Aamir Husain

LinkedIn | aamirhatim.com | Github

Chicago, IL
904.687.8845
aamir300@gmail.com

C/C++ • ROS • Python • Robotics • MATLAB • SQL • SolidWorks • EAGLE • HTML • CSS • PHP • JQuery • Circuit Design • Mechatronics •

Biomedical Engineering • Technical Writing • 3D Printing • Machine Learning • Artificial Intelligence • Neural Networks • Mathematica • Controls

Selected Projects

Argo: An Autonomous Suitcase | Winter Project
Jan - May 2018

- Designed and built a carry-on sized suitcase that uses AR-tags to localize a target and follow it at an average walking speed
- Multiple PID controllers to create smooth acceleration and turning at any speed
- ROS on board to communicate with the motors, camera, Raspberry Pi Model 3, and a RoboClaw motor controller

DC Motor Controller | Low Level Motor Control
Jan - May 2018

- Created a closed loop feedback system for a brushed DC motor for current control and position control
- Programming in C to configure low level hardware (PIC32MX250F128B microcontroller, H-bridge, DAC, current sensor)
- Built a MATLAB interface to read encoder position and current draw, set speed and direction, control position, and send a trajectory to follow

Inspector Baxter | Robotic Control with ROS
Nov - Dec 2017

- Wrote a program that allowed Rethink Robotics' *Baxter* to learn objects and retrieve them via speech commands
- Object information was gathered using point cloud data from a *Microsoft Kinect* and then sent to a ROS node to compute the inverse kinematics to move Baxter's arm to the location of the object's centroid
- Extensive use of ROS, Python, git control, and some C++

Techtiles: Washable Biometrics in Clothing | Capstone Senior Design
Jan 2014 - May 2015

- Designed a biometric shirt incorporating a fabric stretch sensor, accelerometer, and 3 lead ECG to measure heart rate, breathing rate, steps taken, distance traveled and energy expended
- End-to-End project using Eagle, AutoCAD, 3D printing, C++, Arduino, PSPICE, and filter design
- Second place in Pelton Senior Design Competition

Work Experience

Developer & Consultant | FAST Enterprises
Jan 2014 - May 2015
Washington, DC

- Worked on the DC government's Modernization Integrated Tax System (MITS) Project which implemented GenTax, a streamlined tax management software solution customized for the District
- Developed online tax forms and implemented DC's tax laws using SQL, Microsoft SQL Server, and .NET
- Consulted with DC employees on how to implement state-specific tax laws in a user-friendly way

R & D Intern | SpineWave, Inc.
Jun 2013 - Aug 2013
Shelton, CT

- Independent project of designing a prototype housing for a spinal prosthetic implant gun (StaxX XD) which included force and distance sensors to measure human effort and material stability when pulling the trigger on the device
- Hands on experience with designing and building circuits (amplifiers, Wheatstone bridge difference measurement), and extensive use of SolidWorks and high quality 3D printing

Master of Science: Robotics	**Bachelor of Science: Biomedical Engineering**	**Study Abroad Exchange Program**
Northwestern University	George Washington University (Honors Program)	Boğaziçi Üniversitesi, Istanbul
Sep 2017 - Dec 2018	Aug 2011 - May 2015	Sep 2013 - Jan 2014