Sheyan Lalmohammed

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EDUCATION

University of Pennsylvania- The Wharton School **Philadelphia, PA**
Bachelor of Science - Economics (Statistics) (GPA: 3.88) *August 2022 - May 2026*

- Relevant Coursework Topics: Advanced Probability, Databases for Analytics, Venture Capital, Statistical Inference, Bayesian Data Analysis, Stochastic Processes, Corporate Finance, Corporate Accounting, Statistical Computing with R, Numerical Optimization for Data Science and Machine Learning, Business Analytics

University of Pennsylvania - College of Arts and Sciences **Philadelphia, PA**
Bachelor of Arts - Mathematical-Economics (GPA: 3.88) *August 2022 - May 2026*

- Relevant Coursework Topics: Single Variable Calculus, Multivariable Calculus, Linear Algebra, Partial Differential Equations, Real Analysis, Intermediate Microeconomics/Macroeconomics, Financial Economics, Numerical Methods for Macroeconomists, International Financial Markets and Cryptocurrencies, Econometrics Methods and Models

NOTABLE RESEARCH AND APPLICATION-BASED PROJECTS

Wharton Research Scholars - Undergraduate Thesis (Statistics)

- Conceived and proposed a time-dependent Dynamic Bayesian Network to model BNPL credit risk, leveraging personal-loan data as proxies to address CFPB's consumer-protection gaps in pay-in-four/six products
- Worked with Dr. Paul Sabin (Statistics Department) to author and presented a full research proposal and final thesis, execute a deep literature review on Bayesian and network-based risk models, and design an interpretable, statistically robust framework.

AI-Human Collaboration Welfare Modeling - Independent Research

- Wrote a preprint research article developing a discrete-time game-theoretic framework incorporating a collaboration index, equity penalty, and Nash bargaining solution to quantify total welfare from human–AI interactions.
- Parameterized risk attitudes, human ability, AI competency, and cognitive costs, and ran agent-based simulations to reveal that trust-building and skill development maximize joint welfare.

Cumulative Prospect Theory Driven Multi-Agent Reinforcement Learning

- Worked under supervision of Professor Damek Davis in STAT 4830 (and 2 other undergraduates) to integrate CPT-based reward transformations into a MADDPG framework, enabling agents to exhibit loss aversion and probability weighting during negotiation and demonstrating stable convergence across risk profiles.
- Developed multi-agent simulations in which CPT-guided agents inferred opponents' utility parameters from their actions, leading to more human-like strategies and different joint payoffs than standard MARL approaches.

Portfolios Tracker - *Developer*

- Used Python to write a program that takes in multiple self-created portfolios of assets, each learning towards a specific market or by spanning multiple optimization methods around specific values of Value at Risk, Volatility, Sharpe Ratio, Variance of Returns, Beta, and Alpha
- All details are provided in an open-source format and reports are run daily with previous real returns and Monte Carlo simulations of returns going forward while weights are adjusted based on long-term returns history

Harvard University International Economics Competition - *Lead Researcher*

- Wrote research paper titled "The Complex Framework to a Successful Central Bank Digital Currency" which discussed the implementation of a CBDC by the Federal Reserve through an interest-bearing CBDC (Placed Top 20 Worldwide)
- Described implementation using DLT token-based access through a decentralized two-party system for retail transactions and a centralized token system for wholesale transactions through expanded central processing networks

RECENT WORK EXPERIENCE (RESEARCH RELATED)

Edelman Financial Engines **Santa Clara, CA (Remote)**
Portfolio Research Intern *June 2024 - August 2024*

- Worked with the portfolio management team to conduct portfolio optimization under market and risk constraints and
- Built analytics assets with the financial technology team to develop financial model statistic generation infrastructure
- Productized key investment management tools while integrating research from the financial research team

The Wharton School **Philadelphia, PA**
Research Assistant *September 2023 - Present*

- Conducting Research under Professor Maurice Schweitzer of the Operations, Information, and Decisions Department related to topics in emotions and negotiation
- Working with P.h.D student to create detailed dataset of over 500 speeches on understanding advice in the context of commencement speeches

EXTRACURRICULAR ACTIVITIES

Wharton Global Research and Consulting Group **Philadelphia, PA**
Analyst - Insights/Articles Division *January 2023 - Present*

- Used research skills to develop research paper on developing economies digital assets infrastructure and its effect to social outcomes, specifically in the context of cryptocurrencies, utility tokens, CBDCs, and stablecoins
- Specialized in economics-related research for financial behavior and consumer behavior concerning multiple industries, including hospitality, investment management, retail, and technology as an articles fellow

Machine Learning Research at Penn **Philadelphia, PA**
Research Team Member *January 2024 - Present*

- Attended and spoke at lectures related to various machine learning, generative-AI, LLMs, and statistical theory
- Conducting research on Multi-Agent Negotiation with Reinforcement Learning using Prospect Theory

Mack Institute for Innovation Management **Philadelphia, PA**
Research Associate *January 2024 - May 2024*

- Estimated the current size and projected growth of the benchmarking industry, especially within the intelligent automation niche and analyzing trends impacting the market while identifying potential growth areas
- Conducted a comprehensive analysis on the generative AI industry using a combination of advanced data analysis and visualization as well as using proprietary data sets, product attributes, and service offerings

TECHNICAL SKILLS

Advanced Python | Advanced R | MATLAB | Financial Analysis | SQL | Econometrics | Excel | Powerpoint | Bloomberg Terminal