Vishal Tien

Website | LinkedIn | GitHub | Email

Summary

Passionate machine learning engineer with >2 years of experience spanning both research and industry, specializing in natural language processing and knowledge graphs. Domain expertise in healthcare and looking to grow skillset in other industries

Skills

Technologies: PyTorch, TensorFlow, Scikit-learn, AWS, Flask, React, Apache Spark, NoSQL, Neo4j, Docker, Kubernetes
Programming Languages: Python, Ruby, Java, JavaScript, R, MATLAB, SQL, HTML, CSS

Work Experience

Sumitomo Pharma America, New York, NY — August 2023 – Present
NLP Scientist

- Driving NLP / AI use-cases across business, leveraging multi-GPU distributed training + locally hosted open-source models

Roivant Sciences, New York, NY — July 2021 – July 2023
Tech Rotational Analyst

- *Software / MLOps Engineer*
  - Led development of organization's first MLOps tools, increasing model development / deployment velocity, reducing costs by 40%, and promoting CI/CD, infrastructure-as-code (Chef, Terraform), and containerized (Docker) development best practices
  - Orchestrated distributed ETL pipelines for production data warehouse that streamlines sales analysis and customer targeting
- *NLP Scientist*
  - Developed tool that combines complex, nested rule-based pattern matching and a fine-tuned T5 language model to assist researchers in retrieving relevant spans of text from millions of documents stored in NoSQL database, resulting in the reduction of manual curation efforts by >50% for information retrieval tasks
  - Built and deployed from scratch a knowledge graph-powered chatbot with Neo4J backend and fine-tuned GPT-3 model
- *Digital Innovator*
  - Led the design and development of ML product that analyzes Sumitovant's corporate reputation using information extracted from the web, enabling recommendation of marketing actions to the VP of Communications in a Flask application
  - Built and deployed deep learning models using HuggingFace and AWS SageMaker for topic modeling / document classification with zero-shot learning capabilities, using human-in-the-loop + active learning techniques
  - Integrated ElasticSearch into backend to increase speed of information retrieval and developed an interactive d3.js frontend visualization for React application that streamlines manual processes in research scientist drug discovery workflow
- *Knowledge Graph Engineer*
  - Built a biomedical knowledge graph from disparate data sources (1M+ nodes and 4M+ edges) and designed ontology using RDF to power a semantic search engine and enable previously unanswerable drug discovery questions to be addressed
  - Implemented graph-based algorithms / GNNs to uncover insights from knowledge graph, such as disease-disease similarity

Tsui Lab at Children's Hospital of Philadelphia, Philadelphia, PA — Dec. 2020 – July 2021
AI Researcher

- Constructed a CNN-LSTM model in PyTorch that predicted presence of life-threatening cardiac condition from multi-channel time-series waveform data, ultimately improving performance of current state of the art hospital solution by 77%

Merck & Co., Inc., Branchburg, NJ — Jun. 2020 – Aug. 2020
Data Science Intern – IT Emerging Talent Program

- Built tree-based classification model to uncover relationships between datasets without data dictionaries, improving recall of previously best performing model by ~50%

Education

University of Pennsylvania, Philadelphia, PA — August 2016 - May 2021
BSE in Bioengineering | Minors: Mathematics and Engineering Entrepreneurship (May 2020) | GPA: 3.8/4.0
MSE in Systems Engineering | Concentration in Data Science (May 2021) | GPA: 3.94/4.0
Awards: Senior Design Award, Rothberg Catalyzer Award, Publication, BMES Student Design and Research Award, Dean's List

Projects

Neural Network Implementation From Scratch

- Constructed neural network from scratch using pure python and numpy and compared performance to PyTorch network

Podcast Trailer Generator

- Implemented research paper approach to automate trailer generation from podcast audio and deployed using Docker and FastAPI

A Comparison of Abstractive and Extractive Text Summarization using Question Answering Benchmarks

- Deep learning research paper that contributes to the field as part of final project for deep learning graduate course