# Nikita Karagodin

🌐 website  |  in nikitus  |  github  |  ✉ nikitus@mit.edu

## Education & Technical Skills

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|---|---|
| 2023 - now | **Ph.D. in Computer Science**, Massachusetts Institute of Technology |
| 2017 - 2023 | **B.Sc. & M.Sc. in Mathematics**, Saint Petersburg State University |
| 2019 - 2022 | **Data Science Program**, Computer Science Center |
| Relevant Coursework | Machine Learning, Deep Learning, Inference & Information, Statistics, Algebra |
| Languages & Libraries | python, pytorch, numpy, pandas, matplotlib, git |

## Work Experience

**MIT LIDS, Research Assistant**                                  September 2023 - now

– Research project on clustering effect for transformers

**Huawei Technologies, R&D team, Senior Engineer**          December 2022 - July 2023

– Designed and implemented experiments using the OpenFL framework for FL research project

**EIMI, Researcher**                                             June 2021 - August 2023

– Research project on product quantization

**Pinely (HFT firm), R&D team, Data Scientist**              April 2022 - August 2022

– Analyzed market data using ML techniques to extract relevant features

– Explored cross-exchange arbitrage strategies

**Lyceum 239 (St. Petersburg), Math center, Volunteering Teacher**          2017 - 2021

## Publications

N.Karagodin, Y.Polyanskiy, P.Rigollet, **Clustering in Causal Attention Masking**, arxiv.2411.04990, 38th Conference on Neural Information Processing Systems.

N.Karagodin, *A limit theorem for the last exit time over a moving nonlinear boundary for a Gaussian process*, Probability and Mathematical Statistics, 2022, Vol. 42, Fasc. 2, pages 195 - 217

N.Karagodin, M.Lifshits, *On the distribution of the last exit time over a slowly growing linear boundary for a Gaussian process*, Theory of Probability and Its Applications, 2021, 66:3, 337–347

## Invited talks

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| *Clustering Within Causal Transformer Attention Dynamics*, Interacting Particle Systems in Data Science: From Theory to Applications, SIAM MDS | 2024 |
| *On the distribution of the last exit time over a slowly growing boundary for a Gaussian process*, New Trends in Mathematical Stochastics, EIMI | 2021 |

## Achievements

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| • **International Mathematical Competition, grand first prize (top 1.5%)** | 2020 |
| • Student research competition Möbius Contest, second prize | 2021 |
| • Student research competition by HSE & Siberian.Capital, first prize | 2022 |
| • International Mathematical Olympiad, silver medal (top 19%) | 2016 |
| • Russian Mathematical Olympiad, gold medal (top 4%) | 2016 |