Jie Kai Tao

Gainesville, Florida · jietao@ufl.edu · +1 (305)-606-0188 · https://github.com/jiekaitao

Education

University of Florida Aug 2023 - May 2027
Bachelor of Science in Computer Science and Mathematics

Skills

Programming Languages: C++, Python, PHP, SQL (MySQL)
Libraries: Numpy, Scikit-learn, Librosa, Tensorflow, Pandas, Matplotlib, Django, NextJS, Docker
Developer Tools: Git, Visual Studio Code, CLion, PyCharm, Google Cloud Platform

Work Experience

Lecture Hat Gainesville, Florida
Full Stack Developer August 2024 - Present

- Maintain and grow the website's (https://lecturehat.com) tech stack to offer a wide selection of student-focused AI features.
- Created Pontis, a fine-tuned model for accurately translating live lecture transcripts.
- Created Manounce, a fine-tuned model for converting symbolic text found across scientific domains into text easily enunciable with modern TTS models.

Panic Study South Miami, Florida
Full Stack Developer May 2019 - February 2025

- Maintained the website's codebase consisting of PHP and front-end languages.
- Coordinated with teenage school ambassadors and assist them with bringing Panic Study's suite of peer tutoring connectivity services to their high schools.
- Maintained Linux server security by running vulnerability scanning tools and patching CVE vulnerabilities.

Projects // Tools Used

Recognizing Hand-Written Greek Letters *// Numpy, Pandas, Torch*
For UF's EEL5840 Fundamentals of Machine Learning course's final project, I augmented a dataset drawn by the class, and developed a ResNet-based model pipeline with Monte Carlo dropout that first trained a toy model without a hold-out class, then calculated energy scores from the MLP's logits and dynamically chose the optimal energy cut-off. The model achieved 99.12% accuracy in the easy test set and 92.99% in the hard test set that required out-of-distribution detection, which were surprisingly the highest scores in the class!

Deep Learning Epidemiology Project *// Jupyter Lab, Scikit-Learn, Tensorflow, RAPIDS, Ubuntu, C++*
I am currently researching deep learning methods used in human cough detection. The goal is to estimate the number of sick people in lecture halls using Convolutional Neural Networks and K-means clustering for epidemiological purposes. So far, I have investigated the accuracy of SVMs, standard CNNs, and transfer learning using ResNet50 in classifying COVID vs. non-COVID coughs on the COUGHVID-19 dataset.

Visualization of Research Papers in a Graph *// Numpy, Pandas, NextJS*
Towards showing trends across several research fields in a graph, I have parsed through OpenAlex, a 1.6 TB dataset containing information on research articles, and distilled it down to $\sim$ 500 MB of article data. I then performed t-SNE on the resultant nodes' UNIX timestamps and associated topics to get the article's positions for visualization on a NextJS application built with react-force-graph.

Sorting Investigation *// Numpy, Matplotlib, C++*
Using automated testing, I looked into the ways in which various stripped-down sorting algorithms can improve the runtime performance of reduced sorting problems, such as sorting nearly contiguous unique integers.

Certificates and Awards

Miami Herald Silver Knight Nominee — Mathematics
I was nominated by my high school for the algorithmic work I did to match tutors and tutees and to build a "personal study plan" for tutees in group SAT tutoring.

NOCTI Biotechnology Workforce Competency Credential
A competency assessment for proficiency in laboratory techniques, safety protocols, and data analysis in biotechnology. (Link) Certificate