Ludmila Glinskih

PhD in Computer Science, Software Engineer at Google Ads
with expertise in Computational Complexity and Differential Privacy
lglinskih@gmail.com, *https://lglinskih.com*

Education

Boston University   2019 – 2024
PhD, *Computer Science*
M.Sc., *Computer Science*
Advisors: Dr. Sofya Raskhodnikova and Dr. Mark Bun
Thesis: Circuits and Branching Programs in Meta-Complexity

St. Petersburg Academic University of the Russian Academy of Sciences   2015 – 2017
M.Sc., *Theoretical Computer Science*
Thesis: Branching Program Complexity of Satisfiable Tseitin Formulas

Peter the Great Saint-Petersburg Polytechnic University   2009 – 2014
B.Sc., *Applied Mathematics and Computer Science*
Thesis: Verification of Automata-Based Programs via Model Checking

Research Positions

Boston University   Sep 2019 – Jun 2024
Graduate Research Fellow
Conducted research on computational complexity, differential privacy, formal methods,
computational learning, and sublinear-time algorithms.

Tumult Labs   May 2023 – Aug 2023
Scientist Intern
Conducted research on automatic sensitivity bounding and differentially private
algorithms.

Simons Institute for the Theory of Computing, UC Berkeley   Jan 2023 – May 2023
Visiting Researcher
Participated in a special semester on Meta-Complexity. Conducted research in circuit
complexity and structural complexity.

Google Sunnyvale   May 2022 – Aug 2022
Research Intern (*Anonymization Team*)
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).

Google San Francisco   May 2021 – Aug 2021
Research Intern (*Cobalt)*
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.

St. Petersburg Department of V.A. Steklov Institute of Mathematics RAS   Oct 2017 – Sep 2019
Graduate Researcher (*Laboratory of Mathematical Logic*)
Conducted research in circuit complexity and proof complexity.

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
In submission

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   July 2023
To participate in the CCC 2023

TCS for All Travel Scholarship   June 2023
To participate in the ACM STOC 2023

Early-Career AMS-NSF-Simons-ICM Travel Grant   July 2022
To participate in the International Congress of Mathematicians

Dean's Fellowship   Fall 2019
Awarded to PhD students at Boston University

CSR 2019 Best Paper Award   July 2019
Paper: *On Tseitin Formulas, Read-Once Branching Programs and Treewidth*
Ludmila Glinskih, Dmitry Itsykson

TCS Women Travel Scholarship   June 2018
To participate in the ACM STOC 2018

Yandex Research Fellowship   Fall 2015 – Spring 2017
Awarded to Master's students at St. Petersburg Academic University RAS

Teaching

Teaching Fellow   Fall 2022
CS 530: Graduate Advanced Algorithms
Taught by Steven Homer at Boston University

Grader   Fall 2021
CS537: *Graduate Randomness in Computing*
Taught by Sofya Raskhodnikova at Boston University

Teaching Fellow   Fall 2020
CS 535: Graduate Complexity Theory
Taught by Mark Bun at Boston University

Teaching Assistant   Spring 2018
Complexity Theory and Randomized Algorithms
Taught by Ivan Bliznets at St. Petersburg Academic University RAS

Advising

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

Academic Service

Program Committee Member for 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)   Jun 2020 – Aug 2021
at Boston University

Author of a Telegram channel (in Russian) with advice for junior researchers   2018 – present

Software Engineering Positions

Google San Francisco   Jul 2024 – now
Software Engineer (*Ads, Privacy Centric Measurements)*
Work on improving Google Ads measurements while preserving users' privacy.

Google Zurich   Apr 2019 – Jul 2019
Site Reliability Engineering Intern (*Serving Backend SRE Team)*
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.

Google London   Jun 2017 – Sep 2017
Site Reliability Engineering Intern (*SRE Traffic Team*)
Added dynamical status updates to the internal code review tool from the tool that
automatically rebuilds configuration files. Used Golang.

Google Zurich   Jul 2016 – Oct 2016
Site Reliability Engineering Intern (*YouTube Core SRE Team*)
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.

FFmpeg   May 2015 – Aug 2015
Software Engineering Intern
Built a suite of tests in C for FFmpeg API.

Selected Talks

Circuits and Branching Programs in Meta-Complexity   Apr 5, 2024
Thesis Defense, Boston University, Boston, USA

Partial Minimum Branching Program Size Problem is ETH-Hard   Apr 15, 2024
Meta-Complexity Reunion, Simons Institute for the Theory of Computing, Berkeley, USA

Branching Program Complexity of Minimization Problems   Nov 20, 2023
Theory Seminar, Boston University, Boston, USA

MCSP is Hard for Read-Once Nondeterministic Branching Programs   Apr 20, 2023
Student Seminar, Simons Institute, Berkeley, USA

The Complexity of Verifying Boolean Programs as Differentially Private Aug 11, 2022
CSF 2022, Haifa, Israel

The Role of Pseudorandomness in (Computational) Differential Privacy   Dec 20, 2021
Qualifying Oral Exam, Boston University, Boston, USA

The Complexity of Verifying Boolean Programs as Differentially Private Nov 22, 2021
Seminar of the Privacy Tools Project, Harvard University, Virtual

Circuit Lower Bounds from NP-Hardness of MCSP Under Turing Reductions Feb 22, 2021
MCSP reading group, Boston University, Boston, USA

Relations and Equivalences Between Circuit Lower Bounds and Karp-Lipton Theorems Nov 2, 2020
MCSP reading group, Boston University, Boston, USA

Lower bounds for MCSP for restricted circuit models   Aug 6, 2020
MCSP reading group, Boston University, Boston, USA

On branching programs, Tseitin formulas and tree-width   Mar 7, 2019
24th Estonian Winter School in Computer Science, Palmse, Estonia

Lower bounds on Branching Programs and Formulas for Orthogonal Vectors Nov 16, 2018
Seminar of the Laboratory of Algorithmic Methods, PDMI RAS, St. Petersburg, Russia

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

Other Activities

Maintainer of FFmpeg, responsible for API test *FFmpeg is the leading open source multimedia framework*	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 *Expenses covered by a scholarship from the organizers*	Jan 29 – Feb 3, 2023
Hilbert–Bernays Summer School on Logic and Computation, Tübingen, Germany *Expenses covered by a scholarship from the organizers*	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 *Expenses covered by a scholarship from the organizers*	Mar 3 – Mar 8, 2019
PDMI RAS Computer Science Club (https://compsciclub.ru/en/) St. Petersburg Russia	Sep 2013 – Feb 2019
Summer School on Algorithms and Lower Bounds, Prague, Czech Republic *Expenses covered by a scholarship from the organizers*	Jul 6 – Jul 9, 2018

Recent Advances in Algorithms,   May 22 – May 26, 2018
St. Petersburg, Russia

Recent Advances in Parameterized Complexity,   Dec 3 – Dec 7, 2017
Tel Aviv, Israel

Swedish Summer School in Computer Science (S3CS),   Jul 16 – Jul 22, 2017
Stockholm, Sweden
Expenses covered by a scholarship from the organizers

A Special Semester on Computational and Proof Complexity,   Apr – Jun, 2016
St. Petersburg, Russia