John Crannell-Ash

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EDUCATION

MASTERS
Computer Engineering with an Emphasis in Robotics & Controls
September 2015
University of California Santa Cruz

BACHELORS
Computer Engineering
June 2013
University of California Santa Cruz
Dean's List & Honors

PROJECTS

Github:// **bananaslug**
Jcrash.com

TEACHING EXPERIENCE

Mechatronics
Micro-Controllers and their applications

SKILLS

PROGRAMMING
Experienced
C • Matlab • Java • Bash
C++ • LaTeX • Python
HTML • Simulink • LabView

MICROCONTROLLERS
Pic32 • Pic33 • Pic16 • PSOC 5
PSOC 5LP • PSOC4 • Ardino
Raspberry Pi

IO DEVICES
Hall Affect • Accelerometer • IR sensors
GPS • Stepper Motors/Drivers
Capacitive-touch • Thermister

PROTOCOLS
UART • SPI • CAN • I^2C • RC
ISO 15693

SOFTWARE
Eagle • MasterCam • SolidWorks • git
Keil • Visual Studios

TOOLS
3D Printer • CNC Board Mill
Oscilloscope • Laser Cutter
Multimeter • Soldering iron

EXPERIENCE

ENTRUST DATACARD Firmware Engineer
May 2015 - Current | Shakopee, MN

- Work cross departmentally to satisfy RFID requirements. Including the reduction of known RFID programming errors from 5% to 0.3%
- Stepper and DC motor control for controlling print supplies and the movement of credit cards.
- Product Development on multiple code bases, including merging code and refactoring to make more modular.

TEACHING ASSISTANT Introduction to Microcontrollers
March 2014 – December 2014 | University of California, Santa Cruz

- Lead 3 sections a week helping 35 students with embedded hardware and software design problems.
- Communicated low level programming concepts in an intuitive way including UART, SPI, PWM, and WiFi.
- Refactored projects from the PSOC programmer to the MicroChips Uc32.

ICF INTERNATIONAL Computer Engineer
June 2013 – December 2013 | Washington DC / Fairfax, VA

- Designed and programmed an embedded motor control system for use on an airplane.
- Worked directly with managers to adjust requirements of the project. Set and Delivered weekly updates and conference calls from a remote site.
- Worked directly with the Uno32, and Max32 from Microchip. Worked directly with pragma's, PWM, and Ethernet communication.

RESEARCH & PROJECTS

AUTONOMOUS AUTOCROSS PATH PLANNING ALGORITHM
Nov 2013 – September 2015 | Santa Cruz, CA
Two year project where I made large improvements to a code base on designing optimal race lines through a given race track.

- Simulated a race car on a given race track and planned the optimal path using a non-linear solver.
- Used Bézier curves and maintaining continuity between multiple curves.
- Used multiple optimization method and saw improvements of up to 60% when compared with the optimal solution.
- Packaged my algorithm into C++ for integration into ROS(Robotic Operating System).

LIFEGUARD ROBOTICS | Senior Design Project
September 2012 – June 2013 | Santa Cruz, CA
Worked on a team of four people to build an autonomous boat from scratch that could locate and rescue a person drowning lake or ocean.

- Designed and manufactured custom boards for wireless communication.
- Used Gantt charts to plan the development of our system.
- Created and exhibited a presentation of project to representatives from companies including Google, Apple, Raytheon, and Netflix.