# Ludmila Glinskih

PhD Candidate at Boston University
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## Education

Boston University                                               2019 – present
**PhD** (in progress), *Computer Science*
**M.Sc.**, *Computer Science*
Advisors: Dr. Sofya Raskhodnikova and Dr. Mark Bun
GPA: 3.97

St. Petersburg Academic University of Russian Academy of Sciences           2015 – 2017
**M.Sc.**, *Theoretical Computer Science*
Thesis: **"Satisfiable Tseitin formulas are hard for nondeterministic read-once branching programs"**

Peter the Great Saint-Petersburg Polytechnic University                 2009 – 2014
**B.Sc.**, *Applied Mathematics and Computer Science*

## Research Positions

**Tumult Labs**                                              May 2023 – Aug 2023
Scientist Intern
Conducted research on differential private algorithms.

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

**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 and proof complexity.

## Publications

*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
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

**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

Reviewer for CSR 2019, STOC 2020, ICALP 2022

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 Sunnyvale**      May 2022 – Aug 2022
Software Engineering Intern (Anonymization Team)
Conducted research and ran analysis of efficiency and accuracy of the various algorithms
for sensitivity bounding of differentially private queries in ZetaSQL
([https://github.com/google/zetasql](https://github.com/google/zetasql)). Used C++.

**Google San Francisco**      May 2021 – Aug 2021
Software Engineering 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](https://fuchsia.googlesource.com/cobalt)).
Implemented a Golang library for fast computations of privacy loss distribution.

**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.

## Talks

*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*
Jane Street Graduate Workshop, New York, USA                                    Apr 17, 2023

*MCSP is Hard for Read-Once Nondeterministic Branching Programs*
Poster at Swiss Winter School on TCS, Zion, Switzerland                          Feb, 2, 2023

*MCSP is Hard for Read-Once Nondeterministic Branching Programs*
LATIN 2022, Guanajuato, Mexico                                                  Nov 08, 2022

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

*The Complexity of Verifying Boolean Programs as Differentially Private*
Theory Seminar, Boston University, Virtual                                       Feb 28, 2022

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

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

*The Complexity of Verifying Boolean Programs as Differentially Private*
CRA-WP Grad Cohort for Women, Virtual                                            Apr 24, 2021

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

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

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

*A survey on the Minimum Circuit Size Problem*
MCSP reading group, Boston University, Boston, USA                               Jun 12, 2020

*Lower bounds for Read-Once Branching Programs for Tseitin formulas*
Theory Seminar, Boston University, Boston, USA                                   Oct 28, 2019

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

*Lower bounds for Branching Program and Formula for Orthogonal Vectors*
Seminar of the Laboratory of Algorithmic Methods, PDMI RAS,                      Nov 16, 2018
St. Petersburg, Russia

*Lower bound for read-once nondeterministic branching program for*            Jul 9, 2018
*satisfiable Tseitin formula using tree-width*
Workshop of Summer School on Algorithms and Lower Bounds, Satellite workshop
of ICALP, Prague, Czech Republic

*On branching programs, Tseitin formulas and tree-width*                  Jun 26, 2018
Poster at ACM STOC, Los Angeles, USA

*Lower Bounds for Nondeterministic Semantic Read-Once Branching Programs*   May 4, 2018
Complexity Seminar, PDMI RAS, St. Petersburg Russia

*Satisfiable Tseitin formulas are hard for nondeterministic read-once*      Nov 24, 2017
*branching programs*
Joint Estonian–Latvian Theory Days, Tartu, Estonia

*Satisfiable Tseitin formulas are hard for nondeterministic read-once*      Aug 25, 2017
*branching programs*
MFCS, Aalborg, Denmark

*Techniques of proving lower bounds on Query Complexity*                    Oct 14, 2016
Seminar on Sublinear Algorithms, Computer Science Club,
St. Petersburg, Russia

## Other Activities

Maintainer of FFmpeg, responsible for API test                            2015 – present
*FFmpeg is the leading open source multimedia framework*

Member of the University Women's Soccer Team at SPbPU                      2009 – 2014

## Additional Education

Swiss Winter School on Theoretical Computer Science,                 Jan 29 – Feb 3, 2023
Zion, Switzerland
*Expenses covered by a scholarship from the organizers*

Hilbert–Bernays Summer School on Logic and Computation,             Jul 21 – Jul 27, 2019
Tübingen, Germany
*Expenses covered by a scholarship from the organizers*

Caleidoscope: Complexity as a Kaleidoscope,                         Jun 17 – Jun 21, 2019
Paris, France

24th Estonian Winter School in Computer Science,                     Mar 3 – Mar 8, 2019
Palmse, Estonia
*Expenses covered by a scholarship from the organizers*

PDMI RAS Computer Science Club (https://compsciclub.ru/en/)        Sep 2013 – Feb 2019
St. Petersburg Russia

Summer School on Algorithms and Lower Bounds,                         Jul 6 – Jul 9, 2018
Prague, Czech Republic
*Expenses covered by a scholarship from the organizers*

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