Minh Tran

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Inspired by Prof. Chelsea Finn

Education

Carnegie Mellon University, School of Computer Science — Pittsburgh, PA
MSc in Computer Vision — 2022 – 2023
Advisor: Prof. Matthew O'Toole. *GPA: 4.0.*

Linköping University, Institute for Analytical Sociology — Linköping, Sweden
Exchange Studies - Social Networks Analysis — 2018 – 2018

DePaul University, Jarvis School of Computing — Chicago, IL
MSc in Data Science — 2016 – 2018
Advisor: Prof. Jacob Furst. *GPA: 3.83.*

Foreign Trade University, Information Science Center — Hanoi, Vietnam
BBA in E-Commerce System — 2011 – 2015
Advisor: Prof. Hung Nguyen. *GPA: 3.31.*

Research Experience & Selected Projects

Meta Reality Labs - Capstone: Active Learning for Multi-view Part Segmentation. — Jan. 2023 - Dec. 2023
Advisors: He Wen, Yuan Dong, Prof. Deepak Pathak - Partner: Ashwin Vaswani

- Implementing Active Learning with Viewpoint Entropy for Human Part Segmentation using Multi-view Data. This method reduced annotation cost up to 80% while maintaining the same model performance.
- Generated a multi-view dataset of human segmented parts focusing on hard poses. The dataset contains 20 subjects, 50 poses with 10 views each, 500000 images in total. It is the first hard-pose synthesized dataset.

CMU Light Transport Lab - DiffuserCam: Lensless Single-exposure 3D Imaging. — Jun. 2023 - Dec. 2023
Advisor: Prof. Matthew O'Toole

- Implementing lensless camera used to capture 3D structures effectively using method from DiffuserCam.
- Teaching assistant for 16-385: Computer Vision

CMU Biorobotics Lab - On-orbit Surface Inspection. — Jun. 2023 - Sep. 2023
Advisor: Dr. Geordan Gutow

- Implemented a soft method to narrow down gas leak localization using ultrasonic for non-flat surfaces.
- Implemented a trajectory optimization method that minimized information loss due to perception models.

Selected Projects

See my projects at https://minhtcai.github.io

- Multi-modal Meta-learning for Federated Tasks. **arXiv**
- Meta Learning for Few-Shot Medical Text Classification. **arXiv**
- Structured Light for Fruits Freshness Prediction. **Github**
- Negative Co-Learning: A Case of Harmful Learning. **Github**

Technical Skills

Proficient: Python, C++, Darknet, Pytorch, Tensorflow, AWS, GCP, Azure, LaTeX.
Prior Experience: JavaScript, R, Matlab, SQL, Java, Hadoop, Spark, SAS, SPSS, Scala, Tableau, Gephi.

Professional Experience

See my full job responsibility at https://minhtcai.github.io/data/minh-resume.pdf

Venera AI Nov. 2023 - Current
Engineering Manager New York City, NY

- Led engineering department of 14 engineers to build end-to-end products.
- Designed AI architect of three product lines:
  - VeD: Medical dashboard to support operation of healthcare providers, B2B product.
  - Companion: Personalized healthcare assistant, for individual and group, B2C product.
  - VeG: Desease control dashboard for public health organizations, B2G product.
- Led machine learning team of 7 to build Healthcare Vision-Language Model of 1B for edge devices (test recommendation, diagnosis, treatment recommendation, risk evaluation). Led building several Large Vision-Language Models for healthcare. Implemented the multiple Vision Encoder architect, used BiomedCLIP & SigLIP & MedCLIP as experts, Llama-3.2-90B-Vision as backbone.
- Designed and implemented complete CI/CD pipeline for ML team including:
  - Data Infra.: Collecting, ETL, Versioning. Used Apache Airflow, MongoDB.
  - Data Quality: Verification, Filtering, Guarding, Synthesizing. Used Dataverse.
  - Data Pre-trained: Optimized Tokenizers, Streaming. Used MosaicML.
  - Model Train: Optimized Distributed Training. Used FSDP/DeepSpeed/Unsloth.
  - Model Qualtity: Built Multi-modal RAG, Benchmarks, A/B Testing Insights. Used W&B
  - Model Inference: Optimized Prompts, Quantized Models, Optimized Hardware. Used vLLM, AWS Inferentia.
  - MLOps: Built Dashboard & Metrics. Used GuideLLM, AWS CloudWatch.

Actuate AI Nov. 2018 - Jan. 2022
Sr. Data Scientist New York City, NY

- Built real-time object detection (YOLO, SSD, EfficientDet), segmentation (YOLACT++), activity recognition (OpenPifPaf), tracking (DeepSort), structure from motion (OpenSfM) models for large-scale CCTV systems. Models were deployed on more than 15000 cameras.
- Designed and built end-to-end autonomous CI/CD pipeline for data collection and verification, model re-train, compile, re-test and re-deploy. The pipeline reduced the workload of data science team by 50% and up to 70% inference cost, impacting all machine learning products.
- Customized and integrated new research into CCTV applications including test-time augmentation, background subtraction, multi-channel training and many more. Optimized inference models for SaaS pipeline and edge devices, deployed models on iOS and Android.

Veda Grace Dermatology Jul. 2018 – Jan. 2019
Data Scientist Chicago, IL

- Built and deployed image processing pipeline to process and extract skin surface features for dermatology.
- Built classification model based on ResNet to detect skin diseases and recommend suitable ingredients.

Talks & Tutorials

Ensemble Learning with Tree-based Models - Chicago Machine Learning Hackathon. 2018
Hadoop and Spark on AWS - DePaul Data Hacking Hour. 2018
Intro to Deep Learning - DePaul Data Hacking Hour. 2017
Data Science & Tech Startup - Electronic Commerce Club FTU. 2017

Honors & Awards

Patient Safety Award - Hack-a-Startup CMU (Team: SafeRX) 2023
First Prize & Best in Show - hackAuton CMU (Team: Patient Safety) 2023
Demo - McKinsey Digital Hackathon New York (Team: CPC4) 2023
First Prize - AWAP CMU Algorithms Hackathon (Team: IDC) 2023
Third Prize - Edward L. Kaplan, '71, New Venture Challenge (Employer: Aegis AI) 2019
Finalist - MARS Hackathon Chicago (Team: DePaul) 2018
Second Prize - Bosch & KPMG Mobility Hackathon Chicago (Team: Amber) 2018
Computer Training Institute of Chicago Full Scholarship 2018
First Prize - Young Entrepreneurs & Sustainability Education Hack (Team: Pupa) 2015
FTU Excellence Student Scholarship 2015
Second Prize - Hanoi Startup Weekend (Team: Beeketing) 2014

Extra Actitivies

Summer of Quantum (SoQ) Short Course - Laboratory for Physical Sciences University of Maryland 2022
Quantum Compting and Intelligence Workshops - Vietnam National University 2022
Summer School on Cognitive Robotics - University of Southern California 2019