CHARLIE WEISS

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EDUCATION

2020 **Franklin W. Olin College of Engineering**
Engineering: Robotics 3.8GPA
Relevant Coursework: Computational Robotics, Robotic Systems, Software Design, User Oriented Collaborative Design, Bayesian Inference and Reasoning, Quantitative Engineering Analysis

SKILLS

PROGRAMMING Python, C++, MATLAB, Octave, ROS, Git, Linux
CAD/DESIGN SolidWorks, Onshape, Fusion 360, KiCad
FABRICATION Rapid Prototyping, Mill/Lathe, Sheet Metal, Soldering, MIG Welding

EXPERIENCE

Fall 2018 **Person Detection and Following with Machine Learning**, Olin College
Implemented a convolutional neural network on a Neato robot using ROS, python, Google Colab notebooks, and Apple's ARKit AR platform on an iPhone. Used camera and position data to train the neural net to predict a person's ground truth position based on their location in the camera frame. Documentation here: github.com/charlievweiss/robot_learning

Fall 2018 **Particle Filter Localization**, *Olin College*
Designed an architecture for particle filter localization, which used lidar and odometry readings to provide a pose estimate for a Neato robot's location on a map. Documentation Here: github.com/ksoltan/robot_localization

Fall 2018 **3D Scanner**, Olin College
Built a 3D scanner to map objects onto a heat map in python. The scanner was made using two servos for a pan/tilt mechanism, which swept an IR sensor across a given range of horizontal and vertical values.

Spring 2016 **Facial Recognition**, *Olin College*
Created a facial recognition program in MATLAB by reducing a training set of images to a basis set of eigenvectors, which can be compared to recognize similarities in different images.

Summer 2017 **New American Public Art (NAPA)**, *Maquette Designer (Intern)*, Somerville, MA
Designed and fabricated small models (maquettes) of NAPA's past projects using Autodesk's Fusion 360 CAD suite and mixed mediums, as well as assisted with the design and fabrication of their next big kinetic sculpture installation.

Summer 2016 **Olin College Intelligent Vehicles Lab**, *Researcher*, Needham, MA
Head of Olin IV Lab's fixed-wing projects, including building and testing the hardware, software, and mechanical components of autonomous fixed-wing drones. Designed and piloted flight tests and data collection for Scientific Systems' (SSCI) project ASPECT based in Woburn, MA. Documentation here: github.com/olinrobotics/fixedWingResearch

Fall 2016 **"Pain Train" the Video Game**, Olin College
Designed a platform video game with Python's Pygame library and an object-oriented MVP (model-viewer-player) framework. Documentation here: https://github.com/charlievweiss/InteractiveProgramming

Spring 2016 **Boat Hull Design**, Olin College
Used MATLAB to analyze the buoyancy, moment, and angle of vanishing stability of different boat hull shapes to determine a stable design, which was then fabricated using EPS foam and a Shopbot. Physical tests verified the accuracy of the MATLAB program.