

HANLIN “ASHER” MAI

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EDUCATION

University of Illinois Urbana-Champaign (UIUC)

M.S. / Ph.D. in Electrical and Computer Engineering

Aug 2023 – May 2028 (Current)

GPA: 4.0/4.0

University of Illinois Urbana-Champaign (UIUC)

Bachelor of Science in Computer Engineering with Highest Honor

Aug 2019 – May 2023

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, Machine Learning for Signals
Machine Learning, Optim. in Computer Vision, Computational Photography, 3-D Vision

EXPERIENCE

Rivian Automotive, Inc.

Machine Learning Intern

May – Aug 2024

Palo Alto, CA

- Designed wrapper module that transforms PyTorch ResNets into quantized version with any bit-widths
- Performed Quantization-Aware Training on ResNet variants without using Pytorch quantization framework
- Integrated optimization techniques such as Batch Normalization Folding and mixed precision into the wrapper

Rivian Automotive, Inc.

Machine Learning Intern

Jan – Aug 2023

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 Financial

Emerging Technology Intern — Credit Innovation Team

May 2021 – Dec 2021

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

RESEARCH PROJECTS

Convolutional Neural Network Pruning and Quantization for FPGA

Prof. Volodymyr Kindratenko | National Center for Supercomputing Applications

May 2022 – Sep 2022

- 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

CS 445: Computational Photography

Aug 2022 – Dec 2022

- 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

ECE 484: Principle of Safe Autonomy

May 2022

- 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)

PUBLICATIONS

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)

CVPR 2024