

PROFESSIONAL INTERESTS

Languages: Python, C & C++, C#, Java, Lua, JavaScript, Perl

Worked With: GitHub API, Stable-Baselines3, OpenAI, PyTorch, Django, React, REST, Linux, Cisco Networking, 2D & 3D Physics Engines

Research Background: Robotics & AI; Object Manipulation and Grasping, Reinforcement Learning Algorithms, DNN Architectures, CNN Architectures

EDUCATION

Bachelor of Science in Computer Science, Concentration in Robotics and Automation

Cumulative GPA:

3.6/4.0

University of South Florida College of Engineering, Tampa, FL

Fall 2020 - Spring 2024

EXPERIENCE

Software Engineering Co/Op

May 2022 - Present

CAE USA

Tampa FL

- Development of lab environments of computer system networks for simulation and hardware testing.
- Engineer and discover solutions to hardware incompatibilities. Automation of procedural computer network setup and maintenance.
- Collaboration on source repositories and deployment of computer tools and programs

Undergraduate Researcher

Fall 2021 – Present

Robot Perception and Action Lab, *University of South Florida*, <https://rpai.cse.usf.edu/>

Tampa FL

- Research in robotic object manipulation through reinforcement learning
- Collect and analyze data in the real world and simulation for training of reinforcement learning models
- Utilize control theory principles to implement solutions in simulated environments that transfer to real-world systems.

Senior Coding Coach

Fall 2021 - Present

theCoderSchool

Tampa FL

- Instilling an interest in and mentoring the next generation of software developers.
- Formulate hobby projects based on student's interests, aid in design development, educate on the utilization of necessary computer logic
- Finalize a working design through knowledge and application of learned computer science concepts and ideas.

Mentorship Chair, VEX Robotics Programming Lead

Fall 2020 - Present

USF IEEE Student Chapter

Tampa FL

- Lead of Mentorship Club; organize and lead meetings, aid students in problem solving, work within a budget constraint
- Lead Programming for VEX; Design and Lead project implementation; assign programming work to programming members

PROJECTS

IEEE VEX USF Bull Bot

August 2021 - Present

<https://github.com/Johnnykoch02/V5>

(Video of a Competitive Match) <https://www.instagram.com/reel/CdJ00ovvc0V/>

- Develop software designed to compete in VEX 2022/2023 head-to-head competition, and VEX skills competition.
- Design a system to interpret sensor data to generate vector space understanding
- Implementation of control theory principles for performing complex autonomous actions. Utilization of computer vision for error correction in autonomous actions

Astaria

November 2021 - Present

<https://github.com/Johnnykoch02/Astaria>

(Video Description of the Project) <https://www.screencast.com/t/8Lff4Pf2NCgb>

- A passion project, designed to feel like Pokémon and Minecraft.
- Implement various software engineering techniques such as signaling, data storage, and state-machine principles, but also just designed to look and feel enticing.

AI Chess

August 2022 - Present

<https://github.com/Johnnykoch02/ChessEngine>

- theCoderSchool Project with an advanced Python Student, who had the desire to learn about Game Development
- Implementation of decision trees, state machines, project structuring, and Artificial Intelligence Algorithms
- Guided curriculum to develop computer projects from scratch, and solve software engineering problems using knowledge of data structures and algorithms