Jingxiao Tian

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EDUCATION

University of California San Diego, PhD in CS/Machine Learning **Expected 05/2025**
New York University, MS in Electrical and Computer Engineering **09/2018-05/2020**
Wuhan University, BS in Electrical and Computer Engineering **09/2014-06/2018**

TECHNICAL SKILLS

Programming: Python, Golang, MATLAB, C, Java **Machine Learning**: TensorFlow, PyTorch, Transformer, CNN, BERT
Computer Vision: 2D/3D detection, 2D/3D segmentation, object tracking **NLP**: Text generation/classification, Sentiment analysis
Data Analysis and Visualization: NumPy, Pandas, Matplotlib, Seaborn **Database Management**: SQL, MongoDB, Firebase

EXPERIENCE

Internet of Things Laboratory, San Diego, CA (*PhD*) **06/2021- Present**

- Integrated multi-CSBR layers and a single dense layer with sigmoid activation. Employed a machine learning model on a low-power **FPGA**, analyzing data from a 6-axis sensor, and achieved a notable AUC of 0.9 in ROC results for fall detection.
- Leveraged Intel RealSense depth camera data and applied advanced **segmentation** techniques in tandem with **YOLOv8**, significantly improved **object detection** and **tracking** capabilities, ensuring more accurate and reliable results.
- Merged 6-axis sensor data with depth camera image data for **unsupervised learning**, concentrating on pioneering fall prediction solutions, guaranteeing a swift and efficient response to potential fall incidents.

Ruixi Financial Technology, Remote (*LLM Machine Learning Engineer*) **06/2023- 09/2023**

- Developed and **fine-tune** the cutting-edge **GLM2-6B** model to compare incoming questions with a comprehensive database of past queries, utilizing cosine similarity measures and other advanced metrics., integrated legal articles as reference.
- Structuralize legal articles as **vector database**s within the **Pinecone** framework (**LangChain**), converting complex legal text into structured, searchable vector formats, enhancing the efficiency and accuracy of legal research.
- Managed the processing and optimization of a dataset comprising 200,000 entries. Employed **K-Nearest Neighbors** algorithm to filter and identify similar questions, ensuring the selection of the most accurate and relevant answers.

Afanti E-Learning Provider, Remote, US (*LLM Machine Learning Engineer*) **03/2023- 06/2023**

- Leveraged extensive datasets to develop and fine-tune using **GPT-3.5** and **Transformers**, ensuring their optimal performance for diverse generative AI applications in the K12 educational sector.
- Applied in-depth knowledge of Transformer-based architectures to enhance chatbot performance, enabling a more Socratic style of questioning. Optimizing through **quantization**, **pruning**, and **low-rank approximation**, contributes to the efficient deployment of GPUs and AI accelerators for enhanced computational efficiency in delivering AI-powered educational tools.

Occuspace Inc, San Diego, CA (*Machine Learning Engineering*) **12/2021-03/2023**

- Deployed deep learning, including **RNN** and **XGBoost**, to significantly enhance the accuracy of occupancy detection based on data collected at the main library building of the UCSD, resulting in a 90% prediction accuracy rate.
- Effectively addressed key issues related to data leakage and overtraining by appropriately shuffling the initial dataset into training and testing datasets, achieving optimal model performance and reliability.
- Developed a cutting-edge Golang process that runs independently of the primary process, significantly improving Journalctl information logs, enabling faster and more efficient data streaming to the AWS cloud.

PROJECTS

Multimodal Sentiment Analysis and Generation System **09/2022-04/2023**

- Designed and developed a multimodal architecture, integrating text, image, and audio data, with the core component being the **GPT-3.5** large-scale language model, to facilitate sentiment analysis and generation functionalities.
- Utilized transfer learning strategies to **fine-tune GPT-3.5**, optimizing its performance on emotion-related tasks and enhancing the system's generalization capabilities.
- Designed and constructed a **sentiment analysis** model, combining word embeddings and attention mechanisms, to provide clients with in-depth sentiment analysis services for social media data, enabling them to better understand user emotions and feedback.

Cassava Leaf Disease Classification **02/2021-05/2021**

- Successfully implemented and trained state-of-the-art machine learning models, including **ResNet18&50**, **MobileNetV2**, and **MnasNet**, utilizing **TensorFlow**, achieving an impressive 92% accuracy rate in cassava disease classification.
- Conducted rigorous experimentation with different hyperparameters, resulting in significant improvements in model performance and increased robustness against adversarial attacks.