**Garrett**

**Hagen**

**RELATED EXPERIENCE**

**Carnegie Robotics** –Advanced robotics sensors and platforms

*Co-op (Summer 2018)*

* Developed Python GUI to simultaneously collect, organize, and store data from a diverse set of stereo and depth cameras.
* Applied computer vision principles to manipulate stereo, depth, and laser data for use in 3D scene construction and modeling.
* Modified and integrated existing calibration routine to calculate external transforms for various types of stereo cameras.
* Developed a tool to gather and package all application dependencies, enabling portability across company machines

*Co-op (Spring 2019)*

* Developed an extensive testing suite to verify that new stereo camera firmware releases are stable and that all outgoing cameras are functioning correctly.
* Developed Qt GUI to demo MultiSense functionality via simultaneously viewing/manipulating multiple image streams.
* Added functionality to existing production software to verify correct versioning through Git

*Co-op (Fall 2020)*

* Created and maintained C++ framework to assist development for applications involving MultiSense stereo cameras
* Developed and integrated custom LED panel driver into lens matching procedure for MultiSense production
* Developed application to assess the quality of calibrations for MultiSense stereo cameras
* Developed custom firmware and driver application to verify the functionality of MultiSense PCBs prior to the start of assembly
* Refactored existing production software to deploy via Docker and improve dependency handling in CMake

**Gener-8** - FDA approved CPM self-rehabilitation devices

*Software Development and Hardware Design (2016-Present***)**

* Designed and integrated system that calculates knee flexion and rotation then transmits results in real-time via Bluetooth.
* Developed iOS app that interfaces with Gener-8 machine via Bluetooth for at home patient-therapist video communication and live rehabilitation progress monitoring.
* Developed iOS app that measures human joint angles in real time via pose estimation TensorFlow models.

**iRevive** – Mobile Phone and Computer Repair

*Founder (2013-Present)*

* Self-taught technician with 150+ successful repairs

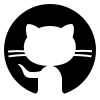
**For You Inc** - manufacturers of Duraband® and other exercise devices

*Product Designer (2012-2015)*

* Designed and received patent for Durabat® baseball training device (used by multiple professional baseball players).

*Founder (2013-Present)*

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 garretthagen21

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Wexford, PA 15090

**EDUCATION**

**University of Pittsburgh** – Main Campus Pittsburgh, PA

BS in Computer Engineering *(2016 – 2020)*

SSOE Engineering Dean’s Honor List(*Fall 2017- Present*)



**COMPUTER SKILLS**

**Languages** – Java, C, C++, Swift, Python, HTML/CSS, JavaScript, Bash

**Software/Tools/Frameworks** – Git, Mercurial, Firebase, Docker, CMake, OpenCV, GTest, Selenium, JUnit, Ceres, MatLab, AutoDesk Inventor, XCode, Microsoft Office Suite

**Operating Systems** – Linux, macOS, iOS, Windows, ROS



**PROJECTS**

**Biometric Lock *(****2017****)*** – Developed iOS App that interfaces with Arduino controlled fingerprint scanner and solenoid lock via Bluetooth. Designed, rendered, and printed custom enclosure for standard door frame

**Industrial Arduino *(****2017****)*** – Created custom PCB shield in Altium Designer for use in a waterproof Arduino Enclosure

**Classmates App *(****2016****)*** – Designed UI mockup for a mobile app to enhance social and academic experience for students and participated in the Pitt Mobile App Challenge

**Wireless Charging Pack *(****2015****)*** – Built a portable external battery pack to wirelessly charge mobile devices. Designed and printed custom enclosure to house electronics



**VOLUNTEER**

**HCEF Instructor *(****2019 - Present****)*** – Teach fundamentals of computer science to middle school students who have experienced or are currently experiencing homelessness

**HCEF Instructor *(****2014 - 2016****)*** – Played guitar as worship leader for YoungLife high school youth group