

Justin Marple

Computer Systems Engineer Graduate from the University of Massachusetts Amherst

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Technical Skills

Languages: C, Python, C++, Java, C#, Matlab, VHDL

Technologies: Linux, Git, Robot Operating System (ROS), Eclipse IDE, IntelliJ.

CAD: Eagle PCB, Altium Designer and Circuit Maker, Autodesk Inventor.

Hardware: Microcontroller layout design, JTAG/SWD Programming, SPI, I2C, PWM, UART.

Experience

Macton Corporation Controls Engineer

Amherst, MA • Aug. 2017 – Current

- Designed framework for controlling multiple motors for use on high capacity train lifts in Python.
- Implemented framework on several train lift systems currently in use.
- Integrated collision avoidance and localization for carts carrying train wheels in ROS.
- Designed and tested prototype for omnidirectional train transfer tables.

AutoUmp Senior Design Project

Amherst, MA • Aug. 2016 – May 2017

- Designed custom PCBs for implementing a real-time baseball plate umpire.
- Implemented custom drivers on an XMOS multicore microcontroller to communicate with two Omnivision cameras at 60fps.
- Optimized critical image processing algorithms necessary for object detection in C and assembly.

iRobot Software Engineer Intern

Bedford, MA • May 2015 – January 2016

- Designed a smoke tests framework for verifying the functionality of a robot controller application in Java.
- Developed a vision system for verifying robot position in Python.
- Implemented several features in the iRobot uPoint robot controller application.

Micromouse Team Leader

Amherst, MA • Sep. 2013 – Current

- Developed an autonomous robot to solve a random 16'x16' maze by leading a team of 5.
 - Designed a custom PCB in Eagle and 3D-printed mounts in Autodesk Inventor.
 - Identified various sources of noise and reduced them with layout and circuit changes on the PCB. Wrote algorithms in software to further improve the performance.
 - Real-time embedded software design and implementation of Atmega and ARM M4 processors.
 - 1st place at 2014 and 2015 North East IEEE competition.
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Education

University of Massachusetts Amherst (Fall 2013 – Spring 2017)

University of Auckland (Fall 2016)

Bachelor of Science in Computer Engineering

Notable Accomplishments:

2013 Vex World Finalist

2014 IEEE Northeastern Micromouse 1st place

2015 IEEE Northeastern Micromouse 1st place

2016 Vex World Programming Skills 1st place

2017 Vex World Programming Skills 1st place