AYUSH RANJAN

📞 (831)266-5973 ✉ aranjan1@ucsc.edu in ayuranjan 🏠 Website ○ ayuranjan

Education

University of California, Santa Cruz - Master of Science in Computer Science -CGPA : 3.82/4	*Sep 2023 – Present*
Manipal University, Jaipur - BTech in Information Technology	*July 2017 – May 2021*

Technical Skills

Programming Languages and Frameworks: Java, Python, SQL, C, PyTorch, Spring Boot, Flask, JUnit, JDBC, React, Javascript, HTML, Hibernate, Keras, MySQL, PostgreSQL, DB2, MongoDB, Pandas, Numpy

Software Development Tools: Github, Docker, Kubernetes, Log4j, Jenkins, Papyrus, Jira, Azure, Eclipse, VsCode, Vim, GCP

Selected Coursework: Advanced Data Structure, Data Science, Analysis of Algorithms, Design and Implementation of Database Systems, Advanced Machine Learning Techniques, Operating System, Advanced Computer Network, Deep Learning for Advanced Computer Vision

Awards and Certifications

UCSC Kaggle's Competition Winner(2023): Achieved **first place** in the final project competition of "Applied Machine Learning: Deep Learning" course with a final score of **88.4%** using **Vision Transformers**.

3rd Place at Innocircle 2022, Mercedes' Internal Innovation forum: Implemented **micro frontend architecture** to complement the existing process, enabling users to autonomously modify their vehicle network topology and review changes independently, **eliminating previous dependencies as well as saving more than 50% of the time**.

SQL Fundamentals by SoloLearn: A Program for Mastering **SQL Scripting**, **Database Querying**, and **Manipulation**.

Experience

University of California, Santa Cruz   *Jan 2024 – Present*
Teaching Assistant for CSE 115A and CSE 182   *Santa Cruz, CA*
- CSE-115A **Introduction to Software Engineering** - Mentored student groups in software projects with an Agile focus.
- CSE-182 **Introduction to Database Management Systems** - Facilitating database application development projects and conducting labs and discussions on relational and non-relational data models, SQL, and database access using Python.

Capgemini Technology Services India Limited   *Oct 2022 – Aug 2023*
Associate Consultant   *Mumbai, India*
- **Role**: Java Developer Client : **Mercedes-Benz Research and Development India**
- Designed, implemented, and maintained Java features, employing design patterns while performing code reviews.
- **I headed the Data Model and Diagnostic Team**, under the supervision of the Project's Senior Architect.
- Restructured Export test cases via XML file import strategy and sorting, **cutting export testing time by 40 %**.

Capgemini Technology Services India Limited   *July 2021 – Sep 2022*
Senior Analyst / Senior Software Engineer   *Mumbai, India*
- **Role**: Java Developer Client : **Mercedes-Benz Research and Development India**
- Conducted software analysis, programming, testing, and debugging within a project that utilized a **3-tier architecture**.
- Collaborated closely with the **data modeling** team to enhance the functionality and adaptability of XDIS (Cross-platform Data Information System), a critical tool for vehicle diagnostics and automatic driving scenarios in Mercedes.
- Dramatically optimized **XML** file migration time by an impressive **66.67 %**. Additionally, enhanced the tool's robustness by concurrently implementing indexing strategies for associated **IBM Db2** database tables.

Capgemini Technology Services India Limited   *Jan 2021 – May 2021*
Senior Analyst Intern / Senior Software Engineer Intern **Role: Java Full Stack Developer**   *Pune, India*
- **Led a team of 6 interns** in developing end-to-end Medical Portal using **Spring Boot** for the backend and **React** for the frontend. Integrated frontend and backend via **Axios**. Utilized **JUnit** for backend and **Jasmine** for frontend testing.
- Developed a **REST API** to facilitate distinct user roles (Admin, Doctor, Patient) to streamline appointment booking, doctor profile viewing, and medical history management for patients, while enabling doctors to review medical histories.

Selected Projects

Unveiling Glitches in CLIP │ *Hugging Face, Python, pgVector, ChatGpt Api* *Github*   *Jan 2024 - March 2024*
- Conducted in-depth analysis of CLIP model's image comprehension capabilities. Identified and documented **14 systemic faults**, including **4 novel faults**, impacting CLIP's interpretation of images using **2 novel methodologies**.
- Implemented the Discrepancy Analysis Framework (**DAF**) to analyze discrepancies in image similarity rankings between CLIP and **DINOv2** and utilized **ChatGPT** to systematically find these failures. Utilized the Transformative Caption Analysis for CLIP (**TCAC**) approach to evaluate CLIP's response to transformations applied to images.
- Achieved **A+** in CSE 290D Neural Computation at UCSC for this project.

Video to Mp3 Converter │ *Flask, Docker, Kubernetes, RabbitMQ, MongoDB* *Github*   *Dec 2023*
- Developed a **microservices**-based system with four services, including an authentication gateway, authorization service, video upload service, and converter service. The gateway authenticates users via an authorization service, generating **JWT tokens** for valid users, enabling secure video uploads. Video-to-MP3 conversion was facilitated using the Python library "moviepy".
- Employed asynchronous communication using **RabbitMQ** queue, Utilized **Docker** for containerization, **Kubernetes** for orchestration, and **Minikube** for local development, ensuring consistent and scalable deployment across environments.

Sentiment Analysis using CNN │ *Python, Pytorch, TorchText, Jupyter Notebook* *Github*   *Jan 2020 – May 2020*
- Implemented four convolutional layers (filter sizes 2-5) to capture diverse n-grams in text for sentiment analysis.
- Our final model provided us with a **test accuracy of 87%, validation accuracy of 89%, and training accuracy of 88%**, and this project earned me **A+ grade in my Minor Project**.