VITALY BORZENKOV
https://gitlab.com/users/vitaly.borzenkov/projects

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EDUCATION

Carnegie Mellon University Pittsburgh, PA
MS in Computational Finance - MSCF 12/14

University of California, San Diego La Jolla, CA
BS in Mathematics: Probability & Statistics 12/09
BS in Cognitive Science: Computation 12/09

SKILLS

Mathematics: Optimization, Stochastic Processes, Differential Equations, Analysis, Linear Algebra, Probability
Statistics: Time Series Analysis, Regression Analysis, State Space Models, Machine Learning
Finance: Portfolio Optimization, Factor Models, Derivative Pricing, Risk Management
Programming: C/C++, Python, Data Structures, Algorithms, SIMD, Pandas, Numba, CMake, Git, CI/CD, SQL, Linux

EXPERIENCE

Transmarket Group Chicago, IL
Quant Developer/Sr Quant Developer - Refined Products/Crude Oil Desk 4/16-2/25

- **Co-owned and maintained a mature C++14 codebase** underlying multi-desk HFT platforms trading commodity and fixed-income futures across global exchanges.
- **Led the design and integration** of new trading strategies, monetization algorithms, and execution models into the overall trading infrastructure, collaborating closely with quantitative traders and portfolio managers.
- **Designed and implemented a C++17 trading system** for executing discretionary factor quotes, gaining deep expertise in trading system architecture, multi-threaded concurrency, data structures, algorithms, market data processing, order/price book design, order/position management, quoting/hedging algorithms, and exchange (in particular, CME and ICE) microstructure.
- **Developed an original monetization and execution framework** for automated factor strategies, significantly improving hedge precision and execution control in core trading strategies and enabling several orthogonal, automated arbitrage strategies that contributed 4-10% of desk PnL, with the highest Sharpe ratio firmwide.
- **Built a fast, production-grade C++ numerical optimization library** for solving constrained linear/quadratic problems, leveraging SIMD and other low-level optimizations to meet real-time platform requirements and maintain a large dataset of high-resolution, high-fidelity implied prices across desk's products.
- **Applied statistical modeling and data analysis techniques to tick and fill data** to tune trading system parameters, backtest strategy ideas, and optimize execution performance.
- **Built and maintained the desk's Python-based quant research stack**, including tools for model building, data analysis, backtesting, and PnL attribution.

Nobias New York, NY
Data Science Consultant 4/18-4/19

- **Architected the Python-based backend** for a browser extension that classifies political bias in news articles.
- **Built an end-to-end machine learning pipeline**, from data acquisition and preprocessing to model training and testing.
- **Automated model validation and parameter deployment workflows**, enhancing robustness and minimizing human intervention.

Citibank New York, NY
Assistant Vice President 2/15-4/16

- **Developed Exposure at Default and Unused Commitment models** for the wholesale loan portfolio to meet CCAR and LLR regulatory requirements.
- **Evaluated linear, generalized linear, and time series models** to determine the most effective approach.
- **Performed comprehensive data analysis**, including segmentation, variable selection, outlier detection, sensitivity testing, and troubleshooting violated assumptions to ensure model robustness.
- **Authored a detailed 600-page documentation report** covering data sources and cleaning, modeling methodology, validation tests, and analyses based on Federal Reserve macroeconomic stress scenarios.

Dex Media Santa Monica, CA
Algorithm Engineer/Sr Algorithm Engineer 4/10-5/14

- **Developed and managed predictive models** for click-through and impression rates, which directly fed into the dynamic optimization engine driving digital ad campaigns.