Noah Depp

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EDUCATION

Northwestern University: McCormick School of Engineering **Evanston, IL**

Bachelor of Science in Applied Mathematics *Expected December 2025*

- Cumulative GPA: **3.98/4.00**, Major GPA: 4.00/4.00, Dean's List All Quarters

Master of Science in Computer Science *Expected December 2025*

- Cumulative GPA: **4.00/4.00**
- Coursework: Nonlinear Time Series, Deep Learning for NLP, Deep Learning, Time Series Modeling, Financial Engineering, Machine Learning, Statistical Learning, Data Structures, Partial Differential Equations, Linear Algebra, Multivariable Calculus, Dynamical Systems, Engineering & Mathematical Modeling, Fluid Mechanics, Physics, Complex Variables
- Activities: Northwestern Capital Management Quant Team, Club Tennis A Team, Japanese Association, Robotics Drone Team

King's Academy **Madaba, Jordan**

Study Abroad *September 2020 - December 2020*

RELEVANT EXPERIENCE

Blackrock **New York, NY**

Quantitative Research Intern *June 2024 - Present*

- Engineered glidepath portfolio optimization model, leveraging large-scale Monte-Carlo simulations (15,000 paths across 100+ assets) to generate capital market assumptions for investment framework of $400B across multi-asset strategies
- Developed topic modeling approach to extract thematic risks from fixed income broker reports for systematic derivatives team

Kellogg School of Management **Evanston, IL**

Quantitative Researcher *October 2023 - Present*

- Replicated VIX computation using high-frequency SPX options data under CBOE Institute of Options grant. Collaborated with Professor Torben Andersen in development of Left Tail Volatility Index (LTV) streaming on CBOE
- Evaluated efficacy of Professors' novel LTV and SPOTVOL indices in reflecting tail risk premia and market volatility, developed methods to minimize systematic biases in VIX, achieving more robust estimation of expected volatility from large market moves and showcasing superiority of left tail risk premium over variance risk premium in predicting equity returns

Northwestern Capital Management **Evanston, IL**

Quantitative Analyst *March 2023 - Present*

- Forecasted realized volatility using GARCH with skewed generalized error innovation distribution, incorporating time-varying skewness and kurtosis, outperforming benchmarks in out-of-sample VaR performance across 8 international indices
- Developed derivatives and event-based paper trading strategies for volatility speculation on Biotech equity options and constructed factor-based algorithmic trading algorithms with team for paper trading competitions

Northwestern University Department of Applied Mathematics **Evanston, IL**

Undergraduate Fluids Researcher *June 2023 - August 2023*

- Numerically simulated viscous particle motion in fluids using finite difference method to solve the Navier-Stokes equations and investigate motility and shape fluctuations in droplets containing active particles in MATLAB
- Incorporated techniques to manipulate particle characteristics and study particle-particle interactions and the effects of confinement, examining and visualizing key parameters such as particle flow, velocity, center of mass, force, and torque

PROJECT HIGHLIGHTS

Quantifying FOMC Statement Language Shocks on Implied Volatility *March - June 2024*

- Created novel surprise language metric quantifying hawkish-dovish sentiment in FOMC statement using fine-tuned RoBERTa-large transformer model, correlated with indicators derived from high-frequency bond market reactions to forward guidance and regressed intraday VIX "jumps" on surprise score and lagged cross-asset volatilities, achieving an r^2 of 0.75

FinGan Deep Learning *January - March 2024*

- Implemented Generative Adversarial Networks for Financial Time Series paper, replicating innovative ForGAN architecture merging GANs with RNNs to generate probability distributions instead of point estimates for more robust forecasting
- Developed a new loss function for the generator, producing full conditional probability distributions of price returns based on previous historical values, enabling more accurate and uncertainty-aware forecasting

SKILLS & INTERESTS

Awards: McCormick Summer Undergraduate Research Award, Arabic Languages and Culture Department Award
Languages: Fluent in English, Japanese; Business Proficient in Chinese, Arabic
Programming: Python (PyTorch, scikit-learn), R, MATLAB, C/C++, Java, SolidWorks, Mathematica, MS Excel
Interests: Tournament Tennis and Squash, Drone Athletics, Tactical Soccer Analysis, Sauna Exploring, Concert Piano, Culinary Arts