Jaskaran Singh Walia

Third Year Undergraduate

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Academic Qualifications

Qualification	Institute	CGPA
B.Tech (Computer Science)	Vellore Institute of Technology	9.21/10.0
CBSE (XII)	DAV Boys Gopalapuram	95%
CBSE (X)	Kendriya Vidyalaya IIT Madras	91.9%

Work Experience

Data Science Intern | **Assurant** (Fortune 300) (*May'23 - Aug'23*)

Objective	• Worked on projects **Customer Journey Mapping** & **Moody's ETL** with the Canadian and US team respectively
Approach	• **Moody's ETL:** Developed an API to automate the ETL pipeline of 1.6 million financial time series (in TerraBytes) from Moody's Analytics. **Optimized** runtime with threading, **containerized** and **deployed** the API on our **server**. • **Customer Journey Mapping:** Optimize self-service tools and reduce call volumes by identifying gaps in **customer journeys** across web, chat, IVR, and phone channels. Utilized data manipulation and analysis skills to deliver actionable insights with PowerBI, resulting in enhanced digital containment and streamlined claims processes.
Result	• **Moody's ETL:** Achieved reduced data **redundancy**, improved data accuracy, enhanced efficiency and reduced manual effort by **automation** and **scheduling**. Optimized the API's runtime from 70H to 3H by utilizing threading • **Customer Journey Mapping:** Enhanced digital containment and streamlined claims processes, reducing the total IVR call volume and saving company's cost greatly.

Research Intern, Image processing and Machine Learning | **Indian Institute of technology Kanpur** (*May'23 - Jul'23*)

Mentor: ***Prof. Hamim Zafar***, Department of Computer Science, IIT Kanpur

Objective	• Design a novel architecture to integrate **high-dimensional** multi-omic data with spatial information, an **unsolved problem**, while preserving tissue-level spatial and sub-cellular features in latent representation embeddings
Approach	• Pre-processed high dimensional transcriptomic data and integrated it with the proteomic data spatially by constructing a Spatial Neighbour Network **graph** and induced the graph's information by an **adaptive attention** layer. • The developed Architecture is similar to variational autoencoder, additionally utilizing a feature based attention **GCN** and **OpenAI's Clip loss** research to generate a latent space that incorporates the multimodal data spatially
Result	• Proposed framework excels in **cancer** research, developmental biology, and **tissue engineering**, solving a critical challenge in deciphering high resolution cell functionalities and integrating complex, high-dimensional biological data

Research Intern, Machine learning & Deep learning | **National University of Singapore** (Singapore) (*Jun'22 - Jul'22*)

Objective	• Design a white-box solution for detecting **vulnerabilities** in captchas, preventing **cybercrime** attacks on websites.
Approach & Result	• Proposed a custom deep learning framework to crack vulnerabilities in captchas and provide an explainable solution. • Achieved an **A** grade for **research quality** from NUS professors and Presented at an international conference and also published the research paper on this after a year of practice, programming, and building expertise in the field.

Machine Learning & Cloud Solutions Intern | **Hewlett Packard Enterprise** (Fortune 150) (Singapore) (*Jun'22 - Jul'22*)

Objective	• Deploy **cloud computing** and machine learning solutions with Microsoft Azure services to aid real-world scenarios.
Approach & Result	• **Training & ML Deployment:** Acquired in-depth knowledge of Microsoft **Azure** through extensive training. • Utilized Azure ML Studio to successfully build and **deploy** machine learning models for our problem statement. • Developed and deployed a serverless app using Azure & Python, enabling execution of models & enhanced scalability

Undergraduate Researcher, Computer Vision | **University of Lincoln, United Kingdom** (*Mar'23 - Jul'23*)

Objective	• Proposed a solution to efficiently detect and **quantify** underwater debris and first authored a paper on the subject
Approach & Result	• Developed an **optimized dataset** for underwater debris detection while **benchmarking** latest methodologies. • Recognition: Paper accepted at **University of Cambridge** under TAROS conference; presented results in person.

Data Science Team Lead | **Google Developer Student Club (promoted)** (*Oct'22 - Present*)

Objective	• Conduct competitions and interviews to form and **lead** a high proficient data science expertise team under GDSC
Approach & Result	• **Hackathon Judging**: Evaluated projects for House of Developers Hackathon, driving **revenue** of over **1 Lakh**. • Blockchain NFT Project: Led a data science initiative integrating **blockchain** for NFT creation and market listing.

Data Science Lead | **IEEE - RAS VIT Chennai** (*Mar'23 - Present*)

Objective	• Lead the data science department at IEEE, Chennai, driving impactful projects and fostering student development.
Approach & Result	• Leadership: Headed the data science division, orchestrating **projects**, **research**, and **competitions**. • **Organized seminars**, **webinars**, and managed student teams, fostering skill development and team achievements.

AI Developer, Machine Learning & Automation | **MellonAI** (*Aug'22 - Mar'23*)

Objective	• Develop an **automated diet prediction** system for a **smart lab**, incorporating machine learning methodologies.
Approach & Result	• Overcame biological data challenges via manual preparation, **augmentation**, and **hyperparameter tuning**. • Employed deep learning & ensemble methods, resulting in high-accuracy ANN deployed for company's health app.

Research & Projects

Projects	• Moody's ETL: **Designed a database** for an **ETL pipeline** and **developing an API** to **optimize** the process via **scheduling, threading, containerizing** & **deploying** the solution. • Customer Journey Mapping: Utilized **PowerBI, Tableu** and Python to create a **BI-Dashboard** and **Process mining visuals** interlinking data from 20+ excel files from the canadian data warehouse to drive **business decisions** and **reduce** company's **cost** by reducing total call volume. • Nutriaide: Takes biological **blood-test** parameters such as hemoglobin, sgot, iron, sodium, etc and helps doctors calculate daily nutritional requirements and provide **personalized nutrition diet charts** with **recommendations** by leveraging data engineering and machine learning. • Several other projects can be viewed on my **GitHub**.
Research	• Optimized Custom Dataset for Efficient Detection of Underwater Trash **(University of Cambridge - TAROS)** • Spatially Resolved Multi-Omic Data Integration using Graph-Attention Variational Autoencoder. • Vulnerability analysis of Captcha using deep learning **(WCASET '23)** • An efficient detection of underwater debris using advanced deep Learning models (Journal peer review) • Continual learning for Lifelong malware detection & review of architectures. • ECG Classification System for Arrhythmia Detection Using Deep Learning Methodologies (Open access) • Research on Diabetic Retinopathy using attention convolution networks.

Accomplishments

Academic	• Physical, on-site presentation of my research paper at the **University of Cambridge, United Kingdom.** • **Received funding** for my **research** carried at the Indian Institute of Technology, Kanpur. • Selected for the Taiwan Education Program (TEEP) 2022 • Selected for IIT Kanpur's SURGE Research Program 2023 • Presented my research paper at WCASET '23, an international conference. • Participated in and won several university level hackathons and competitions. • Conducted seminars & webinars for students to help them in the field of computer vision and image processing.
Social & Volunteer	• Provided education and mentorship in computer science & mathematics to students at an orphanage, offering them a supportive & friendly presence to assist with their challenges aiding the UNDP goal of Quality education. • Developed an open source underwater debris quantifier detection model to aid the UNDP goal of Clean water and sanitization & Life below water. • Modeled and deployed an automatic diet predictor to make healthcare more accessible to everyone for free, aiding the UNDP goal of Good health and well being.

References & Certifications

References	• Hewlett Packard Enterprise: Mr. Clarence Lai, Country Manager Singapore Education Services HPE • Dr. Hamim Zafar, Professor, Dept of Computer Science at Indian Institute of Technology Kanpur. • Dr. Karthik Seemakurthy, Applied Computer Vision Scientist, Applied AGI Ltd. London. • Dr. Pavithra L. K., Professor, Dept of Computer Science at Vellore Institute of Technology. • Mrs. YingYing Kang, Director of AI & Data Science at Assurant. • Mr. Shaunak Bangale, Principal Data Scientist at Assurant. • Dr. Masood Ikram, Managing Director at Mellon AI. • Mrs.Hemalatha.L, Computer Science teacher at Highschool. • Mrs. Jayasree.s., Mathematics teacher at Highschool.
Certificates	• Deep Learning (CS7015) - Indian institute of Technology, Madras • Mathematics for Machine Learning: Multivarite Calculus - Imperial College London • Data Analytics using Deep Learning - Hewlett Packard Enterprise • Machine Learning & Deep Learning - National University of Singapore • Blockchain - University of California, Irvine • Launching into Machine Learning - Google • Supervised Machine Learning - Stanford • Python/C/C++/Advanced C++ - Indian Institute of Technology, Bombay