

Derek Dietz

Chicago IL | derekdietz2026@u.northwestern.edu | 571-426-5907 | [linkedin.com/in/derek-dietz-engineer](https://www.linkedin.com/in/derek-dietz-engineer)
github.com/ddietz1

EDUCATION

Northwestern University, *MS in Robotics* Dec 2026
College of William & Mary, *BS in Physics* May 2022

SKILLS

Software: C++, Python, C, Cmake, ROS/ROS2, MAVROS, MAVLINK, MAVSDK, ArduPilot/ArduSub, Git, Linux
Robotics: Autonomous Systems, SLAM, Computer Vision, Gazebo, YOLO, Rviz2, Sensor Fusion, Path Planning
Embedded Systems: Pixhawk, LiDAR, IMU, I2C, UART, Camera Integration, GPIO, Intel RealSense D435i, CAD

EXPERIENCE

Epic Systems - Madison, WI, *Technical Solutions Engineer* Sept 2023 – May 2025
• Provided custom system integration and debugging support, improving Epic performance and client satisfaction

NASA - Hampton, VA, *Aerospace Engineering Intern* June 2022 – Feb 2023
• Led intern cohort group to develop novel methods of resource delivery to wildland firefighters in CAD
• Developed Python scripts for data acquisition and analysis across beyond-LOS autonomous aerial drone tests

PROJECTS

Autonomous ROV with ArduSub/MAVLink (ROS2, Python, OpenCV, YOLO) March 2026
• Implemented a Python MAVROS–ArduSub interface using MAVLink for full 6-DOF velocity and actuator control
• Designed and tuned a closed-loop PID control node integrating vision estimates with autonomous mission logic
• Trained and deployed a custom YOLOv8n model in ROS2 for real-time underwater object detection
• Debugged full-stack issues across firmware, companion computer (Linux), ROS2 nodes, and hardware

Extended Kalman Filter SLAM(C++, ROS2, Rviz2) January 2026
• Developed a C++ EKF SLAM system fusing LiDAR and odometry for pose estimation and landmark mapping
• Built a C++ library for 2D rigid body transformations and differential drive kinematics for odometry
• Implemented circle detection and data association to identify and track landmarks from raw sensor data
• Leveraged CMake and Catch2 to build and validate a modular navigation stack with extensive unit tests

Sensing and grasping with Franka arm (ROS2, Python, CV, YOLO) November 2025
• Fused RGB-D data from Intel RealSense D435i with YOLOv8 for 3D pose estimation and manipulation planning
• Implemented Python API to handle motion and scene planning using ROS2 MoveIt package
• Developed open loop control methods to adjust train bogies to perfectly align with the track

Biometric responsive Swarm Robotics game(Microbit, C) November 2025
• Developed an embedded C control stack on Micro:bit (nRF52) for joystick control of a Cutebot
• Wrote low-level drivers for SAADC, GPIO, and I2C motor control to drive chassis at deterministic rates
• Built closed-loop pursuit and avoidance behaviors using distributed heuristics and filtered velocity commands
• Assembled, tested, and debugged embedded hardware in lab environment

AWARDS

American Institute for Aeronautics and Astronautics(AIAA) January 2023
• 1st place winner of the SciTech Idea Challenge

Virginia Microelectronics Consortium(VMEC) August 2021
• Gold Award winner for research presentation on photolithography toppling angles