

Jerrick Liu

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EDUCATION

University of Illinois at Urbana-Champaign

Champaign, IL | Cumulative GPA: 4.0

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

Expected graduation in December 2022

Relevant Coursework: Algorithms; Machine Learning; Efficient and Predictive Vision; Natural Language Processing

WORK EXPERIENCE

GOOGLE | SOFTWARE ENGINEER INTERN

Mountain View, CA | Sept '22 – Dec '22

- A part of the Google Cloud Vertex AI team working on a C++ and Go information retrieval pipeline for improved model predictions on customer search recommendations.

NVIDIA | DEEP LEARNING LIBRARY INTERN

Santa Clara, CA | May '22 – Aug '22

- Worked with internal CUDA kernel developers on the cuDNN team to develop high-performance CUDA kernel generators to produce state-of-the-art fusion kernels running on tensor cores.
- Developed a mixed-precision FP16/FP8 ResNet block on the cuDNN C++ frontend for easy creation of mixed-precision convolutional neural network blocks in frameworks like PyTorch and MXNet.

AIR FORCE RESEARCH LABORATORY | RESEARCH INTERN

Riverside, OH | Dec '20 – Aug '21

- Performed homographies on raw data consisting of electro-optical (EO) and synthetic aperture radar (SAR) images to create a dataset and researched approaches to domain adaptation to train a classifier adapted to our dataset.
- Conducted numerous experiments using CycleGAN to generate EO images from original SAR images to better perform image registration.

AUTONOMY TECHNOLOGY RESEARCH CENTER | INTERN

Dayton, OH | May '21 – Aug '21

- Created a reinforcement learning framework for natural language processing tasks through a robust custom OpenAI Gym environment.
- Integrated Mattermost and Google Drive API to query Mattermost and the group's Google Drive for videos.
- Applied Vosk to transcribe meeting videos and performed topic modeling and keyword extraction on the video transcripts with LDA and RAKE and compared to Mattermost channel topics and select one to post a meeting link in.

AIR FORCE RESEARCH LABORATORY | RESEARCH INTERN

Riverside, OH | May '20 – Aug '20

- Utilized MineRL, a reinforcement learning environment based in Minecraft and OpenAI Gym to train agents through imitation and deep reinforcement learning to achieve certain objectives in the game.
- Used TensorFlow and reinforcement learning algorithms such as proximal policy optimization (PPO) to maximize the rate at which agents learn to play Minecraft and to understand how A.I. agents do in long-term planning.
- Incorporated Docker, writing a docker file for my code, pushing it to Docker Hub, and gained experience packaging software and deploying to other machines and servers.

AIR FORCE RESEARCH LABORATORY | RESEARCH INTERN

Riverside, OH | May '19 – Aug '19

- Researched various ways to improve image classification in drones on military ground vehicles.
- Implemented Gradient Weighted Class Activation Mapping (Grad-CAM) to visualize layers of neural networks.

PROJECTS

ANIME INTERPOLATOR

PYTHON, PYTORCH

Created a video interpolator model to interpolate intermediate frames given rasterized and vectorized input frames tuned towards animation/cartoons mostly from scratch in PyTorch. Used channel-wise attention to extract the most information from corresponding frames in each of the RGB channels.

PUBLICATIONS

- [1] J. Liu, N. Inkawhich, O. Nina, and R. Timofte. NTIRE 2021 Multi-Modal Aerial View Object Classification Challenge. In *Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, pages 588–595, June 2021.