

Tatiana Zaitceva

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Education

- since **Ph.D. in Mathematics**, Lomonosov Moscow State University, Russia.
- Sep. 2021 ○ Advisor: Professor **Vladimir Protasov**. Multivariate B-splines, subdivision schemes, wavelets, fractals, geometric modeling, signal processing, multiresolution.
- Sep. 2015 – **Specialist degree in Mathematics**, GPA: 5.0/5.0, Lomonosov Moscow State University, Moscow, Russia.
- June 2021
- Sep. 2020 – **Ozon Masters, MS level corporate program in Data Science**, Moscow.
- June 2022 ○ **Courses:** Numerical Linear Algebra, Statistics, Optimization, Discrete Optimization, Information Theory, Machine Learning, Deep Learning, Big Data Engineering.

Research Experience

- since **Laboratory “High-dimensional approximation and applications” (led by Prof. Vladimir Temlyakov)**, Moscow, Russia, [link](#).
- Dec. 2019 ○ Implemented an algorithm of recovering ridge functions, [github](#).
- Summer **EPFL summer internship (E3 program, Laboratory of Applied Photonics Devices, led by Prof. Christophe Moser)**, Lausanne, Switzerland, [link](#).
- 2019 ○ Volumetric 3D printing. Extended a previously developed optimization algorithm to achieve target shape more precisely.
- Mar. 2018 – **Project “Wavelet denoising of EMG-signal and control of a bionic hand prosthesis”**.
- Mar. 2019 ○ EMG signal processing using wavelets.

Publications

- V. Protasov, T. Zaitseva, “Tiling of polyhedral sets”, submitted to Discrete Comp. Geom. (2021), [arXiv](#).
- T. Zaitseva, Yu. Malykhin, K. Ryutin, “Recovery of regular ridge functions on the ball”, submitted to Constr. Approx. (2021), [arXiv](#).
- V. Protasov, T. Zaitseva, “Self-affine 2-attractors and tiles”, submitted to Sb. Math. (2021), [arXiv](#).
- T. Zaitseva, “Multivariate tile B-splines”, submitted to Izv. Math. (2021).
- V. Yu. Protasov, T.I. Zaitseva, “Self-affine tilings of polyhedra”, Doklady Mathematics, 500:5 (2021), 55–61.
- Yu.V. Malykhin, K.S. Rjutin, T.I. Zaitseva, “On recovery of regular ridge-functions”, Math. Notes, 109:2 (2021), 307–311, [DOI](#).
- T.I. Zaitseva, “Simple tiles and attractors”, Sb. Math., 211:9 (2020), 1233–1266, [DOI](#).
- T. Zaitseva, “Haar wavelets and subdivision algorithms on the plane”, *Advances in Systems Science and Applications*, 17:3 (2017), 49–57, [PDF](#).

Work Experience

- Summer **Research Intern, CGF Studio (computer graphics, character animation)**, Russia.
- 2020 ○ 3d skeleton-based action recognition, texture expansion. Literature review and tests.
- Fall 2019 **Research Intern, Huawei (ML, deep learning)**, Moscow, Russia.

- Face recognition, privacy-preserved DL. Literature review, implementation.
- Sep. 2015 – **Intern, Motorica (bionic hand prostheses, sensors, 3D printing)**, Moscow, Russia.
- May 2017 ○ Developed an algorithm which processes EMG-signals and controls the hand.

Programming skills

- **Python** (advanced in scientific libraries), C++
- Basic: Pytorch, Tensorflow, R, bash, Hadoop/Spark, html.
- Basic: algorithms and data structures (experience in competitive programming), computer graphics, antenna arrays, robotics experience (ROS, Arduino).

Conferences and oral presentations (recent)

- 2021 “Multivariate splines and subdivisions constructed by space tilings”, Approximation: theory, methods, and applications (ATMA2021), Italy.
- 2021 “Multivariate B-splines and applications”, Optimization without borders, Sochi, Russia.
- 2021 “The recovery of linear dynamical system by its discrete trajectory”, the 28th conference “Lomonosov”, Moscow, Russia.
- 2020 “Multivariate B-splines and wavelets”, the 27th conference “Lomonosov”, Russia.
- 2020 “Multivariate Haar systems and B-splines”, Approximation theory seminar (led by Prof. Maria Skopina).
- 2019 “Multivariate Haar systems and self-similar tiles: classification and regularity”, the 9th international conference in methods and problems of harmonic analysis, Russia.

Awards (main)

- 2015, 2014 The prize winner of **Russian National olympiad** in Mathematics (top 50 in Russia).
- 2015 The prize winner of **Russian National olympiad** in Informatics (top 110 in Russia).
- 2017 – 2018 **The best oral presentation** (2017), **the best poster** (2018), conference “Control, Information, and Optimization” led by Boris T. Polyak.
- 2019 The winner of “NTI student olympiad”, robotics, Skoltech and Innopolis.

Scholarships

- since 2021 Foundation for the advancement of mathematics “BASIS” (4 PhD students).
- 2017 – 2021 Scholarship for top 10% of students in Lomonosov Moscow State University.
- 2018 – 2021 Chebyshev individual scholarship.
- 2015 – 2021 Russian Federation Presidential grant for students.
- 2018 – 2019 “Umnik”-scholarship awarded to the 10 student projects by Russian government.

Extracurricular activities

- since 2019 Private tutor, olympiad mathematics and mathematical analysis.
- 2016 – 2020 Jury member of Moscow stage of Russian National olympiad in mathematics.
- since 2011 Participated in many various schools, such as Sirius Optimization School, mathematical school LSHSM, Yandex project school, computer school LKSH, etc.
- 2017, 2018 Teacher in summer school “Go To Camp” in robotics.
- 2017 – 2021 Head girl in the academic group at the university.