

Nikita Gladkov

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Education

University of California, Los Angeles

PhD student, Mathematics,

Advisor: Igor Pak

Los Angeles, CA

2019–now

National Research University Higher School of Economics

Bachelor student, Mathematics,

Advisor: Alexander Kolesnikov

Moscow, Russia

2015–2019

Yandex School of Data Analysis

Student, Data analysis

Moscow, Russia

2017–2018

Papers

2024: A lower bound on forcing numbers based on height functions (with F.Aliyev), arXiv:2410.23621

2024: The bunkbed conjecture is false (with I.Pak and A.Zimin), arXiv:2410.02545

2024: Percolation inequalities and decision trees, arXiv:2408.08457

2024: Exploring mazes at random (with I.Pak), arXiv:2408.00978

2024: Bond percolation does not simulate site percolation (with A.Zimin), arXiv:2404.08873

2024: Positive dependence for colored percolation (with I.Pak), Letter in *Phys. Rev. E*

2024: A strong FKG inequality for multiple events, in *Bull. Lond. Math. Soc.*

2021: The multistochastic Monge–Kantorovich problem (with A.Zimin, A.Kolesnikov), in *J. Math. Anal. Appl.*

2020: An explicit solution for a multimarginal mass transportation problem (with A.Zimin), in *SIAM J. Math. Anal.*

2019: On multistochastic Monge–Kantorovich problem, bitwise operations, and fractals (with A.Zimin, A.Kolesnikov), in *Calc. Var. Partial Differential Equations*

Teaching experience

ALGORITHMS

MATH 182, UCLA

Teaching assistant

2024F

INTERMEDIATE PROGRAMMING

COMPTNG 10B, UCLA

Teaching assistant

2024S

INTRODUCTION TO PROGRAMMING

COMPTNG 10A, UCLA

Teaching assistant

2023S

INTEREST & APPLICATIONS

MATH 177, UCLA

Teaching assistant

2023W

PYTHON-APPLICATIONS I

COMPTNG 16A, UCLA

Teaching assistant

2022F

FORMAL LANGUAGES & AUTOMATA

COM SCI 181, UCLA

Teaching assistant

2022S

MATH GAME THEORY

MATH 167, UCLA

Teaching assistant

2022W

OPTIMIZATION

MATH 164, UCLA

Teaching assistant

2022W

INTEREST & APPLICATIONS

MATH 177, UCLA

Teaching assistant

2021F

LINEAR ALGEBRA <i>MATH 115A, UCLA</i>	Teaching assistant 2021F
PYTHON-APPLICATIONS I <i>COMPTNG 16A, UCLA</i>	Teaching assistant 2021S
PYTHON-APPLICATIONS I <i>COMPTNG 16A, UCLA</i>	Teaching assistant 2021W
OPTIMIZATION <i>MATH 164, UCLA</i>	Teaching assistant 2020F
DISCRETE STRUCTURES <i>MATH 61, UCLA</i>	Teaching assistant 2020F
DISCRETE STRUCTURES <i>MATH 61, UCLA</i>	Teaching assistant 2020S
ENUMERATIVE COMBINATORICS <i>MATH 184, UCLA</i>	Teaching assistant 2020W
INTEGRATION & INFINITE SERIES <i>MATH 31B, UCLA</i>	Teaching assistant 2019F
COMBINATORICS <i>Higher School of Economics</i>	Teaching assistant 2017S
COMBINATORICS <i>Independent University of Moscow</i>	Teaching assistant 2017S

Long term visits

Visiting Janos Pach <i>Budapest, HU</i>	Jan–Mar 2024
Visiting Damir Yeliussizov <i>Almaty, KZ</i>	Sep–Dec 2023

Outreach

Olympiads group <i>ORMC Math Circle</i>	Lead instructor 2024–now
Noneuclidean Geometry <i>ORMC Math Circle</i>	Lead instructor 2024 Sum
Nonstandard analysis <i>ORMC Math Circle</i>	Lead instructor 2023 Sum
Advanced 3 group <i>ORMC Math Circle</i>	Lead instructor 2021–2023
Advanced 2 group <i>ORMC Math Circle</i>	Lead instructor 2019–2021
9th grade pro group <i>Sirius Center</i>	Instructor Oct, 2018
8th grade group <i>Moscow team ARMO preparations</i>	Instructor Apr, 2018
The Circle of Champions <i>179th school, Moscow, Olympiad Winners Association</i>	Lead Instructor 2016–2018
Evening math school <i>179th school, Moscow</i>	Instructor 2017–2019
11th grade group and 11th grade pro group <i>Sirius Center</i>	Instructor Sep, 2017

E-2 group
Sirius Center
11th grade group
Tomsk Math Club

Instructor
June, 2017
Lead Instructor
July, 2016

Mentoring

Fateh Aliyev <i>Olga Radko Math Circle, High schooler</i>	Forcing numbers and height functions <i>2024</i>
Saida Piri <i>Directed reading program, Undergraduate student</i>	Applications of linear algebra in combinatorics <i>2022</i>
Natalie Deering <i>Olga Radko Math Circle, High schooler</i>	Infinitary hat puzzles <i>2022</i>
Oliver Kurilov <i>Directed reading program, Undergraduate student</i>	Proving classical inequalities in Lean (formal proof assistant) <i>2021</i>

Talks

Inequalities for connectivity events in Bernoulli percolation <i>Berkeley</i>	UC Berkeley Probability Seminar <i>Dec, 2024</i>
Percolation inequalities, decision trees and the bunkbed conjecture <i>Online</i>	Percolation Today <i>Nov, 2024</i>
The bunkbed conjecture is false <i>Vancouver</i>	UBC Probability Seminar <i>Nov, 2024</i>
Inequalities for connectivity events in Bernoulli percolation <i>San Diego</i>	UCSD Probability Seminar <i>Oct, 2024</i>
Small probabilities <i>UCLA</i>	GSO seminar <i>Oct, 2024</i>
The bunkbed conjecture is false <i>St. Petersburg</i>	Algebraic and other combinatorics <i>Oct, 2024</i>
The bunkbed conjecture is false <i>UCLA</i>	LA probability forum <i>Oct, 2024</i>
Inequalities for connectivity events in Bernoulli percolation <i>Princeton</i>	Probability seminar <i>Sep, 2024</i>
Inequalities for connectivity events in Bernoulli percolation <i>Boston</i>	Elchanan Mossel group meeting, MIT <i>Sep, 2024</i>
Inequalities for connectivity events in Bernoulli percolation <i>New Brunswick</i>	Rutgers Discrete Math Seminar <i>Sep, 2024</i>
The Puzzle to End All Puzzles <i>UCLA</i>	GSO seminar <i>May, 2024</i>
Inequalities in Graph Percolation <i>Budapest</i>	Probability seminar at Alfréd Rényi Institute <i>Mar, 2024</i>
How to save the world with math? Mathematics of AI safety. <i>UCLA</i>	GSO seminar <i>Oct, 2023</i>
A strong FKG inequality for multiple events <i>Carnegie Mellon University</i>	Random Structures & Algorithms <i>June, 2023</i>
Connecting Combinatorics and Algebraic Geometry: The Work of June Huh <i>UCLA</i>	GSO seminar <i>May, 2023</i>
Five proofs of the fundamental theorem of combinatorics: you won't believe number four. <i>UCLA</i>	GSO seminar <i>Nov, 2022</i>

Infinitary hat puzzles <i>UCLA</i>	GSO seminar <i>Apr, 2022</i>
Finite hat puzzles <i>UCLA</i>	GSO seminar <i>Nov, 2021</i>
(n, k) Monge–Kantorovich problem <i>Strasbourg</i>	Eight or Nine Talks on Contemporary Optimal Transport Problems <i>July, 2019</i>
Knots, braids and their invariants <i>Moscow</i>	HSE <i>Mar, 2019</i>
Variants of the Monge–Kantorovich problem for the cost function xyz <i>Bielefeld</i>	Cluster Group Stochastic Analysis Meeting <i>Dec, 2018</i>
Variants of the Monge–Kantorovich problem for the cost function xyz <i>Pisa</i>	Optimal Transportation and Applications conference <i>Nov, 2018</i>
Solutions of the high-dimensional Monge– Kantorovich problem <i>Moscow</i>	10th Anniversary of the HSE Department of Mathematics. Scientific conference in the format of meeting with the department’s friends. <i>June, 2018</i>
Units, K-theory, and quantum invariants of knots <i>Moscow</i>	ITEP <i>Apr, 2018</i>
High-dimensional variants of the Monge– Kantorovich problem <i>St. Petersburg</i>	Seminar on Representation Theory and Dynamical Systems <i>Mar, 2018</i>

Mathematical olympiads — Participation

- 2017:** Vojtěch Jarník International Mathematical Competition — absolute result
- 2017:** International Mathematics Competition for University Students — first prize
- 2015:** International Mathematical Olympiad — member of the Russian national team, silver medal
- 2015:** Romanian Masters of Mathematics — member of the Russian national team, gold medal

Organizing Math Olympiads

- 2021:** International Mathematical Olympiad
- 2020:** International Mathematical Olympiad
- 2019:** All-Russian Olympiad in Physics
- 2018:** All-Russian Olympiad in Mathematics
- 2017:** Moscow Olympiad in Mathematics
- 2016:** Vysshaya Proba Olympiad
- 2016:** Tournament of Towns
- 2016:** Russian National Team Winter Training Session
- 2016:** Moscow Olympiad in Mathematics
- 2016:** All-Russian Olympiad in Mathematics
- 2015:** Vysshaya Proba Olympiad
- 2015:** Tournament of Towns
- 2015:** Russian National Team Winter Training Session
- 2015:** All-Russian Olympiad in Mathematics