SHOURYA PRATAP SINGH
CS Junior at VIT Chennai

📞 +91 77092 22934   ✉ sp.singh.150604@gmail.com   in /amspsingh04   ⚙ /amspsingh04   🌐 /vercel

EDUCATION

BTech in Computer Science and Engineering | VIT Chennai | October 2022 - July 2026
CGPA: 8.63/10 (6 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

1) Machine Learning (ML) Intern, CENTER FOR DEVELOPMENT OF ADVANCED COMPUTING   05/2025–07/2025
- Interned at CDAC in the Bioinformatics Group of the HPC Division at Pune under Dr. Sunitha Manjari Kasibhatla and Dr. Archana Achalere.
- Engineered an ML model to perform unsupervised segmentations from given Breast Cancer whole slide images, highlighting region of interest with dice scores exceeding 0.9. Implemented OpenCV techniques, Vision Transformers, Graph Neural Networks, Multiple Instance Learning and previous benchmark papers such as CUTS and UnSegArmaNet. Used: Python, Pytorch.

2) Machine Learning (ML) Research Intern, NATIONAL TAIWAN UNIVERSITY   05/2024–07/2024
- 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.

PUBLICATIONS

1) 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.
- The publication has been cited 35 times since publication. (As of April 2025).

PROJECTS

sps-crypto - A Python package covering all aspects of foundational cryptography   PyPI Link
Tech: Python, PyPI
- Created a Python package which includes programs to perform cryptographic actions, including ciphers, encryptions, signatures, key exchanges, and other math and networking aspects related to digital cryptography. Built as a course project. Wrote unit tests, did unit, integration testing, and handled version control with open source contributions toward the package.

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. Utilized GenAI 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. Constructed a 2 million parameter model capable of functioning effectively without GPU support.

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.
- Lead the Research Group for IndoML 2024, an NLP competition.
- Led the development of a finetuned Speech-to-Text model and an Automatic Speech Recognition system. Subsequently led development of Simultaneous Speech to Speech Translation.

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