

## PROFESSIONAL INTERESTS

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**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

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

**Cumulative GPA:**

*University of South Florida College of Engineering, Tampa, FL*

3.6/4.0

*Fall 2020 - Spring 2024*

## EXPERIENCE

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**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

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**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