Abhinav Gorantla

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EDUCATION

ARIZONA STATE UNIVERSITY, Ira A Fulton Schools of Engineering **Tempe, AZ**
Master of Science in Computer Science (CGPA: 4.0/4.0) *May 2025*

- Coursework: Artificial Intelligence, Data Intensive Systems for ML, Statistical Machine Learning, Planning and Learning methods in AI, Knowledge Representation, Multimedia and Web Databases, Database Management Systems Implementation.

VELLORE INSTITUTE OF TECHNOLOGY, School of Computer Science & Engineering **Vellore, TN, India**
Bachelor of Technology in Computer Science and Engineering (CGPA: 8.94/10) *May 2023*

- Coursework: Data Structures and Algorithms, Database Management Systems, Operating Systems, Computer Networks, Applied Linear Algebra, Artificial Intelligence, Machine Learning, Discrete Math and Graph Theory, Image Processing, Applied Statistics.

TECHNICAL SKILLS

Programming: Python, C++, C, Java, JavaScript, TypeScript, Kotlin, Node JS, Express JS, Nest JS, React JS, Angular JS, FastAPI.
Database and Cloud Technologies: MongoDB, Google Firestore, MySQL, AWS (S3, EC2, Sagemaker, SES, ECR).
Other: Shell scripting, Pytorch, Git, Tensorflow, Tailwind, Bootstrap, RabbitMQ, Jenkins, HTML5, CSS, LLMs, Docker.

WORK EXPERIENCE

ARIZONA STATE UNIVERSITY **Tempe, AZ**
Graduate Teaching and Research Assistant *August 2024 – Current*

- *Research areas*: Multi-Objective Optimization, Causal Machine Learning.
- Working towards optimizing traditional multi-objective optimization algorithms like Skyline and Non-Dominated Sorting.
- Teaching Assistant for graduate-level computer science courses. Provided guidance to students for the course project and organized project demos.

ARIZONA STATE UNIVERSITY **Tempe, AZ**
Graduate Services Assistant *March 2024 – August 2024*

- Worked at CASCADE Lab on an effort to build the CausalBench python package and website to create an end-to-end benchmarking solution for researchers in the field of causally informed machine learning.
- Engineered and optimized backend architecture for the Skysong project to enhance data flow efficiency and boost server response time by 80%. Also reduced the cost of deploying the system by 30% by integrating AWS Sagemaker into the system.

WEBKNOT TECHNOLOGIES PVT. LTD. **Remote**
Software Development Engineer Intern *April 2022 – June 2023*

- Revamped API endpoints within the Palette project, achieving a notable 30% reduction in response times.
- Optimized the deployment workflow for full-stack web applications using Jenkins, ensuring seamless delivery.
- Engineered a custom plugin for Sisense BI software, to display geojson data on a GeoJSON layer on maps rendered via DeckGL.
- Optimized JAQL queries for the DeckGL plugin within Sisense resulting in a 40% reduction in query response time.

PUBLICATIONS

Introducing CausalBench: A Flexible Benchmark Framework for Causal Analysis and Machine Learning
In 33rd ACM International Conference on Information and Knowledge Management ***[Received Best Demo Award]***

PROJECTS

Research Publications Analyzer

- Architected and developed a research publication analysis web application for ASU, integrating AWS S3, SageMaker, and SES. This tool leverages SCOPUS APIs to fetch research papers and perform text analysis of abstracts.
- Utilized LLM (GPT-4) for advanced feature extraction from scraped text.
- Optimized back-end system performance by reducing server response time by 80% and production costs by 40% through the strategic integration of AWS SageMaker.

Multimodal Image Retrieval System using Advanced Feature Analysis and Search Techniques

- Developed a Python-based image retrieval engine encompassing feature extraction from Caltech101 dataset images, latent semantics computation, clustering, and classification. Employed Locality Sensitive Hashing to index image features, optimizing nearest neighbour searches and ensuring scalability for expansive image datasets.

Enhancing Diversity in the LLM Modulo Framework through Multi-Response Generation

- Developed the Diversified LLM Modulo framework to address looping and redundancy in the LLM Modulo framework.
- Improved the performance of the LLM Modulo Framework on Planning tasks. Tested my framework on the Google Deepmind Natural Plan benchmark and achieved a performance improvement of 300% by increasing the diversity of LLM (Large Language Model) Responses.

LEADERSHIP

THEP Journalism Club, *Vice Chairperson*

- Established and sustained a robust MERN stack application as the cornerstone of the club's online newsletter platform. Supported this web-application by fixing bugs and developing features requested by the club members.