

Tuofei Chen

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(224) 410-9556

EDUCATION

Stanford University, Palo Alto, CA

- Ph.D. Candidate in Electrical Engineering

Northwestern University, Evanston, IL

Sept 2013 – June 2017

- BS/MS Electrical Engineering – cum Laude
- Master Thesis: RGB-D SLAM for MAV Autonomous Indoor Navigation

ETH Zürich, Zürich, Switzerland Exchange Student

Sept 2016 – Jan 2017

RESEARCH/TEACHING EXPERIENCE

Image and Video Processing Lab (IVPL)

Dec 2015 – June 2017

Research Assistant advised by Prof. Aggelos Katsaggelos

Project: RGB-D Simultaneous Localization and Mapping (SLAM) for Micro Aerial Vehicle (MAV)

- Implemented RGB-D sensor and pose graph based SLAM algorithm for indoor navigation of MAV
- Sensor fusion of visual SLAM with optical flow and inertial sensor using extended Kalman filter
- Feature based object detection for search and rescue mission
- First Prize in Undergraduate Research Fair

EECS 225: Fundamental of Electronics

Fall 2015 – Dec 2015

Teaching Assistant

- Led discussion and lab sessions of an analog electronics class on op-amp, diodes and transistors
- Every student got 'A' in my session

WORK EXPERIENCE

Keurig Green Mountain Inc., Burlington, MA

June 2015 – Sept 2015

Embedded Software Engineer Intern

- Designed and built an ultra low cost image-based bar code decoding prototype for beverage distinction
- Implemented decode algorithms on low RAM/processing power MCU such as PIC32 and Atmega328
- Developed drivers for CMOS sensors (GC0309 and OV7670) for image capturing and processing
- Built prototype fixture and developed software utilities in MATLAB for testing and debugging

Johnson Controls Inc, Power Solutions Headquarter, Milwaukee, WI

June 2014 – Sept 2014

Battery Modeling Intern - Algorithm development

- Develop and modify Equivalent Circuit Model (ECM) for state-of-charge (SoC) estimation for Li-ion battery
- Parameter identification for ECM as a function of SoC, temperature and loading current
- Simulate battery model performance under HPPC testing and real world driving cycles

PROJECT EXPERIENCE

Engineers for a Sustainable World

Sept 2013 – June 2017

Project Manager: SmartTree

- Lead design, prototype and construction of the electrical system of a 'solar tree', including maximum power point tracking, DC-DC converting, battery management, telemetry and UI
- Lead code compliance design review and verification for National Electric Code (NEC)
- Participated in a crowdsourcing campaign that raised more than 10,000 dollars for the project

NU Solar Car

Sept 2013 – Sept 2015

Power Electronics Lead

- Source and interface power electronics (solar arrays, Li-ion batteries, MPPT, etc.,) on both hardware and software level for an electric vehicle completely powered by sun
- Redesign and implement the battery management system, including improve the sensors communication and state-of-charge estimation algorithm

Electrical Loads Smoothing for Residential Application

Dec 2013 – June 2014

- Design algorithm and program a microcontroller to control the charging/discharging circuit of a household energy storage system to smooth out the peak power usage of household and reduce grid load at peak hours
- First Prize in Northwestern University EECS Department Project Fair / Second Place Michaelson Prize

Data Mining for Material Genome Initiative (MGI)

March 2014 – June 2014

- Utilized data mining software KNIME to correlate 26 material design parameters with fatigue strength to facilitate and accelerate material design cycles
- Improved previous approaches by incorporating structural information of materials using Thermo-Calc to enhance model accuracy

SKILLS

Programming: C/C++, MATLAB/Simulink, x86 assembly, Python, Arduino,

PCB: Schematic/Layout design, Microcontrollers (PIC, Atmel, 8051), Sensors, Digital/Analog ICs

CAD: Solidworks, Onshape

Languages: Mandarin

GRANT and AWARDS

Murphy Scholar: Awarded to top undergraduates \$4,000 for independent research

Undergraduate Research Grant: Awarded to top undergraduate researchers \$3500 for independent research

Outstanding Graduate of Northwestern EECS Department

Northwestern Undergraduate Research Exposition: First Prize

Northwestern EECS Department Research Poster Fair: First Prize

Mickelson Prize: Awarded to the best innovative or creative-integrative ‘Capstone’ projects

RELEVANT COURSEWORK

Electrical Engineering: Digital Signal Processing, Stochastic Processes, Machine Learning, Image Processing, Feedback Control, VLSI, and Mechatronics, Power System Analysis, Signal Detection and Estimation

Math: Linear Algebra, Differential Equations, Complex Analysis, and Optimization.