**Pavel Levin, Ph.D.**

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**Lead Data Scientist | Quantitative Finance | Machine Learning | Risk Analytics**

Innovative and results-driven Data Scientist with deep expertise in machine learning, quantitative finance, and statistical modeling. Skilled in developing and applying asset pricing and credit risk models for both academic research and hedge fund environments. Experienced in data analysis, computational modeling, and process optimization across finance, materials science, and sustainability.

Proven leader in cross-functional data initiatives, guiding projects from MVP through production deployment, mentoring data science teams, and partnering with finance, engineering, and operations stakeholders. Strong foundation in applied mathematics, statistics, and physics, providing a unique advantage in bridging quantitative finance and industrial applications.

**Core Competencies**

* **Quantitative Finance & Risk Analytics** – Asset Pricing, Credit Risk, Portfolio Modeling
* **Machine Learning & AI** – Supervised, Unsupervised, Deep Learning, NLP
* **Predictive Analytics & Forecasting** – Market Trends, Risk Scoring, Fraud Detection
* **Statistical Modeling & Applied Mathematics** – Drift-Diffusion, Reaction Modeling, Optimization
* **Data Tools & Programming** – Python, SQL, R, MATLAB, Data Architecture
* **Agile Product Development** – MVP to Scalable Production Deployment
* **Domain Expertise** – Finance, Materials Science, Sustainability Systems

**Professional Highlights**

**Finance & Risk Analytics**

* Developed and published asset pricing and credit risk models during academic research at St. John’s University, later adapted for application at a hedge fund (name not disclosed) to support portfolio risk assessment, stress testing, and investment strategy optimization.
* Built machine learning models for financial market forecasting, improving accuracy of asset performance predictions and risk-adjusted returns.
* Designed statistical methods for credit scoring and risk exposure, enhancing decision-making for capital allocation and mitigation of default risk.
* Partnered with finance teams to integrate quantitative analytics into trading platforms and portfolio monitoring systems.

**Data Science & Applied Modeling**

* Led development of predictive analytics frameworks in materials science and sustainability systems, optimizing resource utilization and process efficiency.
* Applied reaction- and drift-diffusion modeling to complex industrial processes, increasing accuracy of predictive simulations.
* Delivered end-to-end data pipelines in Python and SQL, enabling robust ETL, advanced modeling, and scalable insights delivery.
* Mentored junior data scientists, ensuring best practices in statistics, reproducibility, and model deployment.

**Professional Experience**

**2009 – Present | Vaposun Inc., Brooklyn, NY**  
Project Lead / Data Scientist / Research Analyst / Consultant

* Designed and implemented **AI/ML/DL solutions** using Python, SQL Server, PyTorch, TensorFlow, Spark, Neo4j, Power BI, Azure Databricks.
* Built **statistical models and RDBMS schemas** for innovation and optimization projects.
* Key projects:
  + **Cybersecurity**: IoT/V2V network optimization (2 patents, SQL-based schema).
  + **Finance**: Deep learning for financial transactions, LLM pipelines, SQL-based feature engineering.
  + **Smart Energy**: Solar home energy management, PV optimization, direct methanol fuel cell efficiency.
  + **Healthcare**: Drift-diffusion MRI motion compensation.
  + **NLP**: Project–innovator matching via natural language processing.
* Mentorship: Guided PowerBridgeNY startups (thermal energy storage system modeling, MVP creation).

**2018 – Present | St. John’s University, NY**  
Adjunct Associate Professor, Mathematics & Computer Sciences

* Courses: Biostatistics, Applied Statistics, Calculus (Biological & Business Applications).
* Research: Financial risk modeling (options, CDS, futures pricing), **deep learning and statistical models**.
* Projects: Infectious disease spread modeling, VBA/Excel analytics.
* Reviewer: SAJSS Economics, ARJoMath.

**2021 – 2023 | Tata Consultancy Services (TCS)**  
Lead Data Scientist, TTH

* Built Recommender Systems: Buy It Again, Recommended for You (SVD, LSTM), Frequently Bought Together (Neural Collaborative Filtering).
* Conducted EDA and forecasting with Python + BigQuery SQL, PySpark, Snowflake, Databricks.
* Applied LLM/NLP (BERT, Hugging Face, Transformers) in retail and airline analytics.
* Clients: Delta, Ingram Micro, BestBuy, Lufthansa.

**2006 – 2008 | St. John’s University & NY Institute of Technology**  
Adjunct Associate Professor – Physics & Finance

* Research: Stochastic differential equations, catastrophe modeling, spin-transfer nanodevices, diffusion modeling.
* Tools: Python, VBA/Excel, COMSOL Multiphysics.
* Reviewer: International Journal of Heat and Mass Transfer, Journal of Engineering Mathematics.

**2004 – 2005 | Veeco Instruments Inc., Plainview, NY**  
Process Development Engineer (Nanotechnology)

* Optimized thin-film deposition processes and nanodevice design.
* Developed regression/statistical models; high-vacuum equipment control.
* Tools: VBA, AutoCAD, simulation modeling.

**2002 – 2006 | City College of New York (CUNY)**  
Adjunct Professor, Mechanical Engineering

* Research: Thermal fields, phase-boundary stress/temperature modeling.
* Tools: C++, MATLAB, statistical methods.

**Education & Training**

* **Postdoc** – Ben-Gurion University of the Negev, Israel (Materials Engineering)
* **Ph.D.** – Donetsk National Technical University (Materials Engineering, Process Optimization)
* **B.S./M.S.** – Donetsk National Technical University (Mechanical Engineering, GPA 3.97, Honors)

**Professional Development**

* Innovation Certification Program, Xinova (2020)
* Python for Data Science, Machine Learning Scientist Program (DataCamp, 2017–2020)
* Data Architecture & SQL, Python, C# (Cooper Union, 2013)
* T3 Technology Seminar, St. John’s University (2007–2008)
* MBA coursework, La Salle University (1996)

**University Courses Taught**

* Biostatistics, Applied Statistics, Calculus for Biological/Business (SJU)
* Physics Labs, Conceptual Physics – Science Inquiry (SJU)
* Quantitative Analysis for Management (NYIT)
* Advanced Strength of Materials; Experiment Design (CCNY)
* Intro to Engineering Analysis (CCNY)
* Strength of Materials, Machine Design, Cargo Handling Equipment (DNTU)

**Publications & Patents**

**Publications**

* **22 peer-reviewed journal articles**, **13 conference proceedings**.
* Selected:
  + Quasi-steady-state modeling of dendritic growth, **Physics Letters A**, 310(5-6), 2003.
  + Instantaneous and Averaged Volatility in Two-Side Filtration Model of Financial Asset Pricing, **Journal of Derivatives**, 31(1), Fall 2023.
  + Reduced-Form Market Model of CDS Risk with Forward-Backward Enlargement, SSRN 5342666, 2025.

**Patents**

* **21 patents and disclosures** (energy, finance, imaging, communications).
* Selected:
  + Solar radiation collection system and method, US 8,915,241 (2014).
  + Method and apparatus for MRI, US 9,513,358 B2 (2016).
  + Device authentication in ad-hoc networks, US 9,813,406 B2 (2017).
  + Method and system for network communication, US 10,963,870 B2 (2021).

**Languages**

* English (Fluent), Russian (Native), Hebrew (Proficient), Ukrainian (Proficient)