MINH TRAN

New York City, NY - (541) 908-9436

*https://github.com/minhtcai * www.linkedin.com/in/minhtc-ai * minht@andrew.cmu.edu*

EDUCATION

MSc in Computer Vision - Carnegie Mellon University, Pittsburgh, PA *(expected) 2024*
Society Behavior Analytics - Linköping University, Sweden *2018*
MSc in Data Science - DePaul University, Chicago, IL *2018*
BSc in Electronic Commerce - Foreign Trade University, Vietnam *2015*

WORK EXPERIENCE

Sr. DATA SCIENTIST, Actuate AI, New York City, NY *November 2018 - January 2022*

- **Designed/deployed** an incremental learning pipeline to autonomate collect/process data and train/test/deploy new models in development, handling **100M+** images per day, data collected based on detection distribution across camera sites, verified daily and sampled to new train/test database. The distributed auto-train starts weekly with collected/processed data from inference, model was auto-compiled for AWS Inferentia chips, then model was tested on in-house database and deployed for A/B testing with custom metrics. Compiling saves **75-80% cost** compared to T4 GPU inference, the pipeline reduced up to **80% workload** of data science team, leaving only human verification step, impacting all ML products, custom metrics are effective to categorize performance on different environments, settings. After verification, the model was auto-deployed to as an AWS Endpoint and the loop started again.
- **Built/customized** machine learning models (YOLO, SSD, EfficientDet) for weapon-detection/tracking in real-time. Products are able to detect threats (weapons, behavior) with high accuracy (**99.95%+**) and True Positive, and low False Positive (**0-3/camera/month**). Several models were deployed to almost **25000+** cameras in **1000+** schools and facilities. Using Darknet, Pytorch, inference in AWS Inferentia, tkDNN, OpenCV-dnn. Also deployed on iOS and Android.
- **Researched** and integrated features to other CV algorithms (segmentation, detection, tracking) for specific tasks (threat, traffic, security). Implemented test-time augmentation, **OpenPifPaf**, **YOLACT++**, boosted recall while maintaining precision. Integrated multi-channel training to improve performance of detection on static CCTV.
- **Optimized** structure of backend logic to reduce cost by **30%** while boosting recall and precision. The process: Detect motion, increase frame sampling rate, preprocess input, send input to detection layers, get result & compress frames, send information to database, update logs to analytics platforms.

DATA SCIENTIST, Veda Grace Dermatology, Chicago, IL *July 2018 – January 2019*

- **Implemented** image processing features and built classification models based on ResNet to analyze skin images, recognize conditions and provide recommendations for patients. Deployed in AWS Lambda. Using OpenCV and Keras.
- **Design/deployed** a pipeline to retrieve information of skincare products, use sentiment analysis models to build a ranking & recommender system. Using Selenium, Beautiful Soup and Surprise.

RESEARCH & SELECTED PROJECTS

- **GPT API Reverse Engineering:** Approximate/map big model into a smaller network with minimal loss.
- **Model-Agnostic Meta-Learning:** Implemented model to adapt to new ICD Code, train/test on MIMIC III.
- **Ensemble of Convolutional Neural Networks for Emotion Classification:** Implemented an Ensemble of 10 CNNs from scratch with customizable hyper-parameters, reached 82% accuracy in 10 epochs on CK/CK+ (Facial Expression).
- **3D Model Reconstruction from 2D Images:** Implemented a computer vision model to reconstruct 3D cloud points from 2D images using Epipolar Geometry method.
- **Tracker for Darknet YOLOv4**: Added object trackers SORT, and background subtraction trackers for CCTV.

VOLUNTEER ACTIVITIES

VICE PRESIDENT, DePaul Analytics Group *March 2017 - May 2018*

- Lead trainer for weekly Data Hacking Hour of DePaul University. Topics: Deep Learning, Ensemble Learning, Quantum Computing, Hadoop/Spark on AWS. Supported Chicago Machine Learning Hackathon 2018 as technical mentor.

TECHNICAL SKILLS

- **Proficient**: Python, C++, Darknet, Pytorch, Tensorflow, AWS, GCP, Azure, LaTeX.
- **Prior experience**: R, Matlab, SQL, Java, Hadoop, Spark, SAS, SPSS, Kafka, Cassandra, Scala, Tableau, Gephi.

SELECTED AWARDS

- 3rd Prize - Edward L. Kaplan, ’71, New Venture Challenge (Team: Aegis AI) *2019*
- 2nd Prize - Bosch & KPMG Mobility Hackathon Chicago *2018*
- Computer Training Institute of Chicago Full Scholarship *2018*
- FTU Excellence Student Scholarship *2015*