Aarya Vasantlal

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Education

University of Connecticut Storrs, CT

Bachelor of Engineering in ***Computer Science and Engineering*** *Aug. 2022 – Present*

Relevant Coursework

Data Structures and OOP, Systems Programming, Computer Architecture, Digital Logic Design, Transformers, Linear Algebra, Elementary Differential Equations, Algorithms and Complexity, Software Engineering, C++

Technical Skills

Languages: Java, Python, R, C, C++, JavaScript, HTML/CSS, RISC-V, SQLite, PostgresSQL, PostGIS, NextJS, Typescript, VHDL, Node.JS, Next.JS, TaiwindCSS

Developer Tools: Git, PyCharm, Linux/Unix, Pytorch, Transformers, HuggingFace, pandas, NumPy, Matplotlib, Gensim, LogicWorks 5, TensorFlow, Scikit-Learn, LLMs, OpenAI API, Vite

Relevant Experience

Research Fellow May 2025 – Present

University of Connecticut *Storrs, CT*

- Currently assisting in developing a web application for visualizing data of the mRNA sequencing **AI agent**
- Focusing on **frontend** development for knowledge graph feature, built in **React + Vite**

Full Stack Engineer Intern January 2025 – Present

Visceral *New York, NY*

- Building full stack world map query application as a solo project for spatial survey data visualization
- Database made with **PostgresSQL** and **PostGIS**, Backend and API made with **Node.JS**, **Next.JS** and **Typescript** and FrontEnd made with **React** and **TailwindCSS**
- Implementing **OpenAI API** AI agent for translating natural language user input to **PostGIS** geo-spatial queries

Machine Learning Researcher September 2024 – Present

EL GATO Lab *Storrs, CT*

- Applying feature engineering Methods to tabular data such as **Beta Bernoulli** and **One Hot Encoding**, and on large document data **TF-IDF vectorization** all for better data mangement and prediction accuracy
- Created additional tabular data categories using **Dirichlet-multinomial posterior** on specific categories in the dataset
- Combined **TF-IDF** weights with **Word2Vec** embeddings to create weighting embeddings for classification
- Applied combined dataset of embeddings and tabular data to various classifiers from **sckit-learn** library such as **Decision Tree**, **XGBoost**, and **SVM** for up 65% prediction accuracy on motions
- Working on new methods in terms of **embeddings generation** and **anomaly detection** to assist for better prediction accuracy, potentially using modern **LLMS**

AI RLHF Trainer for Mathematics May 2024 – August 2024

Outlier *San Franciso, CA*

- Helped **train AI models** better prompt and return better responses to high level mathematic concepts, such as **Differential Equations** and **Linear Algebra**
- Worked on projects with the company in collaboration with companies like Google and OpenAI

Projects

Personal Portfolio Site | *Next.JS, Typescript, React* May 2025 – Present

- Developing a personal website with **CSS animations** and **React Client Side Components**

Pet Adoption Demo Site | *Python, Flask, SQLite, React, Vite* April 2025 – May 2025

- Developed a full stack web application as a mock ecommerce platform handling, **user dashboard**, **admin dashboard**, and **user login and password management**
- Managed and built **Rest API HTTP Requests** and **React Router** routes

Neural Network from Scratch | *Machine Learning, Deep Learning, Python, NumPy* May 2024 – August 2024

- Implemented a **fully-connected neural network** without using deep learning frameworks for handwritten digit detection
- Developed core components including **forward propagation**, **backpropagation**, and **gradient descent**
- O**ptimized hyperparameters** to improve model accuracy and convergence

NLP Sentiment Analysis Using RoBERTa Transformer | *Machine Learning, Python, Pytorch* April 2024 – June 2024

- Developed preprocessing pipeline and **fine-tuned RoBERTa model** for sentiment analysis
- Implemented real-time sentiment prediction for filtering online comments
- Optimized model performance through **hyperparameter tuning** and training refinement