

# ELLE SZABO

[WEBSITE](#) | 614-302-6552 | [EMAIL](#) | [LINKEDIN](#) | [GITHUB](#)

## EDUCATION

### University of Southern California

*B.S. in Computer Science*

- Major GPA: 4.00/4.00
- Activities: Treasurer at VEX Robotics USC, Track Club

Los Angeles, CA

*May 2023 (Expected)*

## EXPERIENCE

### Microsoft | C/C++, PowerShell

*Software Engineer Intern*

May 2021 - Jul 2021

*Redmond, WA*

- Created a proof-of-concept search indexing system to replace Windows' pre-relational-database indexer
- Proved the efficiency of 5 types of file metadata inclusion, will be rolled out on > 1 billion devices

### NASA Jet Propulsion Laboratory | ROS, Gazebo, Linux, librealsense

*Software Engineer Intern*

Sept 2020 - Jan 2021

*Pasadena, CA*

- Developed a simulation pipeline with ROS and Gazebo for an autonomous inspection rover
- Expedited the simulation boot by 22% by creating a custom physics engine plugin

### Lucid Circuit | OpenCV, Makefile, Python, Keras, numpy, Linux

*Software Engineer Intern*

May 2020 - Jan 2021

*Santa Monica, CA*

- Simulated a machine learning model for satellite telemetry using TensorBoard Lite visuals
- Programmed a statically linked OpenCV to demo the custom architecture's object tracking to client

## SELECTED PROJECTS

### Vision and Language Navigation | Python, OpenAI Gym, PyTorch, Flask

Aug 2022 – Present

- Conducting CoRL-aimed research on machine learning for robotic navigation with language and vision inputs
- Research under *Jesse Thomason* in GLAMOR Laboratory

### VR Therapy for Alzheimer's | C#, Unity, OpenAI API

Feb 2023

- Developed an app for Oculus Quest to converse with an avatar, save stories, summarize, and generate images

### Multi-Headed Encoder-Decoder Model | matplotlib, PyTorch, sklearn, numpy, conda

Nov 2022

- Implemented an Encoder-Decoder model that takes in ALFRED instructions for an entire episode and predicts the sequence of corresponding, high-level actions and target objects

### Autonomous Robot | YOLO5V, Roboflow

Aug 2021 – May 2022

- Programmed vision-based autonomous scoring using an optical sensor to place rings on the goals' branches
- Created data frame to capture RGB-D images and perform custom object recognition with YOLO5V

### PyRibs | Python, JAX, numba, numpy, OpenAI Gym

May 2022 – June 2022

- Main contributor to PyRibs, an open-source Python library for exploring latent space of machine learning models
- Research under *Stefanos Nikolaidis* in ICAROS Laboratory

## AWARDS/HONORS

### 2nd Skills in World, Think Award

*2022 VEX Robotics World Championship*

- As programming lead on team of 5, scored 2<sup>nd</sup> of world's top 72 teams in skills
- Earned Think award for innovative use of autonomous optical scoring sensor

### Presidential and University Scholarship Recipient

*University of Southern California*

- One of 200 chosen out of 64,000 applicants for a half-tuition merit scholarship plus \$4000 award

### National Merit Scholar

*National Merit Scholarship Corporation*

- \$2500 scholarship for top 0.5% of 1.6 million for ability in mathematics problem-solving, reading, and writing

## TECHNICAL SKILLS

**Languages:** Python, C/C++, SQL, Swift, C#, JavaScript, Java, HTML/CSS, Latex

**Platforms:** ROS, Linux, Raspberry Pi, Powershell, Heroku, Unity, Make, OpenAI Gym, Docker

**Libraries/Tools:** PyTorch, OpenCV, Numba, JAX, conda, Keras, Flask, TensorFlow, TFLite, Firebase, Stripe, GTest, Boost, rtabmap, TESSERACT, AWS, OpenAI API

For a layout of all of my projects, please visit my [Website](#).