HANLIN "ASHER" MAI

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EDUCATION

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 Jan 2020 – Present
Dean's List Fall 2019 – Present

Related Coursework

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

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

SKILLS

C++ | Python | PyTorch | CUDA | Scikit-Learn | OpenCV | ROS | x86 | Swift | Java | Git | HTML | CSS | JavaScript | React | Gitlab CI/CD | Docker | SQL | Blender 3D | Mandarin Chinese (Native) | Yoyo Tricks

COURSE PROJECTS

Autonomous Parking Navigation **Principle of Safe Autonomy** | May 2022
- Collaborated with team of four 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)

FPGA Crossy Road Game **Digital Systems Laboratory** | April-May 2021
- Recreated Crossy Road game on FPGA using SystemVerilog Hardware Description Language
- Designed game graphics down to pixel level and output VGA signal to display 60 Hz, 480 by 640 pixel game
- Developed way to generate random games and store essential game data using hardware shift registers

RESEARCH PROJECTS

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

Occlusion Aware Crowd Navigation May 2022 – Present
Prof. Katie Driggs-Campbell | Human-Centered Autonomy Lab
- Implement ConvLSTM-based Variational Autoencoder to predict human positions in Occupancy Grid Map
- Explore different planning algorithms to be integrated with cost map generated by occlusion-aware VAE

Digital Twin Robotic Assembly Board Project Jan 2022 – May 2022
Prof. Katie Driggs-Campbell | Human-Centered Autonomy Lab
- Imported NIST Assembly Task Board 3D models into Nvidia Isaac Gym simulator after adjusting scale with Blender
- Trained Robotic Arm in Nvidia Isaac Gym to do tasks like plugging in USB cables using Reinforcement Learning

EXPERIENCE

Synchrony May – Dec 2021
Emerging Technology Intern — Credit Innovation Team Champaign, IL
- Analyzed current Proactive Credit Line Increase Strategy written in SAS and migrate strategy to Enterprise DataLake using Python
- Verified the strategy performs identically on both databases by running simulations and tests

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