

# Caleb Patton

Senior in Computer Engineering

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## Links

cap099.github.io

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## Education

University of Illinois at Urbana-Champaign

August 2018 - May 2022

Bachelor of Science, Computer Engineering

GPA: 3.77/4.0

## Top Skills

Python, C/C++, Machine Learning, ROS, Robotics, Deep Learning, OpenCV, Statistics

## Select Personal Projects

### FPGA based Arcade-Style Game (SystemVerilog) — Fall 2020

- Implemented a 'Galaga' style game with multiple levels, enemy AIs and a Boss fight on a DE-10 Lite FPGA

### x86 Operating System (C) — Spring 2020

- Implemented Page Tables, System Calls and Keyboard Interrupts for x86 processors.

### RISC-V Processor (SystemVerilog) — Spring 2022

- Began design work to create a processor for the RV32IMC ISA using SystemVerilog

## Professional Experience

### Brunswick Corporation, Champaign, Illinois — Machine Learning Intern

February 2021 - December 2021

- Developed an obstacle detection system in Python that combined the outputs of 4 Machine Learning models using SLAM techniques, Scikit-Learn and Scipy.
- Ran Faster RCNN and Mask RCNN algorithms on Turtlebot3 and Amazon DeepRacer using LiDAR Sensors and Raspberry Pi Cameras
- Implemented a Split and Merge style mapping algorithm based on 2D LiDAR data
- Developed software in C++ for autonomous boating simulations

### Xaptum Inc, Chicago, IL — Data Science Intern

January 2020 - August 2020

- Prototyped an Anomaly Detection/Notification system using Machine Learning and Erlang
- Detected anomalous connection events using Isolation Forest and Logistic Regression algorithms
- Presented analysis of connection events using Pandas, Seaborn and Matplotlib
- Built a REST API to initialize thousands of IoT Devices on Xaptum's Network using rebar3