Abhinav Gorantla

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Education

Arizona State University, *School of Computing and Augmented Intelligence* *August 2023 – (present)*
Master of Science in Computer Science

- **GPA:** 4.0/4.0
- **Advisor:** Dr. K. Selçuk Candan.
- **Coursework:** Artificial Intelligence, Multimedia and Web Databases, Knowledge Representation and Reasoning, Database Management Systems Implementation, Data Intensive Systems for Machine Learning, Statistical Machine Learning, Planning and Learning methods in Artificial Intelligence.

Vellore Institute of Technology, *School of Computer Science and Engineering* *July 2019 – May 2023*
Bachelor of Technology in Computer Science and Engineering

- **GPA:** 8.94/10.0
- **Advisor:** Dr. Krishnamoorthy A.
- **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.

Research and Professional Experience

Graduate Research Assistant *Tempe, AZ*
EMIT Lab, Arizona State University *August 2024 - (present)*

- **Advisor:** Dr. K. Selçuk Candan.
- **Research areas:** Causal ML, Multi-Objective Optimization, Pareto Optimization.
- Developing an optimized algorithm for efficient Skyline retrieval in relational database systems by leveraging causal structure in the data.
- Collaborating with researchers at CASCADE Lab to maintain and improve `causalbench.org`, a platform dedicated to benchmark causal learning algorithms.

Graduate Services Assistant *Tempe, AZ*
EMIT Lab, Arizona State University *March 2024 - August 2024*

- **Advisor:** Dr. K. Selçuk Candan.
- **Research areas:** Causal ML.
- Supported CASCADE Lab researchers in developing the causalbench-asu Python package and website, establishing an end-to-end benchmarking solution for the causal machine learning community.
- Served as a full stack developer on the CausalBench project, contributing to a comprehensive framework for benchmarking causal machine learning algorithms.

Software Development Engineer Intern *Bengaluru, India*
Webknot Technologies Pvt. Ltd. *April 2022 - June 2023*

- Revamped API endpoints within the Palette project, achieving a notable 30% reduction in response times.
- Engineered a custom plugin for Sisense BI software, enabling the seamless display of geojson data on a GeoJSON layer atop maps rendered via DeckGL.
- Fine-tuned data flow for the DeckGL plugin within Sisense by elevating the efficiency of JAQL queries, ensuring a smoother and more responsive user experience.

Teaching Experience

Graduate Teaching Assistant Arizona State University
CSE 515 Multimedia and Web Databases Fall 2024

Graduate Teaching Assistant Arizona State University
CSE 510 Database Management Systems Implementation Spring 2025

Publications

Introducing CausalBench: A Flexible Benchmark Framework for Causal Analysis and Machine Learning *[Best Demo Award]*
Ahmet Kapkiç, Pratanu Mandal, Shu Wan, Paras Sheth, ***Abhinav Gorantla***, Yoonhyuk Choi, Huan Liu, K. Selçuk Candan
10.1145/3627673.3679218

Projects

Research Publications Analysis tool

- Proposed an architecture and built a research publications analysis tool for ASU. This tool was built as a web application which could fetch research paper information affiliated with ASU using SCOPUS APIs and perform a text analysis on their abstracts.
- Reduced the server response time by 80% and improved the user experience by integrating RabbitMQ message queues in the system.
- Tools Used: ReactJS, NodeJS, Python-FastAPI, RabbitMQ, MongoDB, AWS S3, AWS Sagemaker, OpenAI API.

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 (paper) and achieved a performance improvement of 300% by increasing the diversity of LLM (Large Language Model) Responses.

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 neighbor searches and ensuring scalability for expansive image datasets.
- Tools Used: Python.

Leadership

Vice Chairperson *Vellore, India*
THEP Journalism Club, Vellore Institute of Technology

- Established and sustained a robust MERN stack application as the cornerstone of the club's online newsletter platform.
- Pioneered the creation of a podcast for our club, achieving an impressive audience of nearly 800 listeners during its inaugural month.

Editor-in-Chief *Vellore, India*
Fifth Pillar NGO, Vellore Institute of Technology

- Oversaw and directed a 50-member editorial team, responsible for the editing and publication of articles on our blog website.
- Innovated by introducing new content formats like "Law Talks," resulting in a remarkable 50% expansion in the club's social media and community outreach.

Skills

Programming: Python, C++, C, Java, JavaScript, TypeScript, Kotlin, NodeJS, ExpressJS, NestJS, ReactJS, AngularJS, FastAPI.

Databases/Data Management: Salesforce, MongoDB, SQL, SQLAlchemy.

Cloud Technologies: AWS S3, AWS EC2, AWS Sagemaker, PostgreSQL, Google Firestore

Other: Pytorch, OpenCV, Git, Tensorflow, RabbitMQ.

[0]References available upon request.