Dhruv Sharma

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Education

- **University College London (UCL)** — London, United Kingdom
  BSc Chemistry with Mathematics; Grade: Predicted First-Class Honours — *Sep 2022 - Jun 2025*
  Courses: *Algorithms and Data Structures, Scientific Programming, Computational Chemistry, Mathematics for Physics and Astronomy*
  Activities and Societies: *Quant Society, Asset Management Society, Scuba Diving Society, Surfing Society, Brazilian Jiu-Jitsu 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)*
  Research Project: *Analysed cycling demand using 15GB of TfL data with STL decomposition. Awarded highest grade in cohort.*
  Activities and Societies: *Model United Nations, Student Council, Cross Country*

Experience

- **Microsoft** — London/ Edinburgh, United Kingdom
  Software Engineer Intern, Azure for Operators — *July 2024 - Current*
  - Used Ceph, an open-source package to manage syncing data between voicemail servers scaling to millions of users.
  - Wrote robust, error-handled code to allow for an outage-less upgrade of servers for customers with five nines uptime.
  - Ensured code could easily be debugged with well-written documentation and logs for support teams to aid customers.
  - Deployed Linux VMs, automated processes with bash scripts, monitored and managed network services/APIs.
  - Worked with open source communities, navigating large C++ codebases and debugging poorly documented functions.
  - Replaced Ansible with Python scripts, boosting command speed by up to 1000x, enhancing support team efficiency.
  - Developed unit-tested Java code in a large codebase, managing endpoint selection for requests in a multithreaded server.
  - Developed a Microsoft 365 Copilot extension for researchers to accurately discover papers via the Semantic Scholar API.
  - Created a Minecraft mod integrating Copilot into in-game chat, allowing new players to ask questions, easing learning.
- **Sainsbury Wellcome Centre and Gatsby Computational Neuroscience Unit** — London, United Kingdom
  Research Software Engineer, Neuroinformatics Unit — *Sep 2023 - Mar 2024*
  - Helped develop Movement, an open-source Python package for the kinematic analysis of animal body movements.
  - Wrote high-quality, object-oriented, unit-tested code for the I/O of various data formats and underwent code reviews.
  - Utilized strong CI/CD practices to facilitate open-source collaboration and published the code for open-source use.
  - Published as a coauthor in the proceedings of Measuring Behavior 2024: https://doi.org/10.6084/m9.figshare.25897855.
- **S-Cube** — Imperial College London
  Software Developer Intern — *Jun 2023 - Aug 2023*
  - 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.

Projects

- **Accessible Flappy Bird - Pose Detection & Voice Recognition**
  Morgan Stanley Code to Give Hackathon — *October 2023*
  - Worked in a team to use on-the-edge ML algorithms for keyword detection for voice controls, and pose detection to track head movement to create an accessible flappy bird for Children's Hospices Across Scotland (CHAS).
- **Spatiotemporal Analysis and Prediction of Crime in Philadelphia**
  Citadel Europe Regional Datathon — *April 2023*
  - Conducted a spatiotemporal analysis of traffic stops and crime in Philadelphia to determine police efficiency in locating crime hotspots using R. Trained a neural network from TensorFlow to predict the type and time of crimes in hotspots.
- **Deep Learning Model to Measure User Attention**
  Hackathon Submission — *March 2023*
  - Worked in a team to develop an application which detects users' attention during video calls using a deep learning model trained with TensorFlow and plots a graph displaying how attention varied over the call.

Additional Information

- **Coding Languages:** Proficient in Python, experienced in Java, Bash, SQL, R, C and LaTeX.
- **Interests:** Scuba Diving (PADI Certified Advanced Open Water Diver), Surfing, Brazilian Jiu-Jitsu, Cycling
- **Spring Weeks:** G-Research Coding Challenge (Winning Team), Susquehanna International Group, WTW, Schroders.