Evan F. Palmer

Robotics Ph.D. Student
Oregon State University
Corvallis, OR 97331

Phone: (402) 643-5769
E-mail: palmeeva@oregonstate.edu
Website: evan-palmer.github.io

Curriculum Vitae

1 Education

Oregon State University **September 2022 – Present**
Ph.D., Robotics
Advised by Dr. Geoff Hollinger

University of Nebraska-Lincoln **August 2018 – May 2022**
B.S., Software Engineering
Advised by Dr. Brittany Duncan

2 Experience

Oregon State University **September 2022 – Present**
Graduate Research Fellow

- Advancing kinodynamic motion planning algorithms and dynamic control techniques for underwater vehicle manipulator systems

Marble Technologies **March 2022 – September 2022**
Robotics Engineer Intern

- Implemented a ROS2-based interface for controlling and interacting with a UR10 robot manipulator
- Collaborated with an engineer to design the software architecture of a UR10-based software system that performs pick-and-place of subprimals in a meat packing environment
- Led the integration of a ZeroMQ-based communication interface into a robotics software system
- Designed and implemented CI/CD pipelines using Docker and Github Actions for deployment of a robotic software system
- Created a pick point detection ROS2 node using an Intel Realsense D455i Camera and pointcloud processing techniques

University of Nebraska-Lincoln NIMBUS Lab **January 2020 – August 2022**
Undergraduate Research Assistant

- Created *pymavswarm*, a Python library for developing swarm algorithms and for deploying drone swarms to field environments

- Implemented real-time reachability analysis for multi-agent collision avoidance using the face-lifting method and successfully demonstrated field deployment of this system
- Advanced Human-Robot Interaction research by implementing a UAV pilot proficiency determination system using distancing algorithms and spectral analysis
- Improved the performance of a drilling system mounted to a UAV by implementing a vibration, strain, and angular position measurement system
- Successfully designed and implemented an autonomous landing zone detection ROS package for drones.
- Designed and implemented a light-weight ground control station for robotic swarms

Undergraduate Honors Thesis **August 2021 – May 2022**

Safe Reinforcement Learning Robot Controller

- Supported research regarding the integration of safe reinforcement learning applied toward robotic control by utilizing neural network verification techniques to create a safe data-driven UAV controller

Raytheon BBN Technologies **May 2021 – August 2021**

Software Engineer Intern

- Successfully implemented an MQTT-based communication system for swarm agent interaction
- Successfully implemented a multi-threaded server to broker messages between swarm agents, command stations, and environmental devices
- Designed and developed a web-application to enable post-mission analysis

3 Publications

3.1 Peer-Reviewed Journal Publications

- S. Kunde, **E. Palmer**, and B. Duncan, "Recognizing User Proficiency in Piloting Small Unmanned Aerial Vehicles (sUAV)", *IEEE Robotics and Automation Letters (RA-L),* 2022

4 Outreach

JSHS Mentor **December 2022**

- Mentored high schools students working to compete at the Junior Science and Humanities Symposium

NSF REU Mentor **June 2022 – August 2022**

- Mentored an undergraduate student that completed an REU by supporting their research and answering research questions

Nebraska Hour of Code **November 2021**

- Created and led a robotics activity to teach K-8 students from across Nebraska about the field of robotics and to inspire these students to explore the field of robotics

Admitted Student Day – Drones and Robotics **March 2021**

- Spoke to 100 high school seniors about undergraduate majors and research opportunities at the University of Nebraska-Lincoln

5 Awards

National Defense Science and Engineering Graduate (NDSEG) Fellowship **April 2022**

- Awarded to U.S. citizens receiving doctoral degrees in science and engineering disciplines of military importance

College of Engineering Dean's List **August 2018 – May 2022**

- Awarded to students in the University of Nebraska-Lincoln College of Engineering who achieve at least a 3.5 GPA

Outstanding Undergraduate Software Engineering Senior Award **April 2022**

- Awarded to an outstanding senior Software Engineering student at the University of Nebraska-Lincoln School of Computing

Lockard Scholarship **May 2020**

- Awarded to University of Nebraska-Lincoln Department of Computer Science and Engineering students with outstanding scholastic achievement

Regents Scholarship **August 2018**

- Awarded to Nebraska students who have demonstrated academic excellence and academic distinction at the highest level

6 Skills

Programming Languages

- C, C++, Python, Java, Bash

Tools and Frameworks

- Git, ROS, ROS2, Docker, OpenCV, PyTorch, Tensorflow, MATLAB, Qt, Linux/Unix, Eagle, MQTT, MAVLink, Autodesk Inventor, Microsoft Azure, Github Actions, ZeroMQ, NumPy, Pandas, Asana, Jira, Protocol Buffers (protobuf), Amazon Web Services (AWS)