithms</i> Taught by Steven Homer at Boston University	Fall 2022
Grader <i>CS537: Graduate Randomness in Computing</i> Taught by Sofya Raskhodnikova at Boston University	Fall 2021
Teaching Fellow <i>CS 535: Graduate Complexity Theory</i> Taught by Mark Bun at Boston University	Fall 2020
Teaching Assistant <i>Complexity Theory and Randomized Algorithms</i> Taught by Ivan Bliznets at St. Petersburg Academic University RAS	Spring 2018

Advising

Maksim Lonishin and Ilya Kleopatrov <i>Project: Complexity of Representing Boolean Functions via Branching Programs</i> A year-long research project of high school students at Lyceum "Physical-Technical High School" (http://www.school.ioffe.ru/)	Sep 2021 – May 2022
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Academic Service

Program Committee Member for AAAI PPAI 2025, TPDP 2024, AAAI PPAI 2024	
Reviewer for NeurIPS 2024, ICALP 2024, ICALP 2022, ACM STOC 2020, CSR 2019	
Organizer of a reading group on a Minimum Circuit Size Problem (MCSP) at Boston University	Jun 2020 – Aug 2021
Author of a Telegram channel (in Russian) with advice for junior researchers	2018 – present

Software Engineering Positions

Google San Francisco Software Engineer (<i>Ads, Privacy Centric Measurements</i>) Work on improving Google Ads measurements while preserving users' privacy.	Jul 2024 – now
Google Zurich Site Reliability Engineering Intern (<i>Serving Backend SRE Team</i>) Added support of integration testing and multiple integration tests for an internal load testing tool used for testing Google Search. Used internal configuration languages and Python.	Apr 2019 – Jul 2019

Google London Site Reliability Engineering Intern (<i>SRE Traffic Team</i>) Added dynamical status updates to the internal code review tool from the tool that automatically rebuilds configuration files. Used Golang.	Jun 2017 – Sep 2017
Google Zurich Site Reliability Engineering Intern (<i>YouTube Core SRE Team</i>) Added support of refined estimations of load on YouTube backends to improve resistance of YouTube internal services from overloading by requests from internal users. Used Python, C++, and JavaScript.	Jul 2016 – Oct 2016
FFmpeg Software Engineering Intern Built a suite of tests in C for FFmpeg API.	May 2015 – Aug 2015

Selected Talks

<i>The Complexity of Verifying Boolean Programs as Differentially Private</i> Microsoft Research, Cambridge, UK	Oct 25, 2024
<i>Circuits and Branching Programs in Meta-Complexity</i> Thesis Defense, Boston University, Boston, USA	Apr 5, 2024
<i>Partial Minimum Branching Program Size Problem is ETH-Hard</i> Meta-Complexity Reunion, Simons Institute for the Theory of Computing, Berkeley, USA	Apr 15, 2024
<i>Branching Program Complexity of Minimization Problems</i> Theory Seminar, Boston University, Boston, USA	Nov 20, 2023
<i>MCSP is Hard for Read-Once Nondeterministic Branching Programs</i> Student Seminar, Simons Institute, Berkeley, USA	Apr 20, 2023
<i>The Complexity of Verifying Boolean Programs as Differentially Private</i> IEEE CSF 2022, Haifa, Israel	Aug 11, 2022
<i>The Role of Pseudorandomness in (Computational) Differential Privacy</i> Qualifying Oral Exam, Boston University, Boston, USA	Dec 20, 2021
<i>The Complexity of Verifying Boolean Programs as Differentially Private</i> Seminar of the Privacy Tools Project, Harvard University, Virtual	Nov 22, 2021
<i>Circuit Lower Bounds from NP-Hardness of MCSP Under Turing Reductions</i> MCSP reading group, Boston University, Boston, USA	Feb 22, 2021
<i>Relations and Equivalences Between Circuit Lower Bounds and Karp-Lipton Theorems</i> MCSP reading group, Boston University, Boston, USA	Nov 2, 2020
<i>Lower bounds for MCSP for restricted circuit models</i> MCSP reading group, Boston University, Boston, USA	Aug 6, 2020
<i>On branching programs, Tseitin formulas and tree-width</i> 24th Estonian Winter School in Computer Science, Palmse, Estonia	Mar 7, 2019

<i>Lower bounds on Branching Programs and Formulas for Orthogonal Vectors</i> Seminar of the Laboratory of Algorithmic Methods, PDMI RAS, St. Petersburg, Russia	Nov 16, 2018
<i>Lower bound for read-once nondeterministic branching program for satisfiable Tseitin formula using tree-width</i> Invited talk at the workshop of Summer School on Algorithms and Lower Bounds, Satellite workshop of ICALP, Prague, Czech Republic	Jul 9, 2018
<i>On branching programs, Tseitin formulas and tree-width</i> Poster at ACM STOC, Los Angeles, USA	Jun 26, 2018
<i>Lower Bounds for Nondeterministic Semantic Read-Once Branching Programs</i> Complexity Seminar, PDMI RAS, St. Petersburg Russia	May 4, 2018
<i>Satisfiable Tseitin formulas are hard for nondeterministic read-once branching programs</i> MFCS, Aalborg, Denmark	Aug 25, 2017
<i>Techniques of proving lower bounds on Query Complexity</i> Seminar on Sublinear Algorithms, Computer Science Club, St. Petersburg, Russia	Oct 14, 2016

Other Activities

Maintainer of FFmpeg, responsible for API test <i>FFmpeg is the leading open source multimedia framework</i>	2015 – present
Member of the University Women's Soccer Team at SPbPU	2009 – 2014

Additional Education

Swiss Winter School on Theoretical Computer Science, Zion, Switzerland <i>Expenses covered by a scholarship from the organizers</i>	Jan 29 – Feb 3, 2023
Hilbert–Bernays Summer School on Logic and Computation, Tübingen, Germany <i>Expenses covered by a scholarship from the organizers</i>	Jul 21 – Jul 27, 2019
Caleidoscope: Complexity as a Kaleidoscope, Paris, France	Jun 17 – Jun 21, 2019
24th Estonian Winter School in Computer Science, Palmse, Estonia <i>Expenses covered by a scholarship from the organizers</i>	Mar 3 – Mar 8, 2019
PDMI RAS Computer Science Club (https://compsclub.ru/en/) St. Petersburg Russia	Sep 2013 – Feb 2019
Summer School on Algorithms and Lower Bounds, Prague, Czech Republic	Jul 6 – Jul 9, 2018

Expenses covered by a scholarship from the organizers

Recent Advances in Algorithms,
St. Petersburg, Russia

May 22 – May 26, 2018

Recent Advances in Parameterized Complexity,
Tel Aviv, Israel

Dec 3 – Dec 7, 2017

Swedish Summer School in Computer Science (S3CS),
Stockholm, Sweden

Jul 16 – Jul 22, 2017

Expenses covered by a scholarship from the organizers

A Special Semester on Computational and Proof Complexity,
St. Petersburg, Russia

Apr – Jun, 2016