Elle Szabo

Website | 614-302-6552 | email | linkedin | github

Education

University of Southern California — Los Angeles, CA
B.S. in Computer Science — *May 2023 (Expected)*
- Major GPA: 4.0/4.0
- Relevant Coursework: Interactive NLP, Artificial Intelligence, Programming in Python

Experience

Microsoft | *C/C++, PowerShell* — May 2021 - Jul 2021
Software Engineer Intern — *Redmond, WA*
- Created a proof-of-concept search indexing system to replace Windows' pre-relational-database indexer

NASA Jet Propulsion Laboratory | *ROS, Gazebo, Linux, librealsense* — Sept 2020 - Jan 2021
Software Engineer Intern — *Pasadena, CA*
- Developed a simulation pipeline with ROS and Gazebo for an autonomous inspection rover
- Integrated a 3D Intel RealSense camera and localization computer vision algorithms

Lucid Circuit | *OpenCV, Makefile, Python, Keras, numpy, Linux* — May 2020 - Jan 2021
Software Engineer Intern — *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
- Customized the Interbotix ROS API to stream RGB-D Realsense D435 data to web app
- Created a control loop for sensor-fused inputs using a simulation pretrained VLN-CE model on real LoCoBot
- Research under *Jesse Thomason* in GLAMOR Laboratory

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
- Streamlined API and implemented batching for algorithms such as Covariance Matrix Adaptation - Map Elites
- Research under *Stefanos Nikolaidis* in ICAROS Laboratory

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

Image Capturing Pipeline | *C/C++, Make, Boost, librealsense2* — December 2021
- First open-source 3D image capturing pipeline for machine learning on Intel Realsense
- Used by researchers ISAE-Supaero for ROBOTIS OpenManipulator computer vision project

Computer Vision Projects | — December 2020
- Detected common street signs using Haar Cascade classifiers with 96% accuracy in Python
- Used TESSERACT library and custom contour search to read the titles of my textbooks
- Used a PyTorch vanilla generative adversarial network to train on written and fashion MNIST datasets

Awards/Honors

2nd Skills in World, Think Award — *2022 VEX Robotics World Championship*
- As programming lead on team of 5, scored 2^{nd} 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

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, TESSERACT, conda, Keras, sklearn, numpy, Flask, TensorFlow, TFLite, Firebase, Stripe, GTest, Boost, AWS, OpenAI API, nltk, etc.

For a layout of all of my projects, please visit my Website.