

# Mark Mednikov

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## EDUCATION

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### Stevens Institute of Technology

Sep 2025 – May 2029

*Bachelor of Science in Quantitative Finance, Concentration in Computer Science*

*Hoboken, NJ*

**Awards:** Edwin A. Stevens Scholarship, Dean's list

**GPA:** 3.86

**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

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### Stevens High Frequency Trading Competition (Administration)

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 and undergraduate researchers on a **school-sponsored HFT simulator**, authoring **C++/Doxygen** documentation that supports research initiatives and the annual Stevens HFT competition.

### Aquatics Coordinator

Feb 2025 – Present

*Broadway and McBurney YMCA*

*New York, New York*

- Managed a team of 4 instructors delivering structured swim programming to approximately 100 children daily, adapting curriculum to individual skill levels and ensuring safety compliance.
- Designed and led structured swim instruction for groups of up to 15 students, adapting teaching methods to individual skill levels and ages.

### Crypto Currency Exchange Founder

Oct 2022 – Jan 2025

*Self-Employment*

*Online*

- Founded an online crypto currency exchange in High School with **six-figure AUM** and over **2000 users**.
- Implemented **risk management** strategies to prevent investor 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

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### Low Latency Execution Simulator | C++, Git

[github.com/markm101/low-latency-executor](https://github.com/markm101/low-latency-executor)

- 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, AWS, BeautifulSoup, HTML, Git

[github.com/markm101/WSJ-Aggregator](https://github.com/markm101/WSJ-Aggregator)

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

## TECHNICAL SKILLS

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

**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.