Shlok Channawar

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Education

The Pennsylvania State University State College, PA
Bachelor of Science in Applied Data Science *December 2027*

Technical Skills

Languages: Python (Pandas, NumPy, Matplotlib, Seaborn), R, SQL
Tools & Frameworks: Git, Jupyter Notebook, Scikit-learn, Pytorch, Tensorflow, APIs, Hugging Face, VS Code

Projects

Research on Mechanistic Interpretability in LLMs | *Python, Pytorch* In Progress (Spring 2026)

- Investigating whether geometric properties of SAE decoder vectors can predict feature steerability in LLMs
- Designed end-to-end evaluation pipeline over 100 SAE features x 75 prompts x 12 steering magnitudes on Gemma-2-2b-IT, benchmarked using SALADBench refusal evaluation
- Optimized batched inference to reduce model calls by 94% (69K → 4.3K), cutting GPU compute cost on Lambda Cloud instances
- Coordinating a 4 person research team across pipeline engineering, ablations, and experiment tracking via Weights Biases

Stock Price Forecasting Using Machine Learning & Macroeconomic Data | *Python, Scikit-learn* July 2025

- Developed a supervised ML pipeline to forecast Bank of America stock using historical data and macro indicators (interest rates, inflation, GDP growth)
- Compared models (Decision Tree, Random Forest, KNN, SVM) and evaluated with RMSE and R^2; produced feature-importance and prediction plots for interpretability
- Documented reproducible data prep, modeling, and evaluation for clear model comparisons

Multi-Asset Financial Portfolio Risk Analysis | *Python, Finance* June 2025

- Built a three-stock portfolio (Morgan Stanley, JPMorgan, Bank of America) and compared daily/simple/log/cumulative returns to analyze behavior and growth over time
- Assessed risk/performance using Alpha, Beta, Sharpe, Sortino, Treynor, stdev, max drawdown, VaR, and CVaR to quantify risk-adjusted returns and tail risk

Experience

Research Assistant January 2025 – June 2025
Humanitarian Engineering and Social Entrepreneurship – Hexarech *State College, PA & Kisumu, Kenya*

- Identified the need for sensor data integration in cage designs to improve farming practices, focusing on factors like fish mortality and inefficiencies
- Analyzed sensor data to identify trends, enabling farmers to adjust feed schedules and mitigate unfavorable water conditions, reducing fish mortality rates by 30–50%
- Traveled to Kenya to assess on-ground challenges, leading to piloting practical, low-cost demonstration cages tailored for smallholder farmers
- Collaborated with local stakeholders—including BMUs, hatchery owners, and extension officers—to co-design scalable cage systems based on locally available materials and investment models

Team Member August 2024 – Present
Commons Desk Operations *State College, PA*

- Handled 500+ packages daily and managed room keys/personal data for over 10,000 students at Penn State
- Facilitated check-in and check-out of residents, key security, and equipment loans
- Maintained accountability of confidential student information and records
- Recognized with the PAWsite Prize for exceptional performance and going above and beyond in workplace responsibilities