Hangxin Liu

Email: hx.liu@ucla.edu   Website: liuhx111.github.io

EDUCATION

University of California, Los Angeles	**Los Angeles, CA**
Ph.D. in Computer Science, Computer Vision concentration	04/2018 – Present
M.S. in Mechanical Engineering, Robotics concentration	09/2016 – 03/2018
Overall GPA 3.82/4.00	

Virginia Polytechnic Institute & State University (Virginia Tech)	**Blacksburg, VA**
B. S. in Mechanical Engineering, Robotics concentration	08/2012 – 05/2016
B. S. in Computer Science, Scientific Computing concentration	
Minor: **Mathematics**	
Overall GPA 3.78/4.00, Magna Cum Laude, Honors Scholar	

Shanghai Jiao Tong University (*University of Michigan-SJTU Joint Institute***)**	**Shanghai, China**
Exchange Student (Mechanical Engineering)	5/2014 – 08/2014

APPOINTMENTS

Center for Vision, Cognition, Learning, and Autonomy   09/2016 – Present
Graduate Student Researcher, Advisor: Dr. Song-Chun Zhu

- Integrated a humanoid robot platform, Baxter with customized grippers and sensors, for performing complex manipulation tasks learned from human demonstrations.

- Developed a tactile glove with pose and force sensing capability using IMUs and piezoresistive fabrics, for the purpose of studying the human manipulations.

Computational Multi-physics Systems (CMS) Laboratory   01/2015 – 09/2016
Undergraduate/Graduate Research Assistant, Advisor: Dr. Tomonari Furukawa

- Developed an infrastructural traffic monitoring design using Arduino, laser ranger finders, IR image senor with Raspberry Pi.

- Led the software sub-team of Self-Driving Vehicle Team (SDVT: http://www.me.vt.edu/sdvt/) and implemented way-point controls on a drive-by-wire goftcart in Robot Operating System (ROS) using Sick LiDAR, IMU, GPS, and RGB-D sensors.

- Assisted a Post-doc researcher in developing probabilistic approach to NLOS visual/ acoustical target estimation based on recursive Bayesian estimation framework, and conducting test on human/ mobile sensor platform for human-robot-interaction.

- Worked on motion tracking and feature detection using non-stationary camera that enabled UAV to locate, track and land on a moving ground vehicle for the Mohamed Bin Zayed International Robotics Challenge (MBZIRC 2017).

- Mentoring a senior design project, Self-Driving Vehicle Team, consisting of ten senior students.

Ipsen Industries Furnaces (Shanghai) Ltd.   07/2014 – 08/2014
 R&D Internship

- 3D modeled furnace covers, pipes, flanges and standard parts using AutoDesk Inventor.

- Audited sketches and selected suitable parts (motors, valves) corresponding to China National Standard.

PUBLICATIONS

Journal Paper

[J1]   Y. Tian, **H. Liu.** and T. Furukawa, "Reliable Infrastructural Urban Traffic Monitoring Via Lidar and Camera Fusion," SAE International Journal of Passenger Cars-Electronic and Electrical Systems, 10(2017-01-0083), pp.173-180, 2017

Conference Paper   (* indicates joint first authors)

[C1]   **H. Liu***, Z. Zhang*, X. Xie, W. Si, Y. Zhu, S.-C. Zhu, "VR Glove for High-Fidelity Virtual Grasp," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2018 [Submitted]

[C2]   **H. Liu**, C. Zhang, Y. Zhu, C. Jiang, S.-C. Zhu, "Mirroring Human Manipulation Actions to Robots with Functional Equivalence," International Joint Conference on Artificial Intelligence (IJCAI), 2018 [Submitted]

[C3]   X. Xie*, S. Wang*, J. Lin*, **H. Liu**, S. Qi, Y. Zhu, S.-C. Zhu, "VRGym: A Virtual Reality Testbed for Physical and Interactive AI," International Joint Conference on Artificial Intelligence (IJCAI), 2018 [Submitted]

[C4]   **H. Liu***, Y. Zhang*, W. Si, X. Xie, Y. Zhu, S.-C. Zhu, "Interactive Robot Knowledge Patching using Augmented Reality," IEEE International Conference on Robotics and Automation (ICRA), 2018

[C5]   X. Xie*, **H. Liu***, M. Edmonds, F. Gao, S. Qi, Y. Zhu, B. Rothrock, S.-C. Zhu, "Unsupervised Learning of Hierarchical Models for Hand-Object Interactions," IEEE International Conference on Robotics and Automation (ICRA), 2018

[C6]   M. Edmonds*, F.Gao*, X. Xie, **H. Liu**, S. Qi, Y. Zhu, B. Rothrock, S.-C. Zhu, "Feeling the Force: Integrating Force and Pose for Fluent Discovery through Imitation Learning to Open Medicine Bottles ," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017

[C7]   **H. Liu***, X. Xie*, M. Millar*, M. Edmonds, F.Gao, Y. Zhu, V. Santos, B. Rothrock, S.-C. Zhu, "A Glove-based System for Studying Hand-Object Manipulation via Joint Pose and Force Sensing," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017

[C8]   K. Takami, **H. Liu**, T. Furukawa, M. Kumon, G. Dissanayake, "Non-Field-of-View Sound Source Localization Using Diffraction and Reflection Signal," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2016

[C9]   **H. Liu**, Y. Tian, T. Furukawa,. "Design of Highly Reliable Infrastructural Traffic Monitoring Using Laser and Vision Sensors," ASME IDETC/CIE, 2016

[C10] K. Takami, **H. Liu**, T. Furukawa, M. Kumon, G. Dissanayake, "Recursive Bayesian Estimation of NFOV Target Using Diffraction and Reflection Signals," ISIF International Conference on Information Fusion, 2016

HONORS & AWARDS

- ICRA 2018 Conference Travel Award — 2018
- Pratt Engineering Scholarship ($5000 each academic year) from Collage of Engineering — 2013 – 2016
- Dean's Scholarship ($3000) from Collage of Engineering — Spring 2013
- Dean's List (Two semesters). — Spring 2015– Fall 2015
- Dean's List with Distinction (Six semesters). — Fall 2012 – Fall 2014, Spring 2016
- University Honor Student at Virginia Tech. — Summer 2014 – Spring 2016

LANGUAGES & SKILLS

Language: Chinese Mandarin and Cantonese: Native
         English: Full professional proficiency

Skills: Computer Languages: Java, C/C++, Python   Software: Robot Operating System (ROS), MATLAB, Eclipse
        Operating Systems: Windows, Linux   CAD: AutoDesk Inventor

MEMBERSHIPS & AFFILIATION

- Student Member of IEEE and RAS. — 06/2017
- Member of **Phi Beta Kappa** Honor Society. — 04/2016
- Student Member of ASME. — 01/2016
- Member of **Tau Beta Pi** National Engineering Honor Society. — 04/2014