

ANDREW KWOLEK

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MS in Robotics student at Northwestern University seeking full time opportunities in Robotics Software Engineering starting in September 2025. Passionate about SLAM, autonomous vehicles, sustainability, and robotics manipulation.

Education

Northwestern University | Evanston, IL
Master of Science in Robotics

September 2025
GPA: 4.0/4.0

University of Michigan | Ann Arbor, MI
Bachelor of Science in Engineering, Mechanical Engineering and Computer Science
Dual degree, Cum Laude

April 2022

TECHNICAL COMPETENCIES

C++, PYTHON, GIT, ROS2, GO, LINUX, SLAM, SOLIDWORKS, DOCKER, REST API, UNITY, CI/CD, PID, OPENCV, ROBOT PERCEPTION, TCP/UDP

WORK EXPERIENCE

Deloitte Consulting | Seattle, WA

July 2022-August 2024

SOLUTIONS ENGINEER | CLOUD ENGINEERING GROUP

- Maintained microservices dealing with user accounts, paid content, and creator monetization at international short video social media company
- Owned full scale cloud service migration involving multiple teams from US and China for service leveraged by hundreds of internal users
- Initialized and deployed 2 code repositories, 7 cloud services, 2 load balancers, 2 relational databases, 3 object storage buckets, 2 API domains, 1 data exchange security channel, and 1 message queue
- Designed and developed automation tools in Golang used by teams across organizations. Reduced deployment times by ~90%
- Led code development for internal oncall integration tool used by 20+ teams throughout company

General Atomics ASI | Poway, CA

June 2021-August 2021

SOFTWARE ENGINEERING INTERN | DRONE FLIGHT CONTROLS TEAM

- Developed Python test scripts for 6 autonomous flight control patterns used by drone. Merged ~800 lines of code into production repository using SVN version control software for use in full system CI/CD
- Created framework in Python to bridge test scripts to human machine interface for MQ-1 Predator Drone
- Designed class diagrams, logged test cases and test procedures, and developed 28 new system requirements for automated testing framework

Sarcos Robotics | Salt Lake City, UT

July 2020-October 2020

ROBOTICS INTERN | CONTROLS TEAM

- Optimized Force Balancing and Payload Estimation software for Guardian XO robotic exoskeleton to produce optimal user control
- Wrote and owned new technical documentation for 16 exoskeleton link test procedures used to verify all link features worked properly
- Designed link components and test fixtures in SolidWorks. Manufactured and assembled parts for use in exoskeleton performance and testing

ROBOTICS PROJECTS

Underwater SLAM with ROV | Evanston, IL

January 2025-Present

INDIVIDUAL PROJECT | MSR

- Processed and integrated IMU, pressure, scanning sonar, and monocular camera data using concurrent threads for real time processing and time synchronization. Data collected through UDP connection established between vehicle and surface computer
- Built Docker webservice to run in parallel with middleware. REST API built on unicorn for easy interfacing with frontend GUI
- Used CFAR algorithms for noise reduction and tuned parameters for object detection. Converted data into costmaps for robust map generation
- Implemented monocular visual odometry using OpenCV and CLAHE feature detection algorithm for additional localization
- Combined data collection pipeline with ORB-SLAM3 for faster computation using C++

Robotic Prosthetic Ankle Research | Ann Arbor, MI

May 2019-February 2020

UNDERGRADUATE RESEARCH | NEUROBIONICS LAB

- Conducted undergraduate research on subsystem designs for robotic prosthetic ankle in Prof. Elliott Rouse's Neurobionics Lab
- Devised 3 unique designs through hand sketches, SolidWorks, and rapid prototyping. Derived kinematics and dynamics used for motor selection
- Performed experiments with live test subjects equipped with prosthetic. Used Vicon motion capture to analyze gait with different parameter sets
- Used Pugh analysis to determine optimal design based on 7 criteria. Delivered 20 minute presentation of findings to Robotics faculty and students at Mechanical Engineering undergraduate symposium