

Mihir Mangesh Pavuskar

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EDUCATION

University of Southern California, Los Angeles, California

Jan 2023 – Dec 2024

Master of Science in Computer Science

GPA: **3.95/4**

Relevant Coursework: Foundations of Artificial Intelligence, Analysis of Algorithms, Machine Learning, Natural Language Processing, Deep Learning, Information Retrieval

Vellore Institute of Technology, Vellore, India

Aug 2018 – Aug 2022

Bachelor of Technology in Computer Science and Engineering

GPA: **3.82/4**

SKILLS

- **Frontend Development:** ReactJS, NextJS, Redux, Tanstack, TypeScript, JavaScript, HTML, CSS, ChakraUI, WebAssembly
- **Backend Development:** Node, Go, Ruby, Docker, AWS, REST API, DynamoDB, XML, Kubernetes, MongoDB, SQL, Firebase
- **Machine Learning / Data Science:** Tensorflow, PyTorch, NLP, Computer Vision, TFJS, Algorithms, SciKit Learn, Python, C++

EXPERIENCE

Software Developer Frontend, *MURF AI, Bengaluru, India*

Sep 2022 – Dec 2022

- Implemented critical features in video/audio editing studio to enhance usability and make interface user-friendly.
- Analyzed Google Analytics logs to identify and resolve bugs and devise fail-safes, lowering crash rates by 40%.
- Optimized studio for data-intensive projects by applying UI virtualization and modifying data flow across ReactJS components and Redux, making app 5 times faster.
- Collaborated with Customer Success team to upgrade Google Analytics to GA4 while maintaining data consistency.

Natural Language Processing Researcher, *Deakin University, Geelong, Australia.*

Feb 2022 – Jul 2022

- Developed an end-to-end Question Answering model for structured and unstructured financial data under Dr. Chetan Arora
- Researched, fine-tuned and benchmarked models like TaPaS, ALBERT, HybridR, TagOp on FinQA and HybridQA datasets.
- Created ensemble model achieving state-of-the-art accuracies on benchmark financial datasets such as FinQA and TAT-QA.

Full Stack Software Developer Intern, *Velocity Global Solutions, India*

Jan 2022 – Apr 2022

- Overhauled ECG monitoring dashboard by migrating from legacy code to NextJS, boosting performance and ease-of-use.
- Visualized large amounts of patient data through multiple graphs using a customized library built on top of ReactCanvas.
- Developed patient progress interface for doctors in React, enabling multiple patients tracking simultaneously.

Student Research Intern, *Samsung, Bangalore, India*

Dec 2019 – May 2020

- Designed an Intelligent Text Normalization model for Automatic Speech Recognition systems used in Samsung products, leveraging XgBoost and BERT-based language models, achieving an accuracy of 99.7%.
- Generated slang dataset by scraping popular slang dictionaries and trained lightweight language models such as ALBERT to normalize slang language, improving model accuracy by 4.4%.

PROJECTS

Mesh2Splat: Deep Learning method to convert Meshes to Gaussian Splats

Fall 2023

- Headed development of an end-to-end pipeline to convert 3D object representations such as point clouds and meshes to Gaussian Splats for efficient rendering.
- Leveraged pre-existing PointNet++ architecture reducing training time and achieved 93% accuracy on the splats generated.
- Introduced Objaverse-Splats, the first dataset of graphic shapes paired with high-quality Gaussian splats representation created utilizing Dream-Gaussian model.

MorphVLM: Fine-tuning Large Multimodal Language Models on niche Domains

Fall 2023

- Spearheaded project to advance performance and adaptability of Visual Language Models on niche domains by substituting vision-language components with pre-trained LLMs such as BERT, GPT, LLaMA, Mosaic MPT, and CLIP ViT.
- Executed fine-tuning of Flamingo model through LoRA method on A-OKVQA and Pubmed datasets to attain 45.5% accuracy on VQAv2 dataset with minimal resource consumption, 60% smaller model size and 3 times faster convergence.

Online Pente Playing AI Agent

Spring 2023

- Implemented leveraging alpha-beta pruning algorithm running at depth 5 with C++ capable of defeating Random, Minimax and Level 1 agent on pente.org.
- Improved performance by reducing search space and through optimizations like Forward Pruning, Move Ordering, etc.
- Created memory efficient agent and compiled to web assembly to produce near native performance on client-side and deployed as a user friendly ReactJS app using Netlify.

See Food

Fall 2020

- Built a "Shazam for Food" React app capable of identifying and classifying up to 500 dishes from uploaded pictures.
- Utilized TensorFlow ResNet model achieving 82.7% accuracy and converted to TensorflowJS model for deployment.