

**David (Haohan) Li**

**Mobile** +1-647-676-5621

**Email** davidhaohan.li@mail.utoronto.ca

**Address** Room 709, 750 Bay St., Toronto, ON M5G 1N6

**EDUCATION**

**University of Toronto** (Toronto) 09/2016 – Present

* Master of Engineering (Mechanical and Industrial Engineering, Certificate in Robotics)
* Cumulative GPA: 3.74/4.0
* Main courses: Algorithms and Data Structures; Introduction to Machine Learning (in progress); Mobile Robotics; Robotics; Systems Control; Theory of Vibrations; Advanced Mechatronics
* Expected to graduate in 05/2018

**The Hong Kong Polytechnic University** (Hong Kong) 09/2012 - 05/2016

* + - Bachelor of Engineering (Honors) in Mechanical
    - Main courses: Artificial Intelligence for Products; Computer Programming; Computer Aided Design and Engineering; Manufacturing and Prototyping; Aircraft Structure and Composite Material
    - Honors and Awards –
  + Dean’s Honors List 2013-2014
* Scholarship: Reaching Out Award (HKSAR Government Scholarship Fund) 2014/15

**PROJECTS**

**Crowd Monitoring: Abnormal Behavior Detection** **(In progress)** 10/2017 – Present

* This project aimed to detect and mark the abnormal behaved people in crowded public environment, such as runners (fast motion) in a crowd of walking pedestrians (slow motion) in a park.
* The program is coded in Python with 3 dependencies
* OpenCV for
  + Image pre-processing: Canny edge detection, Hough transformation and morphological filter
  + Feature extraction: Optical Flow
* Keras (with Tensorflow backend) for CNN modeling, training and testing
* Sciki-Learn for
  + Linear and Clustering modeling, training and testing.
  + ROC metric plot and AUC calculation.

**Autonomous System for Intelligent Ground Vehicle** 01/2017 – 05/2017

* System based on:
* Hardware: Clearpath TurtleBot 2; Orbbec Astra Pro; ASUS Laptop
* OS and Software: Linux; ROS; Python
* System functions:
* Simultaneous localization and mapping
* Path planning and stability control
* Fully autonomous and recoverable from system accidents
* 1st runner-up in final class competition

**Invert Pendulum** **System with LQR Optimal Controller**  10/2016 - 12/2016

* Project aimed to apply state space theory to stabilize an invert pendulum, which is an inherently unstable non-linear physical system.
* Control algorithms, which were linearization and LQR, were validated on Matlab/Simulink and translated to C on QUARC experimental hardware.
* System tested been survived more than 5min with unexpected weight added and disturbance applied. Referred to conventional PID controller, experiment data of the LQR controller demonstrated significant improvement on overshoot elimination and system energy conservation

**WORK EXPERIENCES**

**Asea Brown Boveri (ABB) Limited** (Xi’an, China)

Student Intern 06/2014 - 08/2014

* Assisted writing technical bid documents and attended tendering as department represent
* Responsible for weekly meeting materials of data researching and collection
* Studied the entire electric product line and department database of ABB and generated thorough study report

**EXTRA-CURRICULAR ACTIVITIES**

**Zonta Club** (Hong Kong) 11/2012 - 04/2013

“Community Service: Tutoring South Asian Under Privilege Children” Volunteer & Person in charge

* Led evening teaching class for South Asian students aged 8-12
* Organized the interactive workshops, lessons and after-school tutoring with the local community
* Demonstrated strong communication skills by mediating between members and dissolving conflicts

**Student Affairs Office, PolyU** (Hong Kong) 05/2013 “Graduation Ceremony for Non-local Undergraduates” Master of Ceremony

* Delivered an opening speech in dual-language to 300 graduates, parents and university officers
* Planned the event flow, host the ceremony and managed unexpected situation
* Conducted instant English-Mandarin interpretation to the non-local parents

**Mainland and International Student Service Office, PolyU** (Hong Kong) 05/2013 - 08/2013

**“**Orientation Program for Undergraduate New Students” Group Leader & Person in charge

* *Responsibility* –

o to guide one group of non-local new students as group leader in 2-week orientation

o to gain information and manage the campus tour for the entire program

* *Result* – New students got familiar with the environment in a short period and gained confident about the life in PolyU and Hong Kong; Win “Most Integrated Superb Camp”

**Student Organizing Committee “Better Record, Closer Us”** (Hong Kong) 08/2014 - 09/2014

[“Enlighten@PolyU](mailto:Enlighten@PolyU)” Project member

* *Responsibility –* Recruitment of helpers; Search and contact for rental bicycle supplier; Responsible for managing the order in part of area during the event
* *Result* – Project team broke the Guinness World Records for “The most electrical energy generated by pedaling on bicycles in 24 hours” (31,399.31 watt)

**SKILLS**

* Python
* Data Structure and Algorithms
* Git
* Linux Shell
* C++
* ROS
* Matlab
* Machine Learning
* Control Theory and Dynamics
* Robotics
* SolidWorks

**LANGUAGE ABILITIES**

* Native: Mandarin
* Proficient: English
* Intermediate: Cantonese