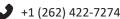
# **Curt Henrichs**

Software Engineer

### About

I am passionate about building real things for real people. My interests include software engineering, embedded system development, mixed-reality interfaces, and robotics.

# curthenrichs@gmail.com







github.com/curthenrichs



linkedin.com/in/curt-henrichs



1402 Regent St. Apt. 604, Madison, WI 53711

### Skills

Python, Git, C/C++, Linux, Javascript, Typescript, React, Angular, Unity/C#, Java, Trello/Jira, MongoDB

### Education

(2018 - 2021\*)M.S. in Computer Science ~ Emphasis: HCI / HRI

Coursework:

• University of Wisconsin - Madison, Madison, WI

**Human Computer Interaction** 

+ Wearables + User Modeling + Data Visualization - Human Robot Interaction -

Artificial Intelligence + Machine Learning + Computer Vision

**High Performance Computing** 

GPA: 3.6 / 4.0

GPA: 3.9 / 4.0

+ Adv. Computer Architecture

(2014 - 2018)

B.S. in Computer Engineering ~ Emphasis: Embedded Systems

Milwaukee School of Engineering, Milwaukee, WI

Coursework: **Embedded Systems** 

+ Computer Architecture + Digital / Analog Circuits + Control Systems

+ Digital Signal Processing + Computer Networking

# Software Development

+ Operating Systems + Data Structures + Computer Vision

+ Neural Networks + Computer Graphics

## Business / Management

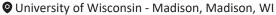
+ Servant Leadership + Entrepreneurship

+ Ethics for Mgmt. and Eng.

- Engineering Practices -

### Experience

### (2019 - 2021\*)Graduate Research Assistant ~ People and Robots Lab, Computer Sciences





- Researched interactions with cobots for both attention management and levels of task interdependence.

- Worked with several colleagues outside of lab (in Human Factors and Optimization) to investigate cobot effectiveness when deployed on a variety of manual work activities.

- Contributed robot capability analysis as inputs into allocation algorithm.

- Contributed to lab infrastructure and processes.

Ex. Maintained centralized robot description and configuration repository for lab.

Ex. Device bringup and documentation (Universal Robots UR3e, Microsoft Hololens 1 & 2).

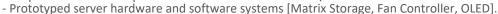
Ex. Debugged and updated Robotiq gripper ROS drivers for colleague under paper deadline.

- Assisted colleagues with their user studies, technical development, and paper writing.

#### (2016 - 2018)**R&D Software Engineering Intern**

### Opedicated Computing, Waukesha, WI





- Integrated embedded devices into server control software with Python.

- Developed internal hardware testing infrastructure [Thermal Chamber] with NodeJS, Python, and MongoDB.

- Contributed to product life-cycle documentation for design, implementation, and testing.

## Notable Projects

# ■ Authr ~ Cobot authoring environment.

- Developed an Angular web app with ROS backend.
- Custom domain language designed around Therbligs.

## **Expert View Dashboard** ~ Cobot training environment.

- React web app with ROS backend and Unity simulation.
- Operationalizes expert thinking into a checklist novices use to develop their programs with custom domain language.
- Explored Microsoft Hololens as an alternate XR interface.

## Matrix Storage ~ Server Backplane Controller.

- Developed controller firmware with Atmel C.
  - Aggregates PSU, fan, and environment sensing and control for Linux node on I2C system bus.
  - Developed virtual register interface.
- Interfaced firmware with python application.
- Worked in an agile team; participated in standups.
  - Mentored by electrical and software engineers.

### Automated Thermal Chamber Testing.

- Developed several subsystems:
  - Unit-Under-Test state scraper captures CPU and GPU configuration / sensor values with NodeJS.
  - Thermal couple monitor running on NI cRIO.
  - Chamber control server, with NodeJS, issues low-level TCP byte commands.
- Integrated subsystems into internal testing software.
  - Stored data from subsystems into MongoDB database.
  - Extended Typescript test runner to control subsystems.

# Programmable Fan Controller.

- USB UART with JSON API to configure programmable thermal profiles with individual fan control.
- Firmware written in C for Atmel ARM microcontroller.

### OLED Node Display

- Wrote firmware for OLED display with USB UART and capacitive touch buttons used to visualize node ID.



