Chen-Lung 'Eric' Lu

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Research Interests:

My research interests focus on **robotics,** especially on **manipulation** and **multi-robot behavior**. I joined the **Assistive Robotics Group** at National Chiao Tung University since March 2017, and start to learn and later share my passions in autonomous vehicles by **teaching and giving lectures** with Duckietown. I also serve as the director of the department student association and volunteer many actives**,** both play big roles in my college life. I wish to build robots to make the world a better place.

Education:

B.S. in Electrical and Computer Engineering (ECE),
National Chiao Tung University (NCTU), Taiwan. 2014~

Related Courses:

Introduction to Digital Processing (A+), Object-Oriented Programming (A), JAVA Programming (A), Automatic Control Systems (B+), Creative Software Project (Autonomous Vehicle), Sensing and Intelligent System, Imaging Processing

Recent Projects and Professional Experiences:

Duckietown: A Platform for Autonomy Research and Education

- **A short introduction for Duckietown**
  Duckietown is a robotic research and education platform developed in MIT in 2016. There are many branches in the world, such as in Eidgenössische Technische Hochschule Zürich (ETHZ), Toyota Technological Institute at Chicago (TTIC), Université de Montréal (UdeM) and National Chiao Tung University (NCTU) in Fall 2017. The course number of the ETHZ course is 151-0323-00L Autonomous Mobility on Demand: From Car to Fleet. More information please see duckietown.org

- **Teaching Assistant in Duckietown @ NCTU**
  I serve as a teaching assistant in the NCTU branch, and co-design two of the course modules using Robot Operating System (ROS), Jupyter Notebook, Python, and OpenCV. I also lead a project team working on multi-robot planning.

- **Lecturer in Duckietown Summer School, Duckietown Summer School 2017 (Summer 2017) (English lecture)**
  Duckietown Summer School is a course to train potential instructors and teaching assistant. I work in the stuff team to host 24 participants from Koera, Indonesia, and Taiwan with 6 potential courses. The official website of Duckietown Summer School: http://duckietown.nctu.edu.tw/summer_school.html

- **Coordinator for the Duckietown Learning Materials @ NCTU**
  This autumn, ETHZ, TTIC, UdeM and NCTU are having joint Duckietown courses. "Duckument" is the key learning materials, and I am in charge of the parts for the NCTU branch. I also

coordinate and edit “The First Chinese Textbook of Duckietown in the World” as our autumn. We hope the Duckietown learning materials can help more students around the work to learn robotics.

Multi-robot Control and Manipulation, with Prof. Hsueh-Cheng Nick Wang

- The goal of the project is to make multiple homogeneous/heterogeneous robot manipulate objects cooperatively. The project is extended from the Duckietown, and we will use build a GUI control panel for better task assignments for multiple robots.
- Professional Training for the Universal Robotics Arm (UR5), expected in Nov. 2017. The training is to get familiar with industrial robotic arm to perform tasks in real-world tasks.

Music Player and Mixer with Java

- Using Java to program a music player. Besides playing music, we use an Fast Fourier transform (FFT) to show the spectrum of the music at the same time. Also, we added some cool effects like echo, distortion, etc.

Teaching Assistant in the Innovative Intelligent Electronics Lab (Spring 2017), Department of Electrical and Computer Engineering, NCTU, Taiwan

- The Innovative Intelligent Electronics Lab aims at introducing embedded platforms such as Raspberry Pi 3, Ameba (by Realtek), Linkit One (by MediaTeK), Linkit 7688 (by MediaTek), and inspires students for carrying out their own innovative ideas. I am the teaching assistant to support students’ projects and check they have no problem with those embedded boards.

Technical Skills:

Programming: C/C++, Python, JAVA
Middleware and Libraries: Robot Operating System (ROS), OpenCV

Leaderships:

Director of Student Association of Department of Electrical and Computer Engineering (2016~2017)
Event General Coordinator of Night of ECE 2017 (2017)
Head of Activity of Taiwan Model United Nation 2016 (2016)