Avinash Nair

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Education

Cornell Tech (Cornell University) **Aug. 2024 - May 2025**

Master of Engineering in Computer Science

The University of Texas at Dallas **Aug. 2020 - May 2024**

Bachelor of Science in Computer Science *GPA: 3.8/4.0*

Bachelor of Science in Cognitive Science

Experience

MagNet Agents **February 2025 - Present**

CTO, Co-Founder *Dallas, Texas*

- Led end-to-end development of MagNet Agents, a legal tech platform that helps lawyers automate and optimize client acquisition using intelligent web scraping, LLMs, and vector search.
- Developed and deployed a full-stack web application with a React (Vite) frontend hosted on Netlify and a Flask backend API hosted on Render.
- Integrated Supabase for user authentication and database management, with RAG-based retrieval using LangChain and a custom vector store pipeline.
- Partnered with 60+ lawyers during product discovery and worked directly with early law firm customers to refine features; doubled weekly active usage and drove adoption across dozens of paying customers by delivering measurable improvements in lead discovery, tracking, and outreach efficiency

Smart Data Solutions **February 2024 – May 2024**

Machine Learning Engineer Intern *Dallas, Texas*

- Extracted and organized a large dataset of image and corresponding OCR data to identify file locations and class labels from a MySQL database.
- Automated data file transfers using retrieved file locations via SFTP and organized transferred files into a repository to be processed for data analysis.
- Built a multi-modal model combining extracted features from a modified version of VGG16 for image features along with LSTM and feature flags on keywords for text features.
- Achieved an accuracy of over 88% in document classification, greatly reducing dependence on manual identification.

Paycom **May 2023 – August 2023**

Software Engineer Intern *Irving, Texas*

- Developed a job performance metrics application enabling seamless integration of assorted job data from external sources via a flexible and generalized schema, allowing for enhanced data visualization and analysis.
- Built a long running job to autonomously fetch and deposit external job data into the application's database.
- Researched ways to save user queries to generate reports containing requested visualizations.

Projects (More in Github)

Optimizing RAG in Multi-Hop Tasks | *PyTorch, Hugging Face, Gemini* **November 2024 - December 2024**

- Developed a Multi-Hop RAG system based off the BM-25 pipeline introduced in a paper by Krishna et al. that utilizes the Gemini API to measure LLM performance on multi-document question answering across several reasoning types
- Built a model to predict hop counts to dynamically alter retrieval iterations, resulting in improved efficiency in key RAG tasks
- Introduced a novel metric (AEI score) to measure and optimize the trade-off between accuracy and efficiency in multi-hop RAG tasks

Semi-Supervised Learning Re-implementation | *PyTorch* **October 2024**

- Reimplemented the M1 model as described in "Semi-supervised Learning with Deep Generative Models" (Kingsma et al, 2014) for use on the FashionMNIST dataset.
- Modified the Variational Auto Encoder architecture to include convolutional layers.
- Achieved an accuracy of 86% on test set using an SVM classifier with 3000 labeled samples.

Pothole Detector Application | *PyTorch, React, Leaflet.js* **November 2023**

- Trained the Ultralytics YOLO v8 model on a dataset of pothole images to detect potholes from images of roads, achieving 87% accuracy
- Built a frontend using React to enable users to upload images of roads and visualize hotspots for potholes on a map

Technical Skills

Languages: Python, Java, HTML/CSS, JavaScript, SQL
Operating Systems: Windows, UNIX, Linux
Technologies/Frameworks: Git, React, TensorFlow, PyTorch, Hugging Face