

Daniyar Omarov

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Education

Georgia Institute of Technology <i>PhD in Mathematics, GPA: 3.9 out of 4.0</i>	Atlanta, GA, USA 2018 – Present
Nazarbayev University <i>Bachelor of Science in Mathematics, GPA: 3.9 out of 4.0</i>	Astana, Kazakhstan 2014 – 2018
University College London <i>University Preparatory Certificate with Distinction</i>	Astana, Kazakhstan 2013 – 2014
Kazakh-Turkish High School for Gifted Boys <i>Diploma for Excellent Graduation</i>	Kentau, Kazakhstan 2008 – 2013

Research Interests

- Optimal Transport Problem
- Dynamical Systems
- Numerical Analysis
- Optimization

Publications

- [4] Luca Dieci and Daniyar Omarov. “A mathematical electoral map of Georgia: is there a reason for gerrymandering?” Manuscript in preparation.
- [3] Luca Dieci and Daniyar Omarov. “Solving semi-discrete optimal transport problems: star shapedness and Newton’s method”. Manuscript submitted for publication. arXiv: 2310.07489.
- [2] Luca Dieci and Daniyar Omarov. “Techniques for continuous optimal transport problem”. In: *Computers & Mathematics with Applications* 146 (2023), pp. 176–191.
- [1] Daniyar Omarov et al. “On the application of Sturm’s theorem to analysis of dynamic pull-in for a graphene-based MEMS model”. In: *Applied and Computational Mechanics* 12.1 (2018).

Poster Presentations and Talks

Florida-Georgia Applied Computational Math Student Workshop 2023 <i>Florida State University, Tallahassee, FL, USA</i> Gave a talk on “Techniques for continuous optimal transport problem”	April 2023
2023 Georgia Scientific Computing Symposium <i>Georgia State University, Atlanta, GA, USA</i> Presented a poster on “Techniques for continuous optimal transport problem”	February 2023
SIAM Gather Event for Applied Math Students <i>Georgia Institute of Technology, Atlanta, GA, USA</i> Gave a talk on “Numerical Algorithms for Optimal Transport Problem”	February 2021
Illinois Summer Research Symposium <i>University of Illinois Urbana-Champaign, Champaign, IL, USA</i> Presented a poster on “Zipf’s Law: A Universal Law for Empirical Data from Word Frequencies to Olympic Records”	July 2016

Honors and Awards

Outstanding Teaching Assistant Award <i>School of Mathematics, Georgia Institute of Technology</i>	April 2023
Best Presentation Award <i>Florida-Georgia Applied Computational Math Student Workshop 2023</i>	April 2023
Certificate of Achievement for Outstanding Head TA <i>School of Mathematics, Georgia Institute of Technology</i>	Spring 2023
Certificate for Outstanding Efforts and Accomplishments <i>Society for Industrial and Applied Mathematics</i>	Spring 2022
Tech to Teaching Certificate in College Teaching <i>Center for Teaching and Learning, Georgia Institute of Technology</i>	Summer 2021
Certificate of Completion of REU Program <i>Department of Mathematics, University of Illinois Urbana-Champaign</i>	Summer 2016
Winner of "Taiburyl" Scholarship for Young Scientists and Researchers <i>Astana, Kazakhstan</i>	Fall 2015
Dean's List Awards for Excellent Academic Achievements <i>Department of Mathematics, Nazarbayev University</i>	2014 – 2018

Teaching Experience

Georgia Institute of Technology **Atlanta, GA, USA**
Fall 2018 – Present

- **Instructor:** taught lectures and managed teaching assistants.
 - Fall 2022 - Math 1551, *Differential Calculus* - 101 students and 3 TA-s
 - Summer 2021 - Math 3406, *Second Course on Linear Algebra* - 24 students
- **Head Teaching Assistant:** taught recitations and managed teaching assistants.
 - Fall 2023 - Math 1554, *Linear Algebra* - 36 students and 27 TA-s
 - Spring 2023 - Math 1554, *Linear Algebra* - 32 students and 8 TA-s
 - Fall 2020 - Math 2552, *Differential Equations* - 35 students and 12 TA-s
- **Lecture Assistant:** assisted the course instructor with lectures and held weekly office hours.
 - Spring 2021 - Math 3406, *Second Course on Linear Algebra* - 39 students
- **Teaching Assistant:** taught recitations and held weekly office hours.
 - Summer 2022 - Math 2552, *Differential Equations* - 33 students
 - Spring 2022 - Math 1554, *Linear Algebra* - 73 students
 - Fall 2021 - Math 1113, *Pre-Calculus* - 71 students
 - Spring 2021 - Math 2552, *Differential Equations* - 35 students
 - Summer 2020 - Math 1554, *Linear Algebra* - 38 students
 - Spring 2020 - Math 1554, *Linear Algebra* - 55 students
 - Fall 2019 - Math 2552, *Differential Equations* - 77 students
 - Summer 2019 - Math 4873/8873, *Computations in Dynamics* - 5 students
 - Spring 2019 - Math 1711, *Finite Mathematics* - 46 students
 - Fall 2018 - Math 2552, *Differential Equations* - 27 students

Extracurricular Activities

Georgia Tech SIAM Student Chapter

School of Mathematics, Georgia Institute of Technology

Treasurer (2020–2021): managed the funds of the chapter and organized social activities for students

President (2021–2022): arranged student seminars and organized “Southeast SIAM Student Conference”

Atlanta, GA, USA

2019 – Present

Georgia Tech High School Mathematics Competition

School of Mathematics, Georgia Institute of Technology

Helped to organize the competition and volunteered during the event

Atlanta, GA, USA

Spring 2019, Spring 2023

International Teaching Assistant (ITA) Liaison

Center for Teaching and Learning, Georgia Institute of Technology

Designed learning materials for incoming ITA-s that address challenges of new experience

Atlanta, GA, USA

Spring 2021

Nazarbayev University Mathematics Club

Department of Mathematics, Nazarbayev University

President (2016 - 2017): organized monthly seminars and conducted series of workshops in scientific computing platforms such as *Matlab* and *Mathematica*

Astana, Kazakhstan

2016 – 2018

Nazarbayev University Mentorship Program

School of Science and Technology, Nazarbayev University

Mentored two freshman students to help them with academic and social life

Astana, Kazakhstan

Spring 2016

Relevant Coursework

Georgia Institute of Technology

- Partial Differential Equations
- Advanced Linear Algebra
- Numerical Approximation Theory
- Multivariable Linear Systems and Control

- Numerical Methods for Dynamical Systems
- Optimal Transport Theory and Applications
- Introduction to Numerical Methods for PDE
- Iterative Methods for Systems of Equations

Atlanta, GA, USA

2018 – Present

Nazarbayev University

- Introduction to Numerical Methods
- Mathematical Statistics

- Linear Programming
- Fourier Analysis

Astana, Kazakhstan

2014 – 2018

University of Illinois at Urbana-Champaign

- Summer Workshop in Linear Algebra: Rational Canonical Form, Jordan Canonical Form, Orthogonal and Unitary Operators, and Spectral Theorem for Normal Operators
- Topics in Applied Probability: Random Walks, Ballot Theorem, Arcsine Law, and Betting Systems

Champaign, Illinois

Summer 2016

Computer Skills

- Matlab - Advanced level
- Latex/Beamer - Advanced level

- Mathematica - Advanced level
- C++ - Intermediate level