

# Nikita Karagodin

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## EDUCATION & TECHNICAL SKILLS

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2023 - now	<b>PhD in Computer Science</b> , Massachusetts Institute of Technology
2017 - 2023	<b>BSc &amp; MSc in Mathematics</b> , Saint Petersburg State University
2019 - 2022	<b>Data Science Program</b> , Computer Science Center
Relevant Coursework	Machine Learning, Deep Learning, Inference & Information, Statistics, Algebra
Languages & Libraries	python, pytorch, numpy, pandas, matplotlib, git

## WORK EXPERIENCE

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<b>MIT LIDS, Research Assistant</b>	September 2023 - now
– Research project on mathematical theory of transformers	
<b>Huawei Technologies, R&amp;D team, Senior Engineer</b>	December 2022 - July 2023
– Designed and implemented experiments using OpenFL framework for Federated Learning research	
<b>EIMI, Researcher</b>	June 2021 - August 2023
– Research project on product quantization	
<b>Pinely (HFT firm), R&amp;D team, Data Scientist</b>	April 2022 - August 2022
– Analyzed market data using ML techniques to extract relevant features	
– Explored cross-exchange arbitrage strategies	
<b>Lyceum 239 (St. Petersburg), Math center, Volunteering Teacher</b>	2017 - 2021

## PUBLICATIONS

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

## ACHIEVEMENTS

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• <b>International Mathematical Competition, grand first prize (top 1.5%)</b>	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