

MARK MEDNIKOV

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EDUCATION

Stevens Institute of Technology Sep 2025 – May 2029
Bachelor of Science in Quantitative Finance, Concentration in Quantitative Methods Hoboken, NJ
Awards: Edwin A. Stevens Scholarship, Dean's list **GPA:** 3.9
Coursework: Introduction to Computer Science, Probability & Statistics for Quantitative Finance, Data Management in R, Principles of Financial Accounting, Financial Tools and Technology, Price and Value.
Activities: Finance and Investment Banking Association, Undergraduate Research, Stevens Blueprint.

EXPERIENCE

Incoming Quantitative Development and Optimization Intern September 2026
Stevens Student Managed Investment Fund (SSMIF) Hoboken, NJ

Stevens High Frequency Trading Competition (Technical Administrator) Feb 2026 – Present
Stevens Institute of Technology | Hanlon Financial Systems Center Hoboken, NJ

- Leveraged experience with the Stevens proprietary HFT simulator to develop **community forums, library documentation, and on-boarding presentations**; successfully introducing competitors to the SHIFT system.
- Refactored the Stevens HFT Python library to **modernize compatibility** across all major operating systems and current Python versions, essential to competitor on-boarding and **accessibility improvements**.
- **Organized panels** with industry professionals and Stevens alumni, **tailored to weekly competition themes**.

Hanlon Financial Systems Center Researcher Nov 2025 – Present
Stevens Institute of Technology | Hanlon Financial Systems Center Hoboken, NJ

- Built a **multi-agent reinforcement learning market simulator** (three agent roles: investor, market maker, trader; PPO-trained) with shaped rewards balancing realized PnL, inventory risk, and liquidity provision.
- Validated simulator realism by **benchmarking** against real market data across **10 statistical criteria**, identifying key behavioral gaps to guide future model improvements and reinforcement learning research.
- Collaborated with graduate researchers on a **school-sponsored HFT simulator**, authoring **C++/Doxygen** documentation that supports research initiatives and the annual Stevens HFT competition.
- Leading the migration of the proprietary HFT simulator from a FIX-based messaging layer to NasdaqITCH/OUCH protocols for inter-module communication, reducing latency and improving fidelity.

Crypto Currency Exchange Oct 2022 – Jan 2025
Founder Remote

- Founded an online crypto currency exchange in High School with **six-figure AUM** and over **2000 users**.
- Implemented **risk management** strategies to prevent losses while maintaining exchange profitability.
- Automated exchanges through a **full-stack web platform** with real-time spot prices and automatic payment processing, handling 30 percent of service transactions.

PROJECTS

Low Latency Execution Simulator | C++ April 2026

- Built a trade execution simulator for an HFT technical challenge, filling orders against a market tape using a **price-time priority matching engine, computing VWAP, slippage, and fill quality benchmarks**.
- Calculated rolling VWAP using a sliding-window two-pointer approach and binary search for time-range queries.
- Achieved an estimated **736k orders/sec** single-threaded on **1 million synthetic trades**.
- Implemented multi-thread solutions to achieve up to a **6x performance increase** in order processing.

WSJ Data Aggregate | Python, BeautifulSoup January 2026

- Parsed **data** from Wall Street Journal's RSS feeds for news article headlines using BeautifulSoup and lxml to create a **regularly updated dataset** able to be accessed through the Terminal, Web, or Discord chat.
- Deployed updates to a live website (mmednikov.com/wsj/) hosted on **AWS EC2** and Discord bot, delivering real-time finance headlines to users.

TECHNICAL SKILLS

Programming Languages: C++, Python, R, HTML/CSS

Libraries: BeautifulSoup, Matplotlib, NumPy, Pandas, YFinance, PyTorch

Tools: Bloomberg Terminal, AWS, Git, Linux (Ubuntu, Debian, Arch), Vim, Tmux, SSH, MS Suite

Interests: Triathlon, Martial Arts, Philosophy, Violin, Language Learning, Rock Climbing