

Hangxin Liu

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EDUCATION

University of California, Los Angeles

Overall GPA 3.90/4.00

Los Angeles, CA

09/2016 – Present

M.S. in Mechanical Engineering

- Concentrated in Robotics. Courses Taken: Linear System, Linear Optimal Control, Control of Robotics

Virginia Polytechnic Institute & State University (Virginia Tech)

Overall GPA 3.78/4.00, Magna Cum Laude, Honors Scholar

Blacksburg, VA

08/2012 – 05/2016

B. S. in Mechanical Engineering

- Concentrated in Robotics. Courses Taken: Vibrations, Control, Robotics&Automation, Bayesian Robotics, Linear&Nonlinear Vibrations

B. S. in Computer Science

- Concentrated in Scientific Computing. Courses Taken: Data Structure&Algorithms, Computer System, Numerical Method, Theory of Computation, Issues in Scientific Computing, Machine Learning, Numerical Analysis

Minor: **Mathematics**

Shanghai Jiao Tong University (*University of Michigan-SJTU Joint Institute*)

Exchange Student

Shanghai, China

05/2014 – 08/2014

- Courses Taken: Thermodynamics, Heat Transfer, Intermediate Dynamics and Vibration

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 sensor 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 gofcart 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

1. Y. Tian, **H. Liu**, and T. Furukawa, 2017. 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.

Conference Paper (* indicates equal contribution)

1. M. Edmonds*, F.Gao*, X. Xie, **H. Liu**, S. Qi, Y. Zhu, B. Rothrock, S. Zhu (*Equal contributors), "Learning Complex Functional Manipulations by Human Demonstration and Fluent Discovery," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017 (Accepted)
2. **H. Liu***, X. Xie*, M. Millar*, M. Edmonds, F.Gao, Y. Zhu, V. Santos, B. Rothrock, S. Zhu, "A Glove-based System for Studying Hand-Object Manipulation via Pose and Force Sensing," IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2017 (Accepted)
3. 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
4. **H. Liu**, Y. Tian, T. Furukawa, "Design of Highly Reliable Infrastructural Traffic Monitoring Using Laser and Vision Sensors," ASME IDETC/CIE, 2016
5. 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

- 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