Yazhan ZHANG

CYT2014, HKUST, Clear Water Bay, Kowloon, HK

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Gender: Male

Education

2016-present **The Hong Kong University of Science and Technology (HKUST),** Robotics Institute - Kowloon, HK
Ph. D in Mechanical and Aerospace Engineering

- Research Topics: **Tactile sensing, Machine Learning, Computer vision, Robotic manipulation**
- Core coursework: Convex Optimization, Bayesian Networks, Robotic Manipulation, Robot Perception and Learning

2014-2016 **National Tsing Hua University (NTHU),** School of Engineering - Hsinchu, Taiwan
M.S in Power Mechanical Engineering GPA 3.78/4.0

- Thesis Topic: Anti-slip Control of Inverted Pendulum Cart on Low-friction surface.
- Core coursework: Linear Control, Nonlinear System Control, Linear Programming, Introduction to robotics

2010-2014 **University of Science and Technology of China (USTC),** School of Engineering - Hefei, China
B.E. in Mechanical Manufacturing and Automation GPA 84.3/100

Work & Research

Sep. 2016-present **Laboratory of Michael Yu Wang**, Robotic Institute, HKUST - Kowloon, HK
Graduate Research Fellow

Deliverables: 1 first authored journal papers (accepted to IEEE RA-L), 2 first authored conference paper (accepted to IROS2019 and CoRL2019), 3 second authored conference papers (accepted, 2 RobSoft2019, 1 ICRA2019), 1 first authored journal paper under revision (Soft Robotics)

- Developed and characterized a **new tactile sensor** for robotic contact information sensing for dexterous manipulation and safe human-robot interaction
- Built tactile based **contact events prediction network** using convolutional Long Short Term Memory (**convLSTM**) network to process spatiotemporal information from the tactile sensor for better manipulation failure avoidance; Created vision-based tactile contact events dataset
- Developed a **3D rigid object pose estimation system** using Convolutional neural network regression (personal project)
- Implemented and tested **smooth path planning** algorithm on manifold (estimated from point cloud) using spline convex optimization model
- Cooperated with postdoc fellow on designing a **high performance compliant robotic gripper** with variable stiffness capability
- Mentored and supervised 3 undergraduates in Final Year Project on the topic of **vision-based tactile sensor development** (from Mar. 2019)

2016-2017 **Department of Mechanical and Aerospace Engineering**, HKSUT - Kowloon, HK
Teaching Assistant for undergraduate course: Solid Mechanics

- Helped plan lectures schedule and conceive tutorials (class size 170 students)
- Graded homework, organized tutorials

Sep. 2014-Jul. 2016 **Dynamic Systems and Control Lab**, PME, NTHU – Hsinchu, Taiwan
Graduate Research Fellow

- Wrote **adaptive control algorithms** for anti-slip control of inverted pendulum cart on low-friction surface
- Built **sensor fusion system** for effective 3D pose estimation using Inertial measurement unit (IMU)

Coordinator of an industry-academia cooperation project between laboratory and Foxconn. Ltd. on developing humanoid dancing robots

Jul. 2014-
Sep. 2014

Efficiency-Brilliance Environmental Protection Technology - Beijing, China
Summer intern

- Roles: Initiated and led group of 3 on simulation of flow heat coupled multiphysics for a large scale exhaust gas treatment plants
- Deliverables: Simulation results were used as a guideline to improve the energy efficiency of gas treatment plants, expected improvement was at least 17%

2012-2013

School of Engineering, USTC - Hefei, China
Robot Cup competition team leader (Ranked 2nd in the competition)

- Coordinated team communication, workload distribution, and schedule control
- Designed system scheme and developed a vision guiding module for the robot

Fellowships & Awards

2016-present	Postgraduate Studentship (PGS) - Hong Kong
2014-2016	Foxconn Fellowship for excellence (for top 5% applicant) -Taiwan
2016	Outstanding graduate honor (15% in the same year graduates of USTC) - USTC, China
2010	Outstanding Freshman Scholarship - USTC, China

Professional Skills

- **Programming Languages:** Python (mastered), C++ (familiar), MATLAB (familiar), C
- **Frameworks:** Pytorch(most frequently used), Tensorflow
- **Technical:** Image Processing, Machine Learning, Visual perception system, Bayesian Filtering, Optimization (mainly convex optimization)

Language proficiencies

English(Fluent in speaking, TOFEL 98), Mandarin, Cantonese

Interests & Activities

- **Interests:** Reading (Mostly about Philosophy, History, Psychology), Fitness, Swimming, Painting, Hiking, Traveling
- **Activities:** Mainland Society of Students and Scholars (MSSS) Vice President from 2017 to 2018