

# Ludmila Glinskih

PhD Candidate at Boston University, Scientist Intern at Tumult Labs

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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: 3.94
- 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 – present  
Scientist Intern  
Conducted research in differential privacy.
- 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

<b>TCS for All Travel Scholarship</b> To participate in the ACM STOC 2023	June 2023
<b>Early-Career AMS-NSF-Simons-ICM Travel Grant</b> To participate in the International Congress of Mathematicians	July 2022
<b>Dean's Fellowship</b> Awarded to PhD students at Boston University	Fall 2019
<b>CSR 2019 Best Paper Award</b> Paper: <i>On Tseitin Formulas, Read-Once Branching Programs and Treewidth</i> Ludmila Glinskikh, Dmitry Itsykson	July 2019
<b>TCS Women Travel Scholarship</b> To participate in the ACM STOC 2018	June 2018
<b>Yandex Research Fellowship</b> 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" ( <a href="http://www.school.ioffe.ru/">http://www.school.ioffe.ru/</a> )	Sep 2021 – May 2022
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## Academic Service

Reviewer for CSR 2019, STOC 2020, ICALP 2022

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 Sunnyvale

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>). Used C++.

May 2022 – Aug 2022

### Google San Francisco

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>).

Implemented a Golang library for fast computations of privacy loss distribution.

May 2021 – Aug 2021

### Google Zurich

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.

Apr 2019 – Jul 2019

### Google London

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.

Jun 2017 – Sep 2017

### Google Zurich

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.

Jul 2016 – Oct 2016

### FFmpeg

Software Engineering Intern

Built a suite of tests in C for [FFmpeg](#) API.

May 2015 – Aug 2015

## Talks

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

Apr 20, 2023

<i>The Complexity of Verifying Boolean Programs as Differentially Private</i> Jane Street Graduate Workshop, New York, USA	Apr 17, 2023
<i>MCSP is Hard for Read-Once Nondeterministic Branching Programs</i> Poster at Swiss Winter School on TCS, Zion, Switzerland	Feb, 2, 2023
<i>MCSP is Hard for Read-Once Nondeterministic Branching Programs</i> LATIN 2022, Guanajuato, Mexico	Nov 08, 2022
<i>The Complexity of Verifying Boolean Programs as Differentially Private</i> CSF 2022, Haifa, Israel	Aug 11, 2022
<i>The Complexity of Verifying Boolean Programs as Differentially Private</i> Theory Seminar, Boston University, Virtual	Feb 28, 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>The Complexity of Verifying Boolean Programs as Differentially Private</i> CRA-WP Grad Cohort for Women, Virtual	Apr 24, 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>A survey on the Minimum Circuit Size Problem</i> MCSP reading group, Boston University, Boston, USA	Jun 12, 2020
<i>Lower bounds for Read-Once Branching Programs for Tseitin formulas</i> Theory Seminar, Boston University, Boston, USA	Oct 28, 2019
<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 for Branching Program and Formula 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> Workshop of Summer School on Algorithms and Lower Bounds, Satellite workshop of ICALP, Prague, Czech Republic	Jul 9, 2018

<p><i>On branching programs, Tseitin formulas and tree-width</i> Poster at ACM STOC, Los Angeles, USA</p>	Jun 26, 2018
<p><i>Lower Bounds for Nondeterministic Semantic Read-Once Branching Programs</i> Complexity Seminar, PDMI RAS, St. Petersburg Russia</p>	May 4, 2018
<p><i>Satisfiable Tseitin formulas are hard for nondeterministic read-once branching programs</i> Joint Estonian–Latvian Theory Days, Tartu, Estonia</p>	Nov 24, 2017
<p><i>Satisfiable Tseitin formulas are hard for nondeterministic read-once branching programs</i> MFCS, Aalborg, Denmark</p>	Aug 25, 2017
<p><i>Techniques of proving lower bounds on Query Complexity</i> Seminar on Sublinear Algorithms, Computer Science Club, St. Petersburg, Russia</p>	Oct 14, 2016

## Other Activities

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

## Additional Education

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

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 <i>Expenses covered by a scholarship from the organizers</i>	Jul 16 – Jul 22, 2017
A Special Semester on Computational and Proof Complexity, St. Petersburg, Russia	Apr – Jun, 2016