Tai Duc Vu

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EDUCATION

Stanford University Stanford, CA
- B.S., Computer Science • GPA: 4.2 / 4.0 • Expected Jun 2022
- **Coursework:** Data Structures & Algorithms • Computer Systems • Machine Learning • Deep Learning • Artificial Intelligence • Computer Vision • NLP • Information Retrieval • Web Applications • Probability • Linear Algebra

WORK EXPERIENCE

Facebook Menlo Park, CA
Software Engineering Intern *Jun 2020 - Sep 2020*
- Augmented latency profiling tools with module level debug information. Improved their runtime efficiency by 5x.
- Optimized Conv1D and channel shuffle operations with XNNPACK, boosting operator level performance of speech and natural language understanding models on mobile devices by 10x. Used **C++**, **Python**, and **PyTorch**.

The Stanford Daily Stanford, CA
Web Developer *Apr 2020 - Jul 2020*
- Built front-end components in **TypeScript**, **React**, **HTML**, **CSS**, and **Next.js** to enhance the responsiveness, content organization, and navigation design of article webpages, serving 1,000 readers daily.

Tarjimly Mountain View, CA
Software Developer, Volunteer *Oct 2019 - Dec 2019*
- Implemented programs in **Python**, **Java**, and **SQL** to process data from server and filter 18,000 translators across 32 languages based on the daily requests of 21,000 users.
- Designed machine learning algorithms and pipelines using **Scikit-learn**, **Pandas**, and **MLFlow** to optimize the process of matching users with translators, reducing the average wait time to 2 minutes.

Vietnam Posts and Telecommunications Group Hanoi, Vietnam
Software Engineering Intern *Jun 2019 - Aug 2019*
- Developed deep learning and computer vision models to extract texts, numbers, and logos from images of bank cards, achieving 89% accuracy. Used **Python**, **C++**, **TensorFlow**, **NumPy**, and **OpenCV**.
- Embedded the models in iOS and Android apps using **Java** and **Swift**, improving the experience of 40,000 users.

RESEARCH EXPERIENCE

Stanford Machine Learning Group Stanford, CA
Undergraduate Researcher *Apr 2020 - Present*
- Write scripts in **Python**, **NumPy**, and **Pandas** to download satellite images and global forest loss data.
- Implement data augmentation. Develop CNN and LSTM models using **PyTorch** to classify drivers of forest loss.

Computer Science Research Lab Stanford, CA
Member of AI Group *Sep 2019 - Dec 2019*
- Researched model compression, including network pruning and quantization. Utilized regularization and pruning to reduce the computational cost of ResNet by 15% with a 2% increase in accuracy. Used **PyTorch Lightning**.

PROJECTS

IntentBot: Building Machine Learning Systems For Automated Intent Detection
- Built machine learning, LSTM, and BERT models for identifying intents from user queries, achieving 99% accuracy and 0.99 F1 scores. Used **Python**, **NumPy**, **PyTorch**, **TensorFlow**, **Scikit-learn**, and **Hugging Face**.

Photo Sharing Web Application
- Built a photo-sharing web application that supported user profiles, user listing, photo sharing, commenting, favorite lists, activity feeds, etc. Used **JavaScript**, **React**, **HTML**, **CSS**, **Express.js**, **MongoDB**, and **Node.js**.

FlapAI Bird: Training AI Agents to Play Flappy Bird
- Implemented an AI program to play Flappy Bird, achieving scores of 2,000+. Applied reinforcement learning approaches such as SARSA, Q-learning, and deep Q networks. Used **Python**, **PyTorch**, and **OpenAI Gym**.

SKILLS

Languages: Python • C • C++ • JavaScript • TypeScript • Java • SQL • Swift
Technologies: TensorFlow • PyTorch • Keras • Scikit-learn • AWS • Google Cloud • OpenCV • NLTK • SpaCy
NumPy • Pandas • HTML • CSS • React • Node.js • MongoDB • Express.js • Next.js • React Native • Django