Ni-Ching 'Monica' Lin

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Research Interests

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

Education and Professional Experiences:

Graduate Student, Department of Electrical and Computer Engineering 09/2016 – present
National Chiao Tung University (NCTU), Taiwan
Advisor: Prof. Hsueh-Cheng Wang

Visiting Student, Massachusetts Institute of Technology (MIT) at Boston, USA 06/2017 – 07/2017
Advisor: Prof. Michael Benjamin

Intern Student, In.Sight.stl Università degli Studi di Palermo, Italy 06/2017 – 07/2017
Advisor: Prof. Laura Giarré

Visiting Student, University of Massachusetts at Boston, USA 02/2016 – 06/2016
Advisor: Prof. Lap-Fai Yu and Prof. Marc Pomplun

Undergraduate Student, Department of Electrical Engineering, Tamkang University (TKU). GPA: 3.89/4.00, Ranking: 3/67. 09/2012 – 01/2016
Advisor: Professor Ching-Chang Wong

Publications:

Journal Paper:

[J1] Huang, H., **Lin, N. C**., Barrett, L., Springer, D., Wang, H. C., Pomplun, M., & Yu, L. F. (2017). Automatic Optimization of Wayfinding Design. *IEEE transactions on visualization and computer graphics (TVCG).*

Conference Presentations:

[C1] Chuang, T. K.*, **Lin, N. C.***, Chen, J. S., Hung C. H., Huang. Y. W., Teng C. C., Huang, H., Yu, L. F., Giarré, L., Wang, H. C..(2018) Deep Trail Following Robotic Guide Dog in Pedestrian Environments for People Who Are Blind and Visually Impaired - Learning from Virtual and Real Worlds. *IEEE international conference on robotics and automation (ICRA).*

[C2] Huang, H., Lin, N. C., Barrett, L., Springer, D., Wang, H. C., Pomplun, M., & Yu, L. F. (2016, November). Analyzing visual attention via virtual environments. *In SIGGRAPH ASIA 2016 Virtual Reality meets Physical Reality: Modelling and Simulating Virtual Humans and Environments (p. 8). ACM.*

Research and Projects:

Vision Based Device for People who are Blind and Visually Impaired

- Our paper "Deep Trail Following Robotic Guide Dog in Pedestrian Environments for People Who Are Blind and Visually Impaired - Learning from Virtual and Real Worlds" is accepted by ICRA 2018.

Graphics and Virtual Environments

- 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. Some results are presented in SIGGRAPH Asia 2016, Macao, 12/2016

Robotic Manipulator End Effector

- Research project in Sensing and Intelligent Systems 2017 course. Our team develops a robust robot arm end effector that is capable to grasp and suck in different scenario. With two scenarios, the end effector can pick as much as objects in Amazon robotic warehouses. With a RGB-D camera, a haptic belt, and an embedded board, the system is able to help the blind and visually impaired people move around independently with our system algorithm.

Duckietown @ NCTU, Autonomy Education and Research Platform

- **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

- 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.

Honor and Awards:

Pilot Overseas Internships, Ministry of Education Republic of China (Italy internship funding).	06/2017
HIWIN Intelligence Robot Implementations Contest, First Place Award	07/2015
International Robot Hands on Competition & Symposium, Honorable Mention	2014-2015
Da Yu Award, College of Engineering Tamkang University (Top 3%)	05/2015

Technical Skills:

Programming language: Python, C/C++, C#, LabVIEW
Middleware and Libraries: Robotic Operating System (ROS), Arduino, Android
Sensors and Hardware: Haptic device, Google Tango device, NVidia Jetson
Others: Solidwork, Altium Designer, Unity3D, Blender