Sergei Tikhonov

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Education

The University of Chicago — Chicago, IL
Master of Science in Financial Mathematics (GPA: 3.9/4.0) — Expected Dec 2024
- Courses: Computing in Python/C++, Numerical Methods, Option Pricing, Market Microstructure, Fixed Income, FX Markets, Portfolio Optimization and Risk Management
- PhD-level Courses: Measure Theoretic Probability, Partial Differential Equations, Mathematical Statistics I, Fundamentals of Deep Learning, Probabilistic Graphical Models, Stochastic Calculus

Higher School of Economics (HSE) — Moscow, Russia
Bachelor of Science in Economics, Research Track (GPA: 3.92/4.00) — Sep 2018 – Jun 2022
- Courses: Probability, Statistics, Multivariate Calculus, Linear Algebra, Differential Equations, Stochastic Processes, Control Theory, Econometrics, Time Series Modelling, Macroeconomics I & II
- Minor: Computer Science (Algorithms and Data Structures, Machine Learning)
- Awards: First Class Honors Diploma; consistently ranked top-5 of the class among 350 students

Research Experience

University of Chicago, Booth Business School — Chicago, IL
Research Assistant (under Ekaterina Smetanina) — Sep 2024 – Present
- Developed a Python-based nonparametric approach using time-varying heteroskedastic PCA to estimate factors and impulse responses, revealing a long-term decline in inflation shock persistence from forecast revisions
- Implemented a framework to process and import data in an appropriate format

University of Chicago, Department of Statistics — Chicago, IL
Research Assistant (under Aaron Schein) — Jun 2024 – Present
- Conducted research in Diffusion Generative Modeling with Fractional Brownian Motion
- Created course notes and a homework assignment on diffusion generative models for the Modern Methods in Applied Statistics class

Higher School of Economics, Laboratory of Macrostructural Analysis — Moscow, Russia
Research Assistant (under Nikolay Pilnik) — May 2021 – Dec 2022
- Constructed and estimated Dynamic Stochastic General Equilibrium (DSGE) models for export-oriented economies using Bayesian methods
- Obtained forecasts and impulse responses from DSGE models and compared them with VAR results
- Analyzed macroeconomic indicators using time series techniques in Python

Professional Experience

Optiver — Chicago, IL
Quantitative Researcher – Project Lab — Oct 2024 – Present
- Chosen from over 150 STEM students to work on pricing American options under complex asset dynamics
- Participated in developing a Python library for solving Partial Differential Equations (PDE)

Mizuho Securities USA — Chicago, IL
Quantitative Analyst – Project Lab — Jun 2024 – Aug 2024
- Designed a robust framework to quantify the xVA / risks by utilizing CDS data and took into account the data quality across different regions and sectors
- Categorized Credit Default Swaps names based on liquidity and stability using statistical methods
- Modeled skewness and kurtosis in time series data through jump diffusion processes (Hawkes Process)

Neuberger Berman — Chicago, IL
Quantitative Analyst – Project Lab — Jan 2024 – May 2024
- Implemented a generative AI-driven system in Python to autonomously summarize and quantify the evolving perspectives of leading sell-side economists and strategists
- Presented technical results, translating complex findings into actionable recommendations for managers

Teaching

University of Chicago   Chicago, IL
Teaching Assistant   Sep 2024 – Oct 2024
- Worked as TA for Stochastic Processes class

Higher School of Economics   Moscow, Russia
Teaching Assistant   Sep 2019 – Dec 2021
- Worked as TA for Calculus-1, Calculus-2, Optimal Control, and two Machine Learning classes

Leadership

HSE Club of Probability Theory   Moscow, Russia
Member   Sep 2021 – Present
- Co-founded a student organization devoted to probability theory with 50+ participants
- Held and attended 15 lectures on advanced topics, including Markov Chains Monte Carlo and Lévy Processes

Selected Awards

Merit-based Maroon Scholarship, covering 30% of tuition fees, University of Chicago, 2023
Outstanding Student Award, Higher School of Economics, 2022
Merit-based Scholarship, covering 100% of tuition fees, Higher School of Economics, 2018

Skills

Computing: Python, C++, SQL, R, Git, MS Office, MS Excel, LaTeX
Libraries in Python: NumPy, PyTorch, Matplotlib, Pandas, SciPy, Statsmodels, Scikit-Learn

Additional Information

Academic Interests: Bayesian Statistics, Probabilistic Graphical Models, Deep Learning, Numerical Analysis
Hobbies: Cinema, Swimming