Chao Liu

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Objective: Seeking a full-time or internship position to actively participate in an organization, developing professional and technical knowledge to serve the public through integrity, hard work and teamwork.

Education Background

University of Pennsylvania, Philadelphia, PA
School of Engineering & Applied Science, *Sept. 2012 - May 2014(Anticipated)*
Master of Science in Engineering in Robotics in Department of Computer and Information Science
Research Assistant at ModLab in GRASP Laboratory in University of Pennsylvania
Teaching Assistant for Design of Mechatronic Systems(MEAM 510)
Membership in ASME GPA: 3.61/4.00

Dalian Jiaotong University, Dalian, China
School of Mechanical Engineering, *Sept. 2008- June 2012*
Bachelor of Science in Mechanical Engineering and Automation(Focus on Mechatronics), minor in Business Administration Overall GPA: 89.5/100 Ranking: Top 4 in total 218 GRE: Q 800

Project Experiences

Mar 2014 - Apr 2014 **Localization and Mapping**
- Mapped the structure of an indoor environment using information from an IMU and LIDAR sensor;
- Pre-processed the data and used odometry measurements and yaw gyro readings to make 2 2D map;
- Constructed the surrounding 2D map using a particle filter and occupancy grid algorithm with LIDAR sensor data.

Nov 2013 - Dec 2013 **PhanToM Robot Control System(Our Own Myo)**
- Designed a device with muscle sensors(EMG) and an IMU to measure the muscle activation and motion, and output some control commands to a vehicle robot and a quadrotor;
- Designed a vehicle robot with Omni-wheels and holonomic control;
- Hacked a toy cannon and placed it on the vechile robot;
- Designed a circuit with an IMU, a xBee and so on and a PID controller for a quadrotor;
- Controlled the vehicle robot to shoot the quadrotor with this system.

Nov 2013 - Dec 2013 **Yelp Rating Prediction**
- Processed the data with NLP methods to know more properties of the words;
- Used Naïve Bayes, SVM and our own kernel to train the data and got a model.

July 2013- Aug 2013 **Persona Robot**
- Designed a force sensor with IR and phototransistors and designed the PCB with Eagle;
- Used mbed(NXP LPC1768) to control servos for the tablet motion with servo controller;
- Used mbed(NXP LPC1768) and designed a P controller to control the gripper force;
- Designed PID controller class for the base motion control and mast rotation control with encoders and DC motors using C++.

Feb 2013 - Mar 2013 **M4 Peripheral Design -- mTouch**
- Chose FT5306 to be the touchscreen controller and designed the interface circuit and code for the microcontroller(Cortex-M4) and the capacitive touchscreen;
- Wrote C code to control the communication between FT5306 and M4 via I2C, and designed the PCB layout with Eagle.

Dec 2012 - June 2013 **Low-cost Laser Range Finder**
- Controlled a camera(OV7670) via SCCB to take a photo of the laser using RGB RAW;
- Designed an algorithm to detect the position of the laser on the picture to calculate the distance between the target object and the device;
- Used Eagle to design the PCB and used C Language and Assembly Language to control.

Nov 2012 - Dec 2012 **Robockey**
- Designed 3 moving robots to compete in Hockey games with SolidWorks;
- Localize the robots with the Wii cameras and used mRF wireless module to communicate with each other;
- Used multi-channel ADC to get signals from 8 phototransistors and then used PD controller to control the robot to move towards the puck and also move to the goal;
- Used one Timer to control the solenoid circuit to kick the puck at a suitable time.

Working Experience and Organization

Penn Electric Racing: Focus on Control, Mechatronics and Embedded System
Research Specialist in Department of Radiology in Penn Medicine: Focus on Mechatronics System

Courses

Learning in Robotics, Machine Learning, Digital Signal Processing, Embedded System, Control, Mechatronics

Strengths

Embedded System, C/C++, Python, Matlab, Simulink, Control, Motor, Servo, PCB, Eagle, Altium, SolidWorks