

Ni-Ching ‘Monica’ Lin

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Research Interests

My research focuses on design, modeling, and control robotic system. I am interested in developing intelligent robot to solve real-world problems. In my prospective program, I concentrate on the following fields: **assistive robot, AR/VR, haptics, navigation, and autonomous vehicles.**

Education and Professional Experiences:

Graduate Student , Department of Electrical and Computer Engineering National Chiao Tung University (NCTU), Taiwan	09/2016 – present
Intern Student , In.Sight.stl Università degli Studi di Palermo, Italy	06/2017 – 07/2017
Visiting Student , University of Massachusetts at Boston, USA	02/2016 – 06/2016
Undergraduate Student , Department of Electrical Engineering, Tamkang University (TKU). GPA: 3.89/4.00, Ranking: 4/60.	09/2012 – 01/2016

Research and Projects:

Wearable Vision for People who are Blind and Visually Impaired

Advisor: Prof. Hsueh-Cheng Wang (Assistive Robotics Group, NCTU)

- Our team develops wearable device and guide dog which have camera, and haptics which are navigation aids to help the blind and visually impaired people move around independently.
- Some results are presented 2017 IEEE International Conference on Robotics and Automation (ICRA), Singapore, 05/2017

Graphics and Virtual Environments

Advisor: Prof. Lap-Fai Yu (Graphics and Virtual Environments Lab) and Prof. Marc Pomplun (Visual Attention Lab) in UMass Boston

- Some results are presented in SIGGRAPH Asia 2016, Macao, 12/2016
- The widespread popularity of virtual reality devices provides new, exciting opportunities for visual attention research in virtual environments. Users can navigate in and interact with virtual environments naturally, and their responses to different dynamic events can be closely tracked.
- Wayfinding signs play an important role in guiding users to navigate in a virtual environment and in helping pedestrians to find their ways in a real-world architectural site.

Duckietown @ NCTU, Autonomy Education and Research Platform

Advisor: Prof. Hsueh-Cheng Wang (Assistive Robotics Group, NCTU)

- In these courses, I learned how to prepare all the needs before such as, power point and home works. I also learned how to set up a web site and how to write a tutorial which students can learn on web site.

- **Teaching Assistant**, Creative Software Project, Department of Electrical and Computer Engineering, NCTU, Taiwan, 09/2016 – 01/2017
- **Research Assistant**, Tutorial in the IEEE International Robotic Computing Conference. 05/2017

Research of modular grippers

Advisor: Professor Ching-Chang Wong (Intelligent Control Lab)

- The modular grippers are designed to quickly switch and adapt to different tasks for high productivity. By designing structures, circuits and programming, the grippers can accomplish different motions, such as holding, opening to a specific width for the objects of different shapes and sizes. I contribute to circuit design and programming. First, I design the circuit layout as small as I can to put it into the gripper. Then, separated the power and signal to lower the interference. Finally, I accomplish a suitable program for the gripper.

Honors & Awards:

World Robot Olympiad	09/2015
Champion of HIWIN Intelligence Robot Implementations Contest	07/2015
College of Engineering, Tamkang University Dayu Award	05/2015
International Robot Hands on Competition & Symposium	2014-2015
Second Alumni Scholarship electronic Tamkang University	06/2013

Selected Courses:

Robotic Vision (A+), Pattern Recognition (A+), Image Processing (A+), Bio-Design and Implementation Course (A+), Robotics (A), Mobile Robots (A)

Publications:

Haikun Huang, **Ni-Ching Lin**, Lorenzo Barrett, Darian Springer, Hsueh-Cheng Wang, Marc Pomplun, Lap-Fai Yu.(2016) Analyzing Visual Attention via Virtual Environments

Haikun Huang, **Ni-Ching Lin**, Lorenzo Barrett, Darian Springer, Hsueh-Cheng Wang, Marc Pomplun, Lap-Fai Yu.(2017) Way to Go! Automatic Optimization of Wayfinding Design

Technical Skills:

Programming language: Python, C/C++, C#, Verilog, LabVIEW, VHDL

Middleware and Libraries: Robotic Operating System (ROS), Android, Arduino

Sensors and Hardware: depth sensors, Google Tango device, NVidia Jetson

Others: Solidwork, Altium Designer, Blender, Unity3D