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## **FACULTY MENTOR**

Ramsin Khoshabeh

## **PROJECT TITLE**

RL<sup>2</sup>: Real-life Reinforcement Learning!

## **PROJECT DESCRIPTION**

Introductory educational material to reinforcement learning often simulates idealized environments where control systems (e.g., an inverted pendulum) are manipulated by an agent. In this project, you will build physical prototypes to test and develop new reinforcement learning algorithms in the real world!

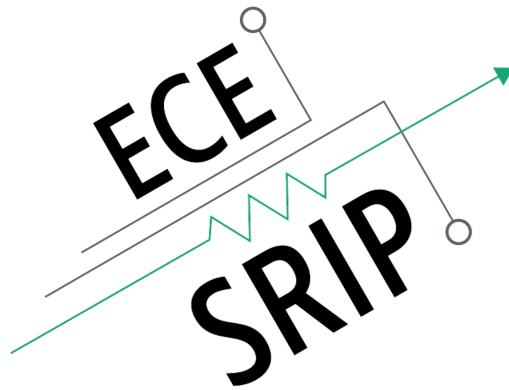
This project will be in person.

## **INTERNS NEEDED**

3 Students

## **PREREQUISITES**

- C/C++, Python, machine learning, computer vision, microcontrollers, rapid prototyping



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## **FACULTY MENTOR**

Ramsin Khoshabeh

## **PROJECT TITLE**

Smart Spaces!

## **PROJECT DESCRIPTION**

This project will explore how to turn the ECE Makerspace into a "smart space" by building out face recognition camera systems, automatic equipment lockout, door entry access control, and more. Use your imagination to turn the lab into a futuristic space and highlight the power of ECE!

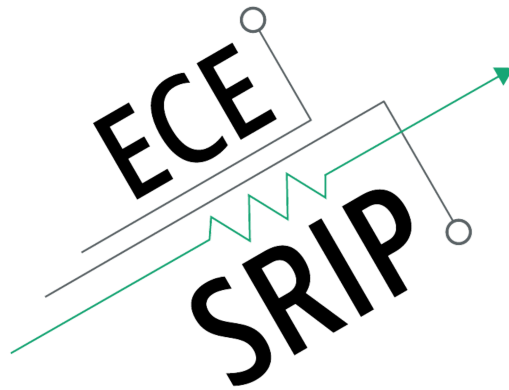
This project will be in person.

## **INTERNS NEEDED**

3 Students

## **PREREQUISITES**

- C/C++, Python, full stack web development, machine learning, computer vision, microcontrollers, rapid prototyping



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## **FACULTY MENTOR**

Ramsin Khoshabeh

## **PROJECT TITLE**

Super RC Racers!

## **PROJECT DESCRIPTION**

Building upon the successes of self-driving architectures like the DonkeyCar platform, this team will build autonomous vehicles that model the vehicle's dynamics, preprocess images with computer vision, offload processing onto a separate computer, and dynamically learn from their environment rather than having to fully pre-train with error-prone techniques like behavioral cloning. You will have the freedom to explore various aspects of the project in order to implement something that is state-of-the-art!

This project will be in person.

## **INTERNS NEEDED**

3 Students

## **PREREQUISITES**

- C/C++, Python, machine learning, computer vision, SLAM, microcontrollers, rapid prototyping