Tejas Bantupalli

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Summary

I finished my first year student studying Mathematics and Computer Science (Modules:Computing Practical 1, Graphs and Algorithms, Logic and Reasoning, Calculus and it's Applications, Analysis 1, and Linear Algebra and Groups) at Imperial College London. I am passionate about securing a role that leverages my skills and interests in quantitative analysis or technology. With a strong foundation in computer science and a keen interest in data-driven decision-making, my background in designing and optimizing algorithms equips me with the analytical and technical expertise needed to excel in these fields. I am eager to contribute to innovative projects and solve complex problems in a dynamic and challenging environment.

Technical Skills

Python, C, Haskell, Kotlin, Java, C++, OpenCV, PyTesseract, Keras, Tensorflow, Pandas, Matplotlib, Numpy, Plotly, MySQL, PostgreSQL, AWS, SpringBoot, Flask, Redis, Docker, Kubernetes, Git, JavaScript, React.js, Node.js,HTML,CSS

Education

Imperial College London London
BEng in Mathematics and Computer Science *2023-2026*
Expected First Class Honours

Activities and societies:

- DocSoc (Computing Society)
- MathSoc (Mathematics Society)
- Algorithmic Trading Society
- Data Science Society
- Telugu society (Treasurer)

Experience

Software Engineering Intern July 2024- Present
WeXL EDU *Hyderabad, India*
WeXL is an EdTech startup that focuses on providing innovative solutions to help students be able to grasp topics better. During my internship at WeXL, I had the opportunity to work on a variety of impactful projects. I developed REST APIs for their web application, enhanced features with generative AI, and managed data with PostgreSQL. Additionally, I gained hands-on experience with AWS and Kubernetes, contributing to the deployment and scaling of applications. This role allowed me to deepen my technical expertise and collaborate with a talented team to drive meaningful advancements in education technology.

Member Jan 2024- Present
Beta Sigma Club *London, UK*
Member of the Beta Sigma Club, a Quantitative Finance club with a large presence across Europe and ties to multiple major quantitative finance firms. Through this club, I also attended an Optiver Trading Training program, where I got to learn more about Market-Making and Options-Trading through a lecture given by Robbert Pullen, a senior trader at Optiver.

Spring Intern April 2024 - April 2024
Rapidclaims.ai *Bengaluru,India*
I spent a week to gain expertise on how to implement LLMs efficiently in order to help extract information from and parse charts that can be used by Healthcare Insurance companies to verify insurance claims.

Summer Intern May 2021 – June 2021
Juppiter AI Labs *Pune,India*
Using Optical Character recognition text, I had developed a program which was able to extract text from car number plates within an image. My main goal was to help increase the effectiveness of traffic invigilation. Specifically, I wrote this program using OpenCV and tesseract libraries in python to identify anybody driving on the wrong side of the road.

Competitions

ICHACK 2024 (Marshall Wace Education Challenge) Feb 2024 – Feb 2024

This was a Highly Commended Project

Me and my team participated in Europe's biggest Hackathon, where we built a website that would take in a question and an essay and generate 5 video interview questions from the essay that it takes in using an LSTM (this would be useful to detect cheating and plagiarism). Teachers can then login and check submissions. Moreover, using OpenCV, we were able to take the projections of eigenvectors of the eyes towards the screen, and check if they were (suspiciously) looking in a different direction (gaze tracking). Such anomalies, if detected, would then be flagged. My role was primarily focused on implementing the gaze-tracking part.

UK Integration Bee Feb 2024 – Feb 2024

We were one of the 3 teams to qualify from Imperial to compete in the UK National Integration Bee held at Cambridge, and were the only team from Imperial consisting fully of first years).

Projects

Redis Database July 2024 – August 2024

Description: Developed a basic Redis-like key-value store server and client application in C++. The server supports fundamental operations (set, get, del, keys) and manages key-value pairs using a custom hashtable with dynamic resizing.

Key Responsibilities:

- Designed and implemented a multi-threaded server to handle multiple client connections using polling and POSIX signal handling.
- Developed a client application capable of sending commands to the server and receiving responses, demonstrating client-server communication and socket programming skills.
- Implemented a custom hashtable to manage key-value pairs efficiently, including functionality for dynamic resizing to handle changes in data volume.
- Ensured robust server operation through graceful shutdown handling for termination signals and thorough error handling for network operations.

Haskell Poker Game Jan 2024 – Jan 2024

Developed a terminal-based card game using Haskell, incorporating probability calculations for various poker hands. The game allows players to draw cards, evaluate hands, and place bets against a computer opponent. Key features include:

- Deck Generation: Created a deck of cards with four suits and ranks from 2 to Ace.
- Card Drawing and Hand Evaluation: Implemented functionality to draw random cards, evaluate hands, and calculate probabilities for different poker hands.
- Betting System: Designed a betting system with options to place bets, fold, and manage multiple rounds.
- Game Logic: Developed core game mechanics including hand evaluation, probability calculations, and game flow control.
- Utilized Haskell for its strong type system and functional programming capabilities, demonstrating proficiency in both algorithm design and code optimization.

ARMv8 Emulator, Assembler, and JSON extension May 2024 – June 2024

This was a mandatory First year Imperial project me and my team took part in, written entirely in C. I was in charge of building the Assembler. It has the following components to it:

- Emulator: Managed binary file reading and memory representation with 8-bit unsigned integers. Implemented instruction decoding using enums and user-defined structures, and executed tasks on registers and memory. Reused internal instruction representation and some file handling functions for assembler development
- Assembler: Built utilities and an instruction parser that extracts opcode mnemonics and maps them to functions using a function pointer table. Implemented a one-pass parsing approach with a symbol table for forward and backward references, and assembled instructions into a binary file in little-endian format.
- Raspberry Pi Application: Created a continuous LED blinking application using two ”latching” loops within a ”while true” loop to manage delays and ensure continuous operation.
- JSON Processor: Developed a JSON processor that parses JSON files and outputs binary files. Implemented a parser to handle commas and colons correctly, even within quotation marks.

Exam scores

• STEP paper 2 Score: 70 (grade 1)

• JEE ADVANCED All India Rank 2076

• I scored a 5 in the following Advanced Placement exams: Calculus BC Statistics Physics C Mechanics Physics C Electricity and Magnetism Chemistry

I have also earned an AP Scholar with Distinction Award

• JEE MAIN All India Rank 1606 out of more than 1.1 Million individuals. Scored a percentile of 99.87 overall.

• Cambridge TMUA assessment exam Score: 8.1

Courses

Stanford Machine Learing Specialisation July 2024-July 2024
Stanford, Deeplearning.AI

Imperial Algorithmic Trading Course October 2024-January 2024
Imperial Algorithmic Trading Society