KIRILL ZAKHAROV

Applied Mathematician

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EXPERIENCE

- Commercial Project
  Sber bank
  Sep 2022 – Dec 2022
- Commercial Project
  BSPB
  Apr 2023 – Dec 2023
- Engineer
  ITMO University, Russia
  Oct 2022 – present

SKILLS

- Applications of Stochastic Calculus and Measure Theory (SDE, stochastic integral, stochastic processes, Ito calculus)
- Applications of Probability theory (probabilistic modelling)
- Pricing derivatives (forwards, European options pricing, measure change, binomial model)
- Optimization methods and Numerical Analysis
- Neural Networks architectures (CNN, RNN, GAN, Flows, Diffusion models, VAE)
- Synthetic data generation (time series, tabular data, transactions)
- Mathematical modelling (building economic models)
- Forecasting Models by Time Series
- Programming languages: Python (torch, keras, numpy, pandas, scipy, sklearn, statsmodels), Wolfram Mathematica (mathematical calculations and prototyping), C (scripts for python)

EDUCATION

B.S. in Applied Mathematics and Informatics
SPbSUE
Sept 2018 – June 2022

M.S. in Financial Technologies of Big Data
ITMO
Sept 2022 – June 2024

GRADUATE WORKS

- **B.S.: Generalization of the Bates model by stochastic correlation and stochastic interest rate**

  Found the exact solution by characteristic function of the affine jump diffusion system of stochastic differential equations and applied by Fourier transform to pricing European options. Found almost-exact solution under Q-measure. Applied measure transform Q->T and found almost exact-solution under T-measure.
- **M.S.: Synthetic transaction data generation with privacy preserving**

PUBLICATIONS

- Synthetic financial time series generation with regime clustering, 2023
- TRGAN: A Time-Dependent Generative Adversarial Network for Synthetic Transactional Data Generation, 2023
- Time-dependent differential privacy for enhanced data protection in synthetic transaction generation, 2024

COURSES

- Pricing Options with Mathematical Models, Caltech - Coursera, 2022
- Stochastic Processes, HSE - Coursera, 2022
- Probability Theory, CSC - Stepik, 2022

COMPETITIONS

- 1th place – ITMO HACK FinTech case, 2022
- 5th place – Rosneft Hackathon, 2022
- 3th place – GPN CUP Data Science, 2021

LANGUAGES

Russia ●●●●●
English ●●●●○