

# Jesse Schmolze

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## Education

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### University of Wisconsin, Madison

*B.S. in Economics, Mathematics and Physics*

**GPA:** 3.91/4.00

**Relevant Coursework:** Stochastic Processes, Brownian Motion and Stochastic Calculus, Data-Driven Stochastic Models and Dynamical Systems, Real Analysis, Introductory Econometrics, Linear Algebra, Machine Learning, Deep Learning, Money and Banking

**Awards:** Lorraine A. and W. Dwight Stone Scholarship (\$12,000 merit); Bridgewater Forecasting Contest, Ranked 158/7,000+

**Madison, Wisconsin**

*Graduation May 2027*

## Research Experience

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### Deep Learning for Time-Inhomogeneous Markov Chain Equity Modeling

*Research Advised by Prof. Alejandra Quintos(In Progress)*

**Madison, Wisconsin**

*Oct 2025 – Present*

- Building a neural network framework that dynamically updates transition probability matrices for equity price modeling, addressing the known failure of the Markov property in financial markets.
- Integrated daily \$JPM price history with macroeconomic and accounting fundamentals (SOFR, VIX, balance sheets, cash flows, income statements) to construct a feature-rich supervised learning dataset.
- Developed an MLP with GELU activation, dropout regularization, Adam optimization, and 113 engineered predictors to classify next-day return states; transitioning toward softmax-based distribution outputs for probabilistic state evolution.
- Accepted to present my work at the UW-Madison Undergraduate Research Symposium in April and the ASA Midwest Regional Conference in Statistics and Data Science in May.

### Badger Solar Racing

*Race Strategy Team Lead*

**Madison, Wisconsin**

*Apr 2025 - Present*

- Collaborate with engineers to learn the dynamics of solar powered cars and translate my understanding into a Simulink model of our car's performance.
- Developed and solved a system of partial differential equations in MATLAB to model constraints such as air resistance and track conditions, enabling optimized race strategies that improved performance by approximately 10.7%.
- Developing a robust neural network model using reinforcement learning to enhance system generalization across diverse terrains, weather conditions, and race environments, with a focus on improving reliability and performance under varied real-world scenarios.

### Causal Inference of Network Effects on GDP Growth via Double Machine Learning

*Research Advised by Prof. Simeon Alder and Prof. Carter Braxton (In Progress)*

**Madison, Wisconsin**

*Jan 2025 – Present*

- Developing a regime-dependent framework to analyze the non-linear impact of institutional quality and global network spillovers (trade and financial linkages) on real GDP per capita growth.
- Implementing Double Machine Learning to partial out high-dimensional macroeconomic confounders, including lagged growth, stability indicators, and demographic variables, ensuring robust estimation of institutional effects.

### Federal Reserve Challenge Club

*Head of Communications & Financial Markets Senior Researcher*

**Madison, Wisconsin**

*Apr 2025 - Present*

- Lead a team of 10 researching how monetary policy changes impacted fixed income assets, currency markets and financial market stability by using 20+ indicators that span from corporate credit spreads to delinquency rates on subprime auto loans.
- Combined our findings with macroeconomic indicators such as GDP growth, jobs added and the PCE to develop fiscal and monetary policy recommendations that I presented to the Federal Reserve in October.
- Created open lines of communication between our club's 7 different sub-teams, which improves efficiency by accelerating the synthesis of different perspectives and leads to more comprehensive risk analysis.

## Work & Leadership Experience

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### Ogborne Capital Management

*Investment Research Intern*

**San Francisco, California**

*Summer 2026*

### Undergraduate Business Law Association

*Founder & President*

**Madison, Wisconsin**

*Mar 2025 - Present*

- Founded UW-Madison's first undergraduate business law club, which gives 30+ members(100+ applicants) the opportunity to explore the intersection between business and law through applied case analysis.
- Designed a 13-week curriculum enabling members to debate the legal and ethical implications of financial sector activity across banking, real estate, private equity, and more.
- Spearheaded the merger of UW-Madison's and UCLA's analogous organization to form a nationwide network that expands our reach and gives members access to more professional development events.

### Everlight Solar

*Business Value Creation Intern*

**Brooklyn Center, Minnesota**

*Summer 2025*

- Applied iterative client engagement strategies to convert cold leads into warm appointments that generated over \$80,000 in revenue in a six week internship.
- Accelerated residential market customer engagement by refining and delivering solar value propositions to 500+ households.

## Skills & Interests

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**Programming:** Python(NumPy, PyTorch, Pandas), Simulink, MATLAB, Stata, Microsoft Office Suite

**Interests:** Chess, 19th Century Russian Literature, Minnesota Timberwolves, Conscious Hip-hop, Collecting Jordans, Pasta