Saaketh Sodanapalli

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Education

University of Massachusetts Amherst Expected: May 2026
B.S in Computer Engineering/B.S in Mathematics *(Mathematical Computing Concentration)* *Amherst, MA*

Technical Skills

Languages: Python, JavaScript, Java, SQL, OpenCypher, C, C++, HTML, CSS
Frameworks and Libraries: PyTorch, Scikit-learn, Pandas, React, Node, Flask, Next
Cloud Platforms: AWS (Neptune, SageMaker, S3, EC2), Snowflake
Developer Tools: Git, Docker, Jupyter, MLflow, VS Code

Experience

AI Innovation Intern June 2025 - August 2025
Chewy *Boston, MA*

- Led a team of 4 interns through the end-to-end product design and delivery of an AI solution that identified a company wide improvement opportunity; presented the working prototype to the CEO and other key executives
- Developed and presented a cross-functional product increasing customer insights, with potential impacts across 5+ business units and **millions of customers**
- Created a knowledge graph using AWS Neptune with **over 20 million touch points**, centralizing Chewy's customer data into a unified data model to power personalized customer insights
- Designed custom copilot functions that compiled a customer's entire history from the knowledge graph hyper-personalized campaigns tailored **for every customer**

Undergraduate Research Assistant January 2025 - May 2025
Khwarizmi Lab *Amherst, MA*

- Performed in-depth fault analysis on post-quantum cryptography algorithms, including lattice-based and code-based schemes such as CRYSTALS-Kyber, SPHINCS+, Dilithium, and Falcon.

Projects

Full-Stack AI Nutrition Tracker | *Typescript/React/Expo, Python/Flask* github.com/Saaketh0/FoodScanner

- Developed a full-stack mobile application using React Native (TypeScript) and Python Flask, integrating a **real-time AI-powered food recognition system** that leverages semantic similarity to match user-scanned images with a database of **3+ million foods**
- Engineered a high-performance machine learning pipeline with PyTorch and Sentence Transformers, processing **13+ GB** of food embeddings and utilizing the Apache Arrow format to achieve **sub-second response times** for real-time nutritional analysis
- Architected a robust RESTful API backend with Flask, integrating and managing large datasets from both a custom Apache Arrow database and the OpenFoodFacts API and implementing comprehensive error handling to ensure reliable food lookups and nutritional analysis

miniGPT | *Python, PyTorch* github.com/Saaketh0/miniGPT

- Designed a GPT-like model from scratch using PyTorch, implementing a decoder-only Transformer architecture inspired by a foundational research paper in natural language processing.
- Applied self-attention and multi-head attention mechanisms, along with feed-forward layers, to create the Transformer.
- Optimized model performance using a custom tokenizer, multi-batch training, and GPU acceleration, **decreasing training times by 70%.**

Neural Network Autocomplete | *Python, PyTorch* github.com/Saaketh0/RNN-Search-Complete

- Implemented a character-level RNN in PyTorch to perform next-character prediction, achieving **99% training accuracy** on a synthetic dataset.
- Engineered a sliding-window data pipeline that generated over 50,000 configurable overlapping training sequences, reducing data-preprocessing time by 40% while also ensuring model convergence.
- Trained and tuned the model on the **3 million-character** War and Peace corpus, reaching 55% validation accuracy, demonstrating coherent sequence generation with adjustable temperature sampling.