

# Kalin Kochnev

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## EDUCATION

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### University of Connecticut

Bachelor of Science and Engineering, Robotics Engineering

Storrs, CT

Aug 2021 — Dec 2025

Cumulative GPA: 3.977/4.0 | Dean's List Fall 2021 - Spring 2025, Honors Program, STEM Scholar, NASA Space Grant

## TECHNICAL SKILLS

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**Robotics:** ROS, Motion Planning (APF/A\*/PRM/RRT and variants), Kinematics/Dynamics Modeling, Lyapunov/LTI Stability Analysis, BLDC Motor Control, Sensing, Numerical Algorithms, Operations Research, UR3 Robot Arm, Machine Learning.

**Mechanical:** OnShape, Inventor/Vault Professional, Additive Manufacturing, MIG Welding, Waterjet, Tabletop CNC.

**Programming:** STM32/ESP32/AVR128DB Firmware, FreeRTOS, CMSIS-RTOS, JTAG, Hardware-in-Loop Testing, C/C++, Rust, Python, Matlab, Linux, GDB, Git, Docker.

**Electrical:** Battery Management, 3-Phase Power, Transformers, Sensing, I2C/CAN/Serial, Motor Control, Digital Signal Processing, Target Localization.

## WORK EXPERIENCE

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### Undergraduate Researcher

Sep 2023 — December 2025

Fluids, Reduction, Nonlinearity, and Turbulence Lab — University of Connecticut

Storrs, CT

- Applied Lyapunov stability analysis and convex optimization to analyze stability of time-dependent shear flows.
- Secured a \$4k research grant and a \$3k NASA Space Grant scholarship.
- Submitted a [manuscript](#) to 2026 American Control Conference.

### Robotics Engineering Intern

Jun 2025 — Aug 2025

Good Machine/Reefgen/Pelagic

San Francisco, CA

- Troubleshooted and produced detailed documentation of failing battery management system for underwater ROV.
- Developed modular and parametric CAD design for rapid release of underwater ROV thruster filters in the field. Passed lab and in-field testing.
- Ported accelerometer, magnetometer, power management, global datetime handling functionality from an obsolete MCU architecture to a STM32/CMSIS-RTOS based device for low power sea vessel tracking.

### Undergraduate Researcher

Sep 2024 — May 2025

Intelligent Systems and Control Laboratory — University of Connecticut

Storrs, CT

- Researched and implemented in *roscpp/rospy* cutting edge motion planning algorithms for cooperating UR3 robot manipulators for additive manufacturing as a senior capstone project ([video](#)).

### Embedded Engineering Intern

Jun 2024 — Aug 2024

Gilbarco Veeder Root

Simsbury, CT

- Developed sensor drivers and data collection utilities for the STM32 to target new high value markets.
- Designed experiments and manufactured test fixtures using FDM 3D printing and OnShape.
- Saved the company \$6K by identifying cost-effective cable substitutes.
- Diagnosed and resolved a rare field issue, saving technicians and customers significant time.

### Software and Hardware Team Lead

Sep 2021 — Nov 2022

2022 NASA BIG Idea Challenge — University of Connecticut

Storrs, CT

- Led an undergraduate team funded \$150K by NASA to design a quadruped lunar vehicle.
- Built CAN protocol in Rust for brushless motors/encoders with GUI dashboard and ROS interface
- Parsed IMU serial data for motor control, troubleshooted encoder issues, and integrated systems.

### Systems Engineer and Project Manager

Sep 2021 — Nov 2022

2022 NASA BIG Idea Challenge — University of Connecticut

Storrs, CT

- Managed deadlines using systems engineering and Scrum.
- Communicated project findings at several symposiums, space conferences, and news outlets.
- Procured components and designed actuators during COVID shortages using FDM printers and Fusion 360.

## PROJECTS

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### Autocycle ([Hyperlink](#))

May 2023 — Present

- Developing a self-piloting bike using gyroscopic effect, STM32, and ODrive.

### 3D Physics/Game Engine in Rust ([Hyperlink](#))

Sep 2023 — Present

### Backpropagation Neural Network in Rust ([Hyperlink](#))

Jan 2022 — May 2023

### 3D Sound Localization Algorithm ([Hyperlink](#))

Jan 2021 — Jun 2021

- Designed DSP hardware project for sound localization, aiding the deaf. Won Highest Honor in State Science Fair.