HANLIN "ASHER" MAI

Champaign, IL | 442-234-2482 | hanlinm2@illinois.edu | hanlinmai.web.illinois.edu

EDUCATION

University of Illinois at Urbana-Champaign (UIUC) Aug 2023 – May 2028 (Present)
M.S. / PhD. in Electrical and Computer Engineering

University of Illinois at Urbana-Champaign (UIUC) Aug 2019 – May 2023
Bachelor of Science in Computer Engineering with Highest Honor GPA: 3.93/4.0
James Scholar Honors Program, Dean's List

SKILLS

Programming	C++, Python, CUDA, Swift
Deep Learning	Pytorch, Scikit-Learn, OpenCV, Pandas, ROS
Web and Design	Git, HTML, CSS, JavaScript, React, CI/CD, Docker, Blender 3D

Coursework:

Artificial Intelligence,	Principles of Safe Autonomy,	Applied Parallel Programming,	Computer Vision,
Machine Learning,	Applied Linear Algebra,	Computational Photography,	Digital Signal Processing

EXPERIENCE

Rivian Automotive, Inc. Jan 2023 – Aug 2023
Machine Learning Intern Champaign, IL

- Added new capabilities to optimize real-time image processing in Advanced Driver-Assistance System (ADAS) models
- Generated random neural network test cases with respective inputs and outputs using PyTorch
- Built end-to-end testing pipeline with Gitlab CI/CD on various deep-learning Models for Rivian hardware platform

Synchrony May 2021 – Dec 2021
Emerging Technology Intern — Credit Innovation Team Champaign, IL

- Analyzed Proactive Credit Line Increase Strategy and migrate strategy to Enterprise DataLake using Python
- Verified the strategy performs identically on databases before and after migration by running simulations and tests

PUBLICATIONS & PREPRINTS

***Shadows Don't Lie and Lines Can't Bend!* Generative Models don't know Projective Geometry. . . for now**
A. Sarkar*, **H. Mai***, A. Mahapatra*, S. Lazebnik, D. A. Forsyth, A. Bhattad (* for equal contribution)
In Submission (preprint arXiv:2311.17138)

RESEARCH PROJECTS

Occlusion Aware Crowd Navigation May 2022 – Aug 2023
Prof. Katie Driggs-Campbell | Human-Centered Autonomy Lab

- Implement ConvLSTM-based Variational Autoencoder to predict human positions in Occupancy Grid Map (OGM)
- Evaluate accuracy of generated OGM with blob detection to access the network's ability to "see" occluded pedestrians
- Integrate baseline A-star planner with occlusion inference module on UCY pedestrian dataset.

Convolutional Neural Network Pruning and Quantization for FPGA May 2022 – Sep 2022
Prof. Volodymyr Kindratenko | National Center for Supercomputing Applications

- Train VGG16 image classification CNN using PyTorch and CIFAR10 dataset with team of three
- Reduce model size by more than 4x using pruning and PyTorch's Post Training Quantization framework
- Collaborate with FPGA team to integrate quantized 8 bit convolutional kernels for image classification on hardware

COURSE PROJECTS

Digital Notes With Any Pen on Any Surface Aug 2022 – Dec 2022
CS 445: Computational Photography

- Designed vision-based system to allow a user to take notes digitally using only a webcam in real-time
- Developed calibration method that translates detected stylus locations on the table to drawings on screen
- Received Donald L. Bitzer and H. Gene Slottow Creativity Award. Presented project at UIUC Engineering Open House

Autonomous Parking Navigation May 2022
ECE 484: Principle of Safe Autonomy

- Collaborated with team and used A-star search planning algorithm for autonomous parking on Gazebo simulator
- Integrated planning algorithm with on-board system of Polaris GEM Vehicle for real world parking test
- Verified and improved success of parking by adjusting parameters (e.g. braking condition, planning frequency)