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Connor Guzikowski

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EDUCATION

Master's of Science in Electrical and Computer Engineering 09/2024 - Present
Concentration in Intelligent Systems, Robotics, and Controls
University of California San Diego

- Main courses: Intro to Robotics, Mathematics for Robotics, Statistical Learning I, Soft Robotics

Bachelor's of Science in Robotics Engineering 09/2020 - 06/2024
University of California Santa Cruz
GPA: 3.68

- Main courses: Robot Manipulation, Mechatronics, Microcontroller Design, UAV Theory and Practice, Sensing and Sensor Technologies, Data Structures and Algorithms, Feedback Control Systems, Brain Inspired Machine Learning, Probability and Statistics for Engineers

- Member of engineering honors society Tau Beta Pi.

WORK EXPERIENCE

Undergraduate Research Assistant - UCSC H.A.R.E Lab 02/2023 - 09/2024
UCSC ECE Department *Santa Cruz, CA*

- Student drone pilot

- Modified plant simulator for more accurate plant health simulations

- Researched using plant health simulations to train neural network for disease detection

- Aided in development of ROS2 packages and Linux environment setup for robotic systems

Individual and Group Tutoring 09/2022 - 12/2022, 01/2024 - 03/2024
UCSC ECE Department *Santa Cruz, CA*

- Tutored for ECE13: *Computer Systems and C Programming* and ECE167: *Sensing and Sensor Technologies*

- Led office hours solo and in conjunction with teaching assistants

CITRIS Research Intern 06/2022 - 08/2022
Environmental Defense Fund *Remote*

- Researched robotic applications within the agriculture industry and analyzed their environmental impact.

- Worked as a team to create a company report.

PROJECTS

Utilizing Synthetic Plant Health Data to Train Neural Networks 06/2024
Undergraduate Thesis and Research

- Created a robot that plays a tabletop, basketball like game

- Led the design and implementation of the software on the robot

- Integrated ultrasonic sensors, stepper motors, and IR beacon detector together

Imitation Learning for Ball Catching   **03/2024**
Deep Learning and Robotic Manipulation

- Implemented imitation learning model to teach robot arm to catch a ball in simulation

- Model learned how to correlate ball position in cameras with target destination for arm

Event Based Object Detection - Self Driving Application   **11/2023**
Neuromorphic Computing and Spiking Neural Networks

- Expanded on previous work to detect pedestrians, two wheelers, cars, trucks, buses, traffic signs, and traffic lights on data from neuromorphic camera.

- Modified previous work to utilize an event-based neural network on the event-based data

Power Glove   **06/2023**
Software and Circuit Design

- Glove that turns on and interacts with various devices using finger taps and motion of hand

- Incorporates capacitive touch sensors, IR sensors, and IMU

- Devices included laptop, RGB LED, servo motor, and piezo speaker

UAV Waypoint Following and Orbiting   **03/2023**
Controls and Software Design

- Runs simulation to guide a UAV to various waypoints

- UAV orbits said waypoints for a specified duration before redirecting to other waypoints.

SKILLS

Programming	Python, C, C++, Git, LaTeX, Matlab, OpenCV, PyTorch, ROS/ROS2, Matlab
Hardware Design	Verilog, Oscilloscope/Multimeter proficiency, Circuit Design, Microcontrollers
Other	Github, Linux, Solidworks, Fusion360, QGIS, Drone Flying