Justin T. Conroy

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EDUCATION

Bachelor of Science, Computer Engineering
University of Illinois, Urbana, IL
graduated December 2010

Study Abroad Program
Hiroshima Institute of Technology, Hiroshima, Japan
Summer 2007

Relevant Coursework: Mechatronics, Control Systems, Introduction to Robotics, Advanced Digital Systems Lab, Computer Architecture, Computer Engineering I, Computer Systems Organization, Digital Signal Processing, Analog Signal Processing, Introduction to Computing Systems, Data Structures

COMPUTER SKILLS

Languages & Software: C/C++, Python, VHDL, MATLAB, IAR Embedded Workbench, Code Composer Studio, LaTeX, Mathematica, Visual Studio, x86 Assembly, GCC, Labview
Operating Systems: Windows, Linux, OSX

EXPERIENCE

Engineering Intern June 2011-Present
Marki Microwave, Morgan Hill, CA
I design and implement embedded software for a new product that Marki Microwave will soon be releasing. The product is a piece of lab test equipment which interfaces wirelessly with software.on a PC to provide test data to users. When fully complete, the product will be fully integrated with LabView, and an API will be provided such that software written in any programming language will be able to interface with the product.

PROJECTS

Autonomous Recycling Robot Spring 2010
For the final project of the Mechatronics course, I worked on a team of four people to program a DSP on a mobile robot. The robot collected a can at the beginning of a course and carried it to the center of the course and, using computer vision, placed it next to a pink square. While doing this, the robot also collected colored golf balls placed semi-randomly throughout the course. At the end of the course, the robot deposited each color of golf ball in its own area.

Reaction Wheel Pendulum Fall 2009
The final project in my control systems course involved a complex system known as a reaction wheel pendulum. It is essentially an inverted pendulum which is actuated by a spinning flywheel at the end of the pendulum (rather than a motor at the base of the pendulum, as would be present in a normal inverted pendulum). This created an interesting control problem. Working with a partner, I performed system identification on the reaction wheel pendulum, and then experimented with many different control algorithms to control the movement of the pendulum, including stabilization using two-state feedback, stabilization using three-state feedback, and a full-order observer.

EXTRA-CURRICULAR ACTIVITIES

Chair of the Special Interest Group for Robotics (SIGBot)
Association for Computing Machinery
ACM Corporate Committee
ACM Reflections|Projections Conference Staff