PAVEL KRIVENKO

pavel.krivenko@gmail.com • (408) 707-2123 • www.pkrivenko.com • www.linkedin.com/in/pkrivenko • NYC

SUMMARY

Senior Economist and ML Scientist with 12 years of experience in Asset Pricing, Macro-Finance, and Real Estate

- Published research using ML & GPU computing for predictive modeling of the U.S. stock, bond, mortgage, housing and labor markets
- Developed and taught Real Estate Finance courses to 1200+ students, earning a teaching excellence award
- Founded an education business helping 200+ students succeed
- Advised Central Bank and Impacted Tax, Regulation, and Education policies in Russia

EDUCATION

Ph.D. in Economics, Stanford University, 2018
Focus: Financial Economics, Macroeconomics, Econometrics, Structural Estimation, ML, Computational Economics
M.A. in Economics (Cum Laude): New Economic School (GPA 4.97/5, Ranking 2 out of 87)
B.A. in Economics (Cum Laude): Higher School of Economics (GPA 5/5, Ranking 2 out of 185)
Certifications

- Applied Data Science Program: Leveraging AI for Effective Decision-Making, 12-week program, MIT, 2024
- Applied Machine Learning, 24-week program, Columbia, 2023-24
- Behavioral Finance, Yale University, 2015
- Macroeconomics and Finance, Princeton University, 2014

TECHNICAL SKILLS

Programming Languages: **Python, SQL, MATLAB**, Julia, C++, CUDA, Java; **Cloud Platform**: AWS EC2
Python Packages: Data (Pandas, NumPy, Dask); ML/DL (Scikit-learn, TensorFlow, PyTorch); LLM APIs (OpenAI, Anthropic)
Data Skills: Econometrics (Time Series Forecasting, Panel Data, GMM, Financial Econometrics); Causal Methods (DiD, IV, Synthetic Control, Propensity Score Matching, A/B Testing); Structural Methods (Monte Carlo, Optimization, MLE, Bayesian); ML/DL (Classification, Clustering, Decision Trees, Neural Networks, NLP); RL; Gen AI

EXPERIENCE

Assistant Professor at **Zicklin School of Business, Baruch College, CUNY** 2018 – Present

- Published in top field journals and presented at 30 seminars and conferences across 14 universities, 6 central banks, and 9 countries
- Led three conference sections and organized one, gave over 20 media interviews
- Developed and taught core courses in Real Estate Finance, Investment, and Capital Markets to 1225 students
  - o Created project assignments on AI in Real Estate, advised 10 student groups, led a Shark Tank type presentation panel
  - o Organized and moderated 30+ guest talks by top executives in Real Estate industry (e.g. CEO & Founder of Prologis)
  - o Achieved highest evaluations across all 10 metrics measured, received Teaching Excellence Award
- Increased enrollment by 82% by organizing and leading 21 events for prospective students and MBA program update
- Designed advanced problems for the International Economics Olympiad and the Russian Economics Olympiad

Editorial Board Member at Central Bank of Russia 2019-2022

- Contributed to an 85% increase in research publications by advising on Economics, Econometrics, ML and Data Science

Research and Course Assistant at Stanford University 2012-2018

- Developed a novel algorithm and a MATLAB package to solve, estimate, and simulate DSGE models with any expectations
- Led sections on Advanced courses in Microeconomics, Macroeconomics, Financial Economics, Financial Markets and Institutions

Senior Economist, The Center for Program and Policy Evaluation (economic and policy think tank) 2008-2012

- Designed a system of metrics for performance evaluation, implemented by the Ministry of Education
- Identified a tax break that increases tax revenue by promoting innovation, implemented by the Ministry of Finance
- Estimated a 70% compliance cost reduction from deregulation in the metal industry, implemented by the Ministry of Industry and Trade
- Estimated a 30% boost in telecom investments from deregulation

Research Economist at New Economic School & Moscow School of Management Skolkovo 2008-2012

- Designed and implemented a survey of 1058 exporters, identified key growth drivers and obstacles, informed policymakers
- Led MA and MBA sections in Finance, Econometrics, Macro, International Econ, Trade, Political Econ and Inequality

Founder, Tutor, and Mentor at OlympEcon.com 2007-2018

- Achieved $130k revenue over 8 months in 2011/12, averaging 60 billed hours per week
- Taught and mentored over 200 high school, B.A., M.A., MBA, and PhD students in Russia, the US, and the UK
- Designed a fast-track program covering the complete Econ and Finance curriculum up to the MS level in under one year
- 100% success rate among 30 students in the full program: all won fellowships to top schools through Econ & Finance contests
- Published 49 Olympiad-level problems that teach advanced topics in Econ and Finance by practice (available at iloveeconomics.ru)

Research Fellow, Lecturer, Mentor, and Course Assistant at Higher School of Economics 2007-2012

- Published 7 research papers, won 11 awards and grants; Primary Advisor on 3 BA and 2 MA theses, all awarded top grades
- Developed and taught Advanced Macroeconomics with MATLAB to 2nd year applied math students, while being a 4th year undergrad

GRANTS, FELLOWSHIPS, AWARDS

- Teaching Excellence Award, Zicklin School of Business, Baruch College, CUNY 2023
- 2 x PSC-CUNY Research Awards ($12k total) 2019-2024
- GRTI Equipment Grant – GPU Workstation ($50k), CUNY 2019-2020
- AWS Cloud Computing Grant ($5k), Stanford University 2017-2018
- Graduate Fellowship ($56k), E.S. Shaw and B.F. Haley Fellowship ($10k), Stanford University 2012-2018
- 2 x Best Student in Field (Advanced Macroeconomics, Economic Policy), New Economic School 2011
- 8 x Best Paper Award at conferences and research contests 2006-2011
- 3 x Special Academic and Research Grant ($8k, awarded to 3 of 200+ HSE students), London School of Economics 2007-2010
- Best Bachelor Thesis, Higher School of Economics 2008
- Winner, Economics Olympiad (6th of 10 000+, full tuition) & 4 x Regional Olympiads (Math, Physics, Chemistry, Biology) 2004

RESEARCH

The Role of Moving Shocks, Unemployment, and Policy in Understanding Housing Bust, *Journal of Banking and Finance*, 2023

- Developed a state-of-the-art model of household choice estimated with U.S. panel data, surveys, and macroeconomic indicators
- Accurately predicted house prices and household spending, saving, borrowing (mortgages, credit cards, home equity loans), defaults, housing, and moving decisions during financial crisis using pre-crisis data
- Used ML, AWS, GPU/CUDA to efficiently solve and simulate a dynamic stochastic model on 90 billion points 1000+ times
- Created a labor market sub-model predicting job postings, layoffs, unemployment, and income dynamics
- Used survey data to predict age-specific moving rates, crucial for modeling housing market dynamics
- Conducted cost-benefit analysis of mortgage policies, offering optimized solutions for better outcomes at reduced costs

Asset Prices in a Labor Search Model with Confidence Shocks*, Journal of Economic Dynamics and Control*, 2023

- Built a dynamic model linking U.S. labor and financial markets, incorporating uncertainty beyond traditional risk
- Used the Survey of Professional Forecasters, macro, stock and bond data to estimate the model using GMM in MATLAB
- Discovered that forecasters' confidence predicts stock returns & volatility, bond term structure, unemployment, and job postings
- Suggested a new mechanism explaining why unemployment predicts stock returns and dividends

The Effect of the *Tax Cuts and Jobs Act* on the Housing Market, R&R *Journal of Public Economics* (with K. Sommer and P. Sullivan)

- Estimated the 2018 tax reform's impact on housing prices, homeownership rates, mortgage debt, consumer spending, and welfare
- Built an equilibrium model of the U.S. housing market with detailed household financial decisions, including filing itemized tax returns

Uncertainty or frictions? A quantitative model of scarce safe assets (with Cosmin Ilut and Martin Schneider)

- Assessed how uncertainty and credit regulations impact financial trends using U.S. household balance sheets and macro data
- Documented new empirical findings on stock and bond returns and corporate leverage
- Built a dynamic general equilibrium model with heterogeneous beliefs and credit market frictions
- Developed a novel algorithm and a MATLAB package to automate solving, estimating, and simulating DSGE models with any expectations

Reinforcement Learning, Approximate Dynamic Programming, and Asset Pricing in DSGE models (with Evgeni Drynkin)

- Developed a novel method of solving heterogeneous-agent models with aggregate risk affecting stock and bond prices
- Implemented reinforcement learning and approximate dynamic programming with flexible function approximation techniques (lasso, random forest, nearest neighbor and kernel estimators) to handle complex behaviors in large state space

Student Loans, Housing, and Wealth Accumulation (with Alvaro Mezza, Kamila Sommer, and Paul Sullivan)

- Developed a model to predict student loan performance, housing and portfolio choice over life cycle and in response to student loan policies

Trade Policy during Financial Crises

- Developed a menu-auction trade policy model with financial frictions (liquidity cost shocks) and unemployment
- Model accurately reflects empirical tariff patterns across industries during economic cycles
- Provided recommendations on improving trade policies during financial crises