

# David F. Vella

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## EDUCATION

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### University of Michigan, Ann Arbor, MI

*Aug 2019 – Dec 2022*

Bachelor of Science in Engineering - BSE, Computer Science

*GPA: 3.96 / 4.00*

Relevant Coursework:

#### EECS 281 - Data Structures and Algorithms

- Algorithm analysis and O-notation; searching, sorting, recursive, and graph algorithms
- Fundamental data structures including; stacks, priority queues, hash tables, search trees, and graphs

#### ENGR 100 - Intro Autonomous Systems

- Worked in a team to design control algorithms enabling a quadcopter to autonomously navigate a maze
- Hands on experience with PID controllers, digital and analog filters, IMU's, ultrasonic and LiDAR sensors

## EXPERIENCE

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### All Covered IT Services, Farmington Hills, MI

*May 2020 – Aug 2020*

Deployment Team Member

- Worked in a team to install software on a variety of platforms including Windows 10, macOS, iOS
- Developed shell scripts that interact with inventory system APIs to automate workflows

### FIRST Robotics FRC Team #67, Milford, MI

*Jan 2015 – Apr 2019*

Electrical and Controls Lead

- Led students through the design and assembly critical electrical system components
- Hands on experience with PWM, CAN, Encoders, IMU's, and cameras for robotics applications

## PROJECTS

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### Linux GPU Power Management Tool

*Jun 2020*

- Developed software that forces GPU into low power state when not in use improving battery life on NVIDIA Optimus laptops. Implemented in C and developed in a Linux environment

### Radio Control Aircraft Flight Controller

*Apr 2020*

- Developed and implemented control algorithms in C++ for autonomous cruise, takeoff, and landing
- Developed libraries for digital signal processing, IMU computation, and I2C device communication

### Lightweight IMU Software Library

*Mar 2020*

- Wrote a software library to compute orientation from raw gyroscope and accelerometer sensor data
- Implemented quaternion math operations in C++ to accurately track orientation in real time

### Snake Web Application

*Dec 2019*

- Implemented snake in a Flask web app with Python backend and JavaScript/HTML/CSS frontend
- Designed an API allowing the game client to post scores to a leaderboard for friendly competition

## SKILLS

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**Languages:** C, C++, Python, JavaScript, HTML, CSS

**Technologies:** Git, Bash, Flask, Jinja2, Nginx

**Platforms:** Windows 10, Linux, AVR

**IDE:** Visual Studio Code, Arduino, Vim

## ACTIVITIES

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Michigan Ski Club

*Aug 2019 – Present*

Piano

*2006 – Present*