

Anna Novak

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EDUCATION

University of Michigan

*Bachelor of Robotics,
Bachelor of Computer Science*

Ann Arbor, MI

*May 2026
4.0 GPA*

EXPERIENCE

Instructional Aide

January 2023 – Present

ROB 101: Computational Linear Algebra

Ann Arbor, MI

- Assist students struggling with linear algebra and programming in Julia by asking leading questions and clarifying lecture explanations to help them fully learn the material.
- Chosen to help train new Instructional Aides for the course offering at other colleges and universities due to my ability to explain topics in depth, provide useful feedback, and stay organized.

FIRST Robotics Programming Mentor

September 2022 – Present

FRC Team 6861

Livonia, MI

- Guide freshmen through the process of programming, testing, and debugging a robot to successfully play the season's game and be a strategic alliance member.
- Introduce team members to basic computer vision and how to track colored targets using OpenCV.
- Created a self-paced Java curriculum introducing new team members to fundamental programming concepts to ensure students of many backgrounds share a common base knowledge.
- Developed curriculum for a workshop teaching elementary school students programming through Python Turtle in an interesting way that inspired students to pursue programming.

PROJECTS

Zoo Logistics Optimization | C++

- Optimized zookeeper's path by finding a minimum spanning tree between habitats using Prim's algorithm.
- Solved the Travelling Salesman Problem using the branch and bound solution to find optimal canal path to provide water to all habitats.
- Determined efficient heuristic to find nearly-optimal canal paths to scale up for use on larger zoos.

Content-Aware Image Resizing | C++

- Developed program to shrink images in PPM format to any desired size without cropping.
- Implemented seam-carving algorithm to analyze the image's matrix representation to find and remove the least important pixels based on the differences between neighboring pixels.

Robotic Fish | Arduino, C++, Java

- Built robotic fish with 3D-printed body, Arduino, and servo-controlled tail that successfully swam in a water tank.
- Collaborated with 4 other group members and coordinated helpful organization and communication.
- Programmed the swimming methods on the Arduino and simulated testing ocean chemical levels using Java.

Bible Verse Linker | Javascript, Google Apps Scripts

- Created Google Apps script to find Bible verse references in a Google Doc and insert hyperlinks leading to the verse in an online Bible.
- Utilized RegEx and string manipulation to search the document for references.

RELEVANT COURSEWORK

Computer Science: Discrete Math, Programming and Data Structures, Data Structures and Algorithms

Robotics: Robotics Mechanisms, Human-Robot Systems, Logic Design

TECHNICAL SKILLS

Languages: C++, C Python, Java, Julia, Javascript

Tools: Git, Arduino, Command Line