Shourya Pratap Singh

CS Junior at VIT Chennai

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Education

BTech in Computer Science and Engineering | *VIT Chennai* | *October 2022 - July 2026*
CGPA: 8.63/10 (5 semesters)
Class 12, PCM with Informatics Practices | *CBSE* | *The Orbis School, Pune* | *June 2020 - July 2022*
Score: 94.80%
Class 10, Science with Math | *ICSE* | *The Bishop's School, Pune* | *June 2007 - June 2020*
Score: 96.80%

Experience

Machine Learning (ML) Research Intern, National Taiwan University — May 2024–July 2024

- Interned at **the Computational Intelligence** in Biomedical Imaging lab at NTU under Prof. Cheng Ying Chou.
- Engineered an ML model to detect colon cancer from CT scans, using UNets(Convolutional Neural Networks) and EffTrans (Transformer), **achieving 91.5% diagnostic accuracy** in detecting colon cancer, **surpassing previous lab benchmarks by more than 5%.** Worked with Python, Pytorch, CuDNN and CUDA .,
- Developed auto-annotation software for NTU Hospital to use the model for efficient decision-making, allowing for scalability and deployment to other medical establishments, deployed in a Linux environment.

Publications

A review on rhodamine probes for metal ion recognition with a future on AI and ML
Published in Elsevier - Coordination Chemistry Reviews (Journal Impact Factor-24.83) — Paper Link

- Worked in a multidisciplinary team under the guidance of Dr. Pritam Ghosh on developing an ML tool for **image analysis** in chemistry. Developed the model using chemosensing datasets to analyze analytes in unknown specimens. Developed it using TensorFlow and Python-based OpenCV, CNN, and SVM. Lead regular code reviews and collaborations to integrate various aspects of ML.
- The publication has been cited 35 times since publication. (As of April 2025).

Projects

AMKR - Assistive Eyewear for Visually Impaired — *Product*
Tech: Raspberry Pi 0, PiCam V3, Text-to-Speech (TTS) API, GPT-4 Vision API, GoogleFlow Lite (TFLite), Microsoft Azure

- **Designed eyewear** to help the blind read text, recognize faces, and perceive the scene.
- The project was pitched to VNEST (VIT Start-up Incubator) and **secured seed funding** to help scale the product. The product was ADA-compliant and can be used to help the blind 100
- Utilized Generative AI tools such as Meta NougatOCR and GPT-4 Vision API for to enhance optical character recognition; OpenAI Text-to-Speech (TTS) for auditory feedback; Google TensorFlow Lite(TFLite) for face recognition.

Nyaya - Sahaya — *Winning project - VITISH 23, intra VIT hackathon*
Tech: Flutter, Firebase — GitHub Link

- Developed intuitive software that improves accessibility for users within the legal system. **Demoed at Google Build with AI in Bangalore** together with my team, demoing our Generative AI capabilities.

DSA Solver — *Course project - Fall Semester '23*
Tech: Flutter, Firebase, Pytorch, Google Cloud, Python, Kubernetes, Google Cloud Platform

- Developed a micro language model focused on learning from Leetcode questions, editorials, and solutions across various problem categories. Integrated generative AI capabilities using a locally hosted MicroLM, emphasizing efficiency in smaller-scale systems. Constructed a 2 million parameter model capable of functioning effectively without GPU support, designed to operate in resource-constrained environments.
- Implemented the model using distributed computing techniques (Kubernetes and Google Cloud) to optimize processing and reduce operational latency. Utilized Google Cloud services to manage data distribution and processing tasks, ensuring high availability and scalability.

Positions of Responsibility

1) Research Lead, Dr. Ibrahim Research Group, Data Science Club VIT Chennai | 2024-2025

- Student Lead of the Dr. Syed Ibrahim Research Group, leading a team of 15 student researchers, primarily working on medical image segmentation, computer vision, federated learning and few shot learning.
- Lead the Research Group for Capsule Vision Challenge 2024, leading a cohort of 4 members, working with QWEN-2-VL 7B and YOLO models to work on Capsule Video Endoscopy and diagnose gastrointestinal conditions within patients. Also, working with SWIN-UNet model.
- Lead the Research Group for IndoML 2024, an NLP competition.
- Set up a Linux server and maintained a CI/CD pipeline to ensure seamless integration of work done by research group members into final product.

2) Student Chair, Campus Development Committee, VIT Chennai | 2023-2024
3) Head of Finance, DevsHouse '24, VIT Chennai | 2023-2024

Skills

- Have worked with Pytorch, Tensorflow, Linux, CUDA, CUDnn, Python, C++.
- Experienced with working on Transformers, CNNs, UNets, ANNs, and RNNs,
- Python and C++ for ML and Computer Vision; Flutter, React Native, and Firebase for app development; Node for backend; AJAX (Async Javascript Transfer) for UI development; HTML5, CSS, JS, React for Web dev.
- Heroku and Google Cloud Platform to host projects and products developed. Worked with Linux systems as well. Worked with Kubernetes for distributed systems. Experienced with Cisco Packet Tracer and networks programming (TCP/IP).
- Experience with Jupyter, and data analysis tools like Power BI, Tableau and R for Data science and data analytics. Used Scikit Learn for data mining and SQL for managing RDBMS.
- Certified in networks programming by Cisco and Cloud computing by Google.

Achievements

- Google Build with AI, Bangalore Project Demonstration - 2024
- 2x VNEST - Intra VIT Hackathon winner - 2023
- IEEE YESIST12 Bangalore section winner - 2023
- Top 15 - CyberX Hackathon, Greater Chennai Police - 2023
- Times NIE, Star Correspondent, Pune 2018-2022. Part of Google Cloud Career Practitioner '22

Relevant Coursework

- Programming Languages: Python, C, C++, Java, R
- Mathematics: Calculus, Differential Equations and Transforms, Discrete Mathematics, Complex Variables and Linear Algebra, Probability and Statistics
- Core CS: Data Structures and Algorithms (C++), Design and Analysis of Algorithms(C++), Operating Systems(Linux), Computer Architecture and Organisation, Web Development (HTML, CSS, JS), Computer Networks, Theory of Computation, Database Systems (Oracle SQL, MySQL, MongoDB in NoSQL), Software Engineering, AWS Solutions Architect, Cryptography and Network Security, Compiler Design, Embedded System Design
- Specialisation: Microprocessors and Microcontrollers, Signals and Systems (Signal processing), Human Computer Interaction, Control Systems
- Basics: Engineering Chemistry, Engineering Physics, English, Spanish

Key interest areas

- Software Engineering, Product and Systems Development
- Artificial Intelligence and Machine Learning (AI/ML) with Data Science
- Computer Vision
- Biomedical Research