

Mrinal Sharan

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EDUCATION & AWARDS

University Of Oxford

October 2022 - June 2026

Integrated Master's and Bachelor's of Science Chemistry

St Hilda's College

- Secured top academic rank for two consecutive years
- 1st year: avg 94%, 2nd year: avg 96.5% Awarded highest academic honor along with departmental merit scholarship

ACHIEVEMENTS

- All India Rank 5 in the KVPY examination(National Science and Mathematics Olympiad) among a total of 3 lakh candidates
- Three-time national finalist for the **International Chemistry Olympiad**, becoming the youngest national camp selected in 2020
- Selected among top 500 students for the **Indian National Mathematics Olympiad**

EXPERIENCE

Department of Chemistry, University of Oxford

July 2024 – September, 2024

Research Internship

- Worked on optimizing pulse efficiency for multispin systems, improving fidelity by up to 10% using GRAPE (pulse generation technique)
- Theorized an approach to accelerate pulse engineering computations, reducing simulation time by 15% while maintaining accuracy
- Contributed to the ongoing Seedless project by coding up a memory and time-efficient algorithm to enhance the fidelity of the spin states

Department of Robotics, Purdue University

July 2024 – September, 2024

Machine Learning Intern

- Optimized RVO algorithm, reducing collision detection time by 5% for large-scale crowd simulations
- Created new behavioral models, integrating human factors and enhancing overall simulation accuracy
- Currently working on understanding the concept of reinforcement learning and its applications in self-driving cars

CapitOx Finance, University of Oxford

October 2023 – December 2023

Quant Analyst

- Engineered a detail-oriented trading strategy using Kalman Filter, achieving 15% higher returns than the benchmark, winning the top prize, and earning a role as Quant Analyst
- Optimized trading strategy to achieve a Sharpe ratio of 1.7, indicating improved risk-adjusted returns compared to given benchmark
- Lead the team and created a successful presentation showcasing collaboration and leadership skills

Oxford Venture Capital Network, University Of Oxford

Jan 2023 – October 2023

Sponsorship Director

- Automated email outreach using Python, streamlining sponsorship acquisition and improving efficiency
- Created and managed a sponsorship database for enhanced tracking and relationship management
- Served as a judge for the termly VC program, offering constructive feedback and fostering educational initiatives

PROJECTS

Trading-ML | *Python, Pandas, scikit-learn, PyPortfolioOpt, yfinance*

- Constructed a machine learning-based trading strategy for S&P 500 stocks, implementing data pipelines for technical indicator calculation and stock clustering
- Utilized Efficient Frontier optimization to maximize Sharpe ratio, enhancing risk-adjusted returns compared to market benchmarks
- Engineered a backtesting framework to evaluate 5-year historical performance, processing 1M+ daily price data points using pandas and matplotlib

Stock-Predict | *Python, scikit-learn, Quandl*

- Developed a dual-model stock price prediction system using Linear Regression and SVR for S&P 500 data
- Improved model reliability by 20% through the implementation of a 100-iteration evaluation framework, reducing overfitting
- Achieved a prediction accuracy of 65% for next-day price movement direction on out-of-sample data

SKILLS

Programming Languages: Python, SQL

Data Analysis: Pandas, NumPy, Scikit-learn, Matplotlib

Financial Analysis: Time Series Forecasting, Stock Price Prediction

Hobbies: Chess, Tennis