ChaoLiu

Robotics Researcher

contact

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languages

Chinese(native)
English(professional)

courses

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

strengths

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

education

Sept,12'–May,14' **Master** of Science in Engineering in Robotics — 3.61/4.00
School of Engineering & Applied Science, *University of Pennsylvania*
Research Assistant at ModLab in GRASP Laboratory
Teaching Assistant for Design of Mechatronics Systems(MEAM 510)

Sept,08'–June,12' **Bachelor** of Science in Mechanical Engineering and Automation — 89.5/100
School of Mechanical Engineering, *Dalian Jiaotong University*
Specialization in Mechatronics, minor in Business Administration

projects

Mar,14'–Apr,14' **Localizetion and Mapping** — Particle Filter and Occupancy Grid Alogrithm
- Mapped an indoor environment by an IMU and a LIDAR on a mobile robot;
- Constructed the 2D map using a particle filter and occupancy grid algorithm.

Nov,13'–Dec,13' **PhanToM Robot Control System(Our Own Myo)** — Mechatronics and Machine Learning
- Controlled muscle sensors(EMG) and an IMU to measure the muscle activation and motion, and output some control commands to a robot and a quadrotor;
- Designed a vehicle robot with Omni-wheels and holonomic control;
- Designed a board with an IMU, an xBee and a PID controller for a quadrotor.

Nov,13'–Dec,13' **Yelp Rating Prediction** — Machine Learning
- Processed the data with NLP methods to classify the words;
- Used Naive Bayes, SVM and our own kernel to train the data and got a model.

July,13'–Aug,13' **Persona Robot** — Mechatronics and Control
- Designed a force sensor with IR and phototransistors and made the PCB;
- Designed a servo controller to control the servos for the tablet motion;
- Designed a PID controller for the base motion and mast rotation with encoders.

Feb,13'–Mar,13' **M4 Peripheral Design -- mTouch** — Embedded System
- Used FT5306 as the capacitive touchscreen controller and designed the interface PCB and code for the STM32F373(Cortex-M4) via IIC.

Dec,12'–June,13' **Low-cost Laser Range Finder** — Embedded System
- Simulated SCCB protocol on STM32F373 and configured a camera(OV7670) in RGB RAW mode;
- Designed the PCB including the microcontroller, the camera and the laser;
- Transmitted the data to the master via SPI.

Nov,12'–Dec,12' **Robockey** — Mechatronics
- Designed 3 robots to compete in Hockey games;
- Localized the robots with Wii cameras and applied wireless communication;
- Designed PD controller to find the puck and move to the goal;
- Controlled the solenoid to kick the puck;

working experiences and organizations

Oct,12'–Now **Research Assistant at ModLab in GRASP Laboratory**

Aug,13'–Dec,13' **Teaching Assistant for Design of Mechatronics Systems (MEAM 510)**