# **Curt Henrichs**

Software Engineer

#### About

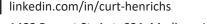
I am passionate about building real things for real people. My interests include software engineering, embedded system development, mixed-reality interfaces, and robotics.

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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

• University of Wisconsin - Madison, Madison, WI

**Human Computer Interaction** Coursework: **High Performance Computing** Artificial Intelligence + Wearables + Machine Learning + Adv. Computer Architecture

+ User Modeling + Computer Vision + Data Visualization

- Human Robot Interaction -

(2014 - 2018)B.S. in Computer Engineering ~ Emphasis: Embedded Systems

Milwaukee School of Engineering, Milwaukee, WI

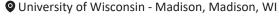
**Embedded Systems** Software Development + Operating Systems + Computer Architecture + Digital / Analog Circuits + Data Structures + Control Systems + Computer Vision

+ Digital Signal Processing + Neural Networks + Computer Networking + Computer Graphics

- Engineering Practices -

## Experience

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



- Developed collaborative robot (cobot) authoring and training interfaces [Authr, Expert View Dashboard].
- 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

Coursework:

## Opedicated Computing, Waukesha, WI

- Responsible for development of embedded firmware in C/C++.
- Prototyped server hardware and software systems [Matrix Storage, Fan Controller, OLED].
- 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.



GPA: 3.7 / 4.0

GPA: 3.9 / 4.0

Business / Management

+ Ethics for Mgmt. and Eng.

+ Servant Leadership

+ Entrepreneurship



