Caleb Patton

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EDUCATION

University of Nevada, Reno — *Jan 2023 – Dec 2024*
M.S. Mechanical Engineering — *GPA: 4.0/4.0*

University of Illinois, Urbana-Champaign — *Aug 2018 - May 2022*
B.S. Computer Engineering — *GPA: 3.77/4.0*

EXPERIENCE

Graduate Research Assistant – *University of Nevada, Reno* — *Jan 2023 - Present*

- Used CARLA, Unreal Engine, Gazebo, ROS and PX4 to create simulations of autonomous cars and aircraft
- Integrated methods of Probabilistic Planning and Control of Autonomous Vehicles with Deep Learning, LiDAR, and other Perception sensors

Computer Vision and Robotics Intern – *Brunswick Corporation, Champaign, IL* — *Feb 2021 - Dec 2021*

- Developed 2 perception systems for an autonomous watercraft to detect swimmers, boats, docks, and other obstacles using FasterRCNN, YOLOv5 and MaskRCNN in at 30 fps and 10 fps respectively
- Optimized performance of C++ code for scientific computing to support autonomous boating simulations
- Researched methods to utilize and generate synthetic data to improve performance of DNNs using Unreal Engine by varying time of day, weather conditions and object generation
- Led team of 15 interns in marine RGB and IR image data collection and subsequent obstacle labelling processes using a dSpace Autera and Microsoft Azure
- Reported initial findings of research into use of GANs to generate synthetic marine image data to supervisor
- Ran mapping algorithms on mobile robotic platforms using LiDAR Sensors and Raspberry Pi Cameras

Software Engineering Intern – *Xaptum Inc. Chicago, IL* — *Jan 2020 – Aug 2020*

- Learned Erlang to develop a prototype Anomaly Detection/Notification system
- Detected anomalous connection requests using the Isolation Forest and Logistic Regression Algorithms

TECHNICAL SKILLS

Programming	Software	Manufacturing	CAD
Python	PyTorch	3D Printers (FDM, SLA)	Fusion360
C/C++	Deep Learning	Laser Cutter	NX 12.0
	ROS	Soldering	
	Docker		

PROJECTS

- RC Tri-Copter
- Jetson Nano Autonomous Vehicle
- Pipelined RISC-V Microprocessor
- x86 Operating System
- FPGA based Arcade Game