

## Tejas Krishnan

Mathematics and Computer Science Student at Oxford

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### Education

**Masters/BA Mathematics and Computer Science, St Anne's College, University of Oxford**

**Oct 2022 – Jun 2026**

- First year results: Distinction (above 70%)
- Courses: Data Structures and Algorithms, Concurrent Programming, Machine Learning, Probability, Linear Algebra

**International Baccalaureate Diploma Program, International School Basel, Switzerland**

**Aug 2020 – May 2022**

- Diploma score: 45/45; Courses: Mathematics HL, Physics HL, Chemistry HL, Economics SL, English A SL, German B SL

### Experience

**Software Developer, Locaze**

**August 2023 - Present**

- Linked the client and server of an IOS/Android app made with React, Python, and SQLite and deployed the server on AWS
- Used computer vision techniques and kernel smoothing to improve the accuracy of a trained gaze-tracking model by 50%
- Discussed and devised quantitative metrics to assess temporal and spatial accuracy of eye movement when tracking a dot
- Building a database for data from a study with 100+ participants to then train an ML model that predicts concussion probability

**Computational Chemistry Research, HPQC Labs**

**July 2023 – August 2023**

- Used the PySCF module in Python and Octave to calculate with high precision and fit potential energy curves for 10+ molecules
- Calculated Z-matrices using their point groups collated from dozens of papers and plotted these molecules in Avogadro
- Researched and tested LLMs with the goal of training a chemistry-specific LLM on niche chemistry textbooks and papers

**Software Development Engineer Summer Intern, BitWise Academy**

**Jun 2022 – Sep 2022**

- Utilized React, Bootstrap, client-server communication in JavaScript, and NLP for entity and intent recognition in a team of three
- Wrote weekly plans and attended daily meetings to present updates on progress and jointly troubleshoot any issues
- Scaled a chatbot on an AWS instance using Docker and Kubernetes with a load balancer to handle 100+ requests a minute

### Honors & Certifications

- IBM Full Stack Software Developer Professional Certificate
- Audited MITx: Mathematical Methods for Quantitative Finance and auditing MITx: Foundations of Modern Finance 1
- Swiss Maths Olympiad Bronze Medalist and represented Switzerland at the Middle European Maths Olympiad (MEMO)
- National Merit Finalist (USA) and recipient of National Merit Novartis Scholarship
- UKIEPC (regional ICPC contest) 23<sup>rd</sup> team in the UK
- Duke of Edinburgh Silver Award

### Projects

**TimetableScan – published online and open-sourced**

**Jul 2023 – Oct 2023**

- Developed a Python program using OpenCV and PyTesseract that parses a digital timetable image into any calendar service
- Works with high accuracy on over 80% of standard timetable formats and includes a user interface to edit any parsing errors
- Used image processing techniques including a modified Hough Line Transform, OCR, and a REST API made with Flask
- Designed an intuitive React frontend and deployed on an AWS instance with Docker, Kubernetes, NGINX, and Unicorn

**Pestle+ - on Chrome Web Store with over 900 users**

**May 2022 – Sep 2022**

- Collaborated with a partner to build a Chrome extension that extends the functionality of a question bank website called Pestle
- Employed an NLP-based algorithm with a tailored equation that combined sentiment analysis and named entity recognition on examiners' remarks for each question to produce a difficulty score and rank questions by difficulty
- Used keyword extraction and document distance with word vectors to find related questions for each question

**TRACR: Scheduling App – previously on Apple App Store**

**Jun 2021 – April 2022**

- Led a team of four and organized weekly meetings to develop an app that schedules time to work on assignments given, as input, the length and due date of the assignments, a list of working hours, and numerous other preferences
- Utilized Swift, SwiftUI and the Google Classroom API, and designed a complex scheduling algorithm from the ground up
- Beta tested in schools, incorporated feedback from students, and published on Apple App Store until Jun 2023

### Skills and Interests

**Languages:** Fluent in English and Tamil; professional working proficiency in German

**Programming:** C++, Python, JavaScript, Swift, Machine learning, Computer vision, NLP, Data science, Web scraping, Full stack

**Societies:** Analyst for CapItOx (Finance society) Quantitative Strategies Fund; Violinist in the Oxford University Philharmonia

**Sports:** Organizer of and player for college tennis, 5km and 10km running, indoor bouldering