

# Dhruv Sharma

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## EDUCATION

- University College London (UCL)** London, United Kingdom  
*BSc Chemistry with Mathematics; First-Year Grade: First-Class Honours, 78%*  
*Sep 2022 - Jun 2025*  
*Courses: Applied Mathematics 1, Mathematics for Science 1 & 2, Physical Chemistry*  
*Activities and Societies: Quant Society, Asset Management Society, ESG Society, Economics & Finance Society*
- ACS Hillingdon International School** London, United Kingdom  
*International Baccalaureate; Grade: 39/45*  
*Aug 2018 - May 2022*  
*Higher Levels: Mathematics Analysis and Approaches (7/7), Chemistry (7/7), Biology (6/7), Economics (6/7)*  
*Activities and Societies: Model United Nations, Student Council, Cross Country*

## EXPERIENCE

- S-Cube** Imperial College London  
*Software Developer Intern*  
*Jun 2023 - Current*
  - Applied autodifferentiation to accurately compute gradients of various cost functions for gradient descent.
  - Utilized Fourier transforms with NumPy library to perform signal processing on seismic data.
  - Vectorised data while calculating the zero-lag cross-correlation of seismic data to improve compute time.
  - Automated data extraction from documents using Python with libraries Pandas, Itables and AWS CLI.
  - Leveraged fine-tuned GPT models and prompt engineering techniques to enable natural language data extraction.
  - Developed chatbots with LLMs, Flask and PostgreSQL, integrated intent detection for API data retrieval.
  - Deployed live web applications with AWS EC2, AWS ELB, Docker, Kubernetes, Nginx, and Git for version control.
- Schroders** London, United Kingdom  
*Spring Intern*  
*April 2023*
  - Acquired knowledge of financial markets, investable assets and the interpersonal skills required in asset management.
- Susquehanna International Group, LLP (SIG)** London, United Kingdom  
*Discovery Day*  
*March 2023*
  - Received an overview of trading at SIG, participated in a market-making game to manage risk and adapt bid-ask spreads.

## PROJECTS

- Spatiotemporal Analysis and Prediction of Crime in Philadelphia**  
*Citadel Europe Regional Datathon*  
*April 2023*
  - Worked with four teammates to conduct a spatiotemporal analysis of traffic stops and crime in Philadelphia, using R to determine police efficiency in locating crime hotspots.
  - Trained an artificial neural network from tensorflow.keras to predict the type and time of a crime in such crime hotspots.
  - Allows for effective crime prevention measures, without the ethical issue of predictive policing targeting certain locations.
- Deep Learning Model to Measure User Attention**  
*Hackathon Submission*  
*March 2023*
  - Worked in a team of four as part of a 24-hour hackathon to develop an application to analyse the attention of users during video calls and plot a graph displaying how attention varied over the call.
  - Trained a deep learning model with TensorFlow to measure user attention. Created a full-stack web application using Flask, with Python to process uploaded videos and plot a graph using matplotlib.
- Impact of London's Cycling Infrastructure**  
*Independent Research Project*  
*Nov 2020 - Jan 2022*
  - Wrote a 4000-word research paper, analysing the impact new cycle lanes had on the demand for Santander Cycles.
  - Processed 15GB of data using SQL, Python, and Pandas to visualize the positive effect of cycle lanes on cycling demand.
  - Compared statistical and ML-based time series models, performed STL Decomposition to assess cycling demand changes.

## EXTRA-CURRICULARS

- UCL Quant Society** London, United Kingdom  
*Risk Management Research Group*  
*Aug 2022 - Dec 2022*
  - Collaborated with team members to produce a weekly journal of published research in risk management.
- Model United Nations (MUN)** London, United Kingdom  
*Delegate*  
*Aug 2018 - Jun 2021*
  - Attended THIMUN, one of the world's largest MUN conferences in the Hague, representing South Sudan and Iran.
  - Introduced blockchain technology at Alconbury MUN, resulting in the passing of my resolution by majority vote.

## ADDITIONAL INFORMATION

- Languages:** English (Fluent), Hindi (Native)
- Coding Languages:** Proficient in Python, experienced in SQL, R, HTML, CSS, and L<sup>A</sup>T<sub>E</sub>X.
- Interests:** Scuba Diving (PADI Certified Advanced Open Water Diver), Cross Country.