

ALEXEY GORELOV

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In 2015 I got a specialist's degree in Applied Mathematics and Informatics at Lomonosov Moscow State University. There I studied data analysis and machine learning. My thesis work focused on developing a probabilistic model for message passing delays between nodes of a computing cluster.

After the graduation, I decided to gain practical experience in the field of data analysis so I got a job at Mail.Ru Group. There I worked on revenue predictions, planning and analysis of experiments, and so on. Also, I gained strong programming experience there (Python, Java, Hadoop).

But after several years I began to feel that my work has turned into a routine and that I really missed the beauty of mathematics. In 2019 I entered a Master's degree program in Mathematics at Higher School of Economics, and I got the Master's degree in 2021. In the same year I started my PhD program at Steklov Mathematical Institute of RAS.

I like the combining of geometrical beauty and combinatorial technics so the fields of my interest are piecewise linear topology, topological graph theory, and topological combinatorics. My 1st year course work was on the characterization of collapsible polyhedra in terms of free deformation contractibility, while my thesis work was about the problem of an existence of a lifting to an embedding of a map between graphs.

EDUCATION

Specialist's degree in Applied Mathematics and Informatics

September 2010 —
June 2015

Faculty of Computational Mathematics and Cybernetics,
Lomonosov Moscow State University

Supervisor: Archil Maysuradze

Thesis theme: Анализ задержек в коммуникационной среде вычислительного кластера [Message passing delays analyses in the communication network of a computing cluster]

M.Sc. in Mathematics (with excellence)

September 2019 —
June 2021

Faculty of Mathematics,
National Research University Higher School of Economics

Supervisor: Sergey Melikhov

Thesis theme: Lifting maps between graphs to embeddings

PhD in Mathematics

October 2021 — Present

Steklov Mathematical Institute of Russian Academy of Sciences

Supervisor: Sergey Melikhov

TEACHING EXPERIENCE

Visiting scholar

September 2019 —
December 2019

Conducting seminars for the course “Algebra and Geometry” for 1st year undergraduate students,
Graduate School of Business,
National Research University Higher School of Economics

Teaching assistantJanuary 2020 —
May 2020

Course “Mathematical analysis” for 1st year undergraduate students,
Faculty of Mathematics,
National Research University Higher School of Economics

Visiting scholarJanuary 2021 —
April 2021

Conducting seminars for the course “Linear Algebra” for 1st year undergraduate students,
Graduate School of Business,
National Research University Higher School of Economics

ADDITIONAL EDUCATION

Autumn school “Toric topology and combinatorics”1 November 2021 —
5 November 2021

Sirius Mathematics Center, Sochi, Russia

PUBLICATIONS

**Анализ структуры задержек передачи информации в
вычислительном кластере** 2015

[Delay structure mining in a computing cluster]*А.А. Горелов, А.И. Майсурадзе, А.Н. Сальников [Gorelov A., Maysuradze A., Salnikov A.]*

Суперкомпьютерные дни в России: Труды международной конференции (28-29 сентября
2015, г. Москва), стр. 546–551. Изд-во МГУ Москва, 2015.

**Информационная модель для снятия многозначности
морфемного разбора в татарском языке** 2018

**[Information model for morphological disambiguation in the
Tatar language]***Горелов А.А., Майсурадзе А.И. [Gorelov A., Maysuradze A.]*

Дискретные модели в теории управляющих систем: X Международная конференция,
Москва и Подмоскowie, 23-25 мая 2018 : Труды, серия 978-5-317-05834-0, издательство ООО
«МАКС Пресс» (Москва), том 1, с. 104-106

Geometry of collapsing and free deformation retraction 2021

Alexey Gorelov

arXiv:2103.16464 [math.GT]

CONFERENCE PRESENTATIONS

**Восстановление зерновых вершин графа, полученного
поиском в ширину** 2013

**[Reconstructing the seed vertices of a graph obtained by the
breadth-first search algorithm]***Oral presentation*

XX международная научная конференция «Ломоносов-2013»,
Секция «Вычислительная математика и кибернетика», Москва, Россия

**Анализ структуры задержек передачи информации в
вычислительном кластере** 2015

[Delay structure mining in a computing cluster]

Poster presentation

Международная конференция «Суперкомпьютерные дни в России 2015», Москва, Россия

Geometry of collapsing and free deformation retraction 2021

Poster presentation

Graduate Student Topology and Geometry Conference 2021, Indiana University, USA (online)

Geometry of collapsing and free deformation retraction 2021

Poster presentation

Young Topologists Meeting 2021, Stockholm, Sweden (online)

SCHOLARSHIPS AND GRANTS

Russian Foundation for Basic Research grant №15–07–09214 2017
(one of the participants)

Special scholarship for HSE master's students 2020 — 2021

STUDENT OLYMPIADS PARTICIPATION

HSE Olympiad competition for students and graduates, track “Mathematics” 2019
II degree diploma

SEMINAR REPORTS

Медианные пространства и выпуклые структуры [Median spaces and convex structures] 11 December 2019
Geometric Topology Seminar, Steklov Mathematical Institute of RAS, Moscow, Russia
Slides and recordings (in Russian).

Сдавливание и свободная деформационная ретракция [Collapsing and free deformation retraction] 13 May 2020
Geometric Topology Seminar, Steklov Mathematical Institute of RAS, Moscow, Russia
Slides and recordings (in Russian).

Сдавливание и свободная деформационная ретракция [Collapsing and free deformation retraction] 5 June 2020
Seminar of International Laboratory of Algebraic Topology and Its Applications, Faculty of Computer Sciences of HSE, Moscow, Russia

The Kister-Mazur theorem 8 December 2020
Seminar on smooth, PL- and topological manifolds, Faculty of Mathematics, Moscow, Russia
Slides.

Некоторые характеристики $CAT(0)$ кубических комплексов [Some characterizations of $CAT(0)$ cubical complexes] 11, 18 December 2020

Geometric Topology Seminar, Steklov Mathematical Institute of RAS, Moscow, Russia

Slides and recordings (in Russian) of the first part and the second part.

Аппроксимация вложениями отображений графов в плоскость [Approximation by embeddings of maps of graphs into the plane] 28 April, 2 May 2021

Geometric Topology Seminar, Steklov Mathematical Institute of RAS, Moscow, Russia

Recordings (in Russian) of the first part and the second part.

Поднятие отображений между графами во вложение [Lifting maps between graphs to embeddings] 28 May 2021

Geometric Topology Seminar, Steklov Mathematical Institute of RAS, Moscow, Russia

Recordings (in Russian).

Поднятие погружений до вложений в коразмерности один [Lifting immersions to embeddings in codimension one] 23 February 2022

Geometric Topology Seminar, Steklov Mathematical Institute of RAS, Moscow, Russia

Slides and recordings (in Russian).

WORK EXPERIENCE

Mail.ru Group

September 2015 —
October 2019

Data analyst and data scientist in Mail.ru Search

OTHER EDUCATION

Creative Writing School

October 2015 —
December 2015

Poetry workshop, supervised by Dmitry Bykov

PROFESSIONAL SKILLS

Programming languages

Working knowledge: Python, Java, bash, C

Basic knowledge: C++, Matlab, R, Go, Kotlin, C#

Software and technologies

GNU/Linux (I've been working with GNU/Linux since 2008), Python scientific stack (numpy, scipy, sympy, matplotlib), Hadoop, Matlab, VCS

Languages

Russian: native speaker

English: upper intermediate