

# Nevin Kopp

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## Education

<b>University of California, Riverside</b> – MS in Robotics	June 2024
<b>University of California, Riverside</b> – BS in Electrical Engineering	June 2023

## Projects

<b>Leviathan – Autonomous Underwater Vehicle (AUV)</b>	nevinkopp.github.io/projects/1_project/
<ul style="list-style-type: none"><li>Used ROS and Gazebo to simulate and control an AUV as part of a software team</li><li>Designed the motor controller and battery management PCBs using Altium as part of an electrical team</li></ul>	
<b>Graduate Research – Underwater Object Tracking (UOT)</b>	nevinkopp.github.io/projects/2_project/
<ul style="list-style-type: none"><li>Modern open air (OA) trackers struggle when used in an underwater environment</li><li>Implemented a three phase process to increase the performance of trackers which resulted in 10-15% improvement</li></ul>	
<b>Industrial Robotic Arm Analysis and Design</b>	nevinkopp.github.io/projects/6_project/
<ul style="list-style-type: none"><li>Ground up design and analysis of a four joint robotic arm for industrial applications</li><li>Solved the kinematics (forward, inverse, velocity) and statics equations, MATLAB used for calculations</li></ul>	
<b>Autonomous Mini Tank</b>	nevinkopp.github.io/projects/4_project/
<ul style="list-style-type: none"><li>Used SolidWorks to design a robot composed of 3D printed and laser cut parts from the ground up</li><li>Target acquisition was done with machine learning while servos and microcontrollers were used for aiming and firing</li></ul>	
<b>Bread Recipe Autonomous Device (BRAD)</b>	nevinkopp.github.io/projects/3_project/
<ul style="list-style-type: none"><li>Successfully created an automatic bread making system with web app control</li><li>Finite state machines (FSMs) control ingredient dispensation as per user requested recipe</li></ul>	

## Experience

<b>Graduate Student Researcher</b> , University of California – Riverside, CA	2023 – 2024
<ul style="list-style-type: none"><li>Sought out methods to improve the performance of open air tracking models for underwater use</li><li>Formulated a three phase process that involved retraining and image enhancement</li><li>Results showed a promising performance increase of 10-15%</li></ul>	
<b>Engineering Teacher Assistant</b> , University of California – Riverside, CA	2022 – 2023
<ul style="list-style-type: none"><li>Assist engineering professors with grading, office hours, and electrical engineering labs</li><li>Brief students on relevant theories and schematics prior to lab and answer questions</li><li>Help students with using the lab equipment such as power supplies, oscilloscopes, and multimeters</li></ul>	

## Skills

**Robotics:** Robot Operating System (ROS), Inverse Kinematics, Forward Kinematics, Artificial Intelligence (AI), Machine Learning (ML), Perception, Path Planning

**Electrical Engineering:** Embedded Systems, I2C, UART, SPI, Altium, Control, ARM, AVR, Ethernet, SPICE

**Software:** Finite State Machine (FSM), Git, Bash, OpenCV, PyTorch, scikit-learn,

**CAD:** SolidWorks

**Fabrication:** Laser Cutting, 3D printing

**Languages:** C++, C, Python, MATLAB

**Electronics Lab Equipment:** Solder Station, Power Supply, Oscilloscope, Multimeter