Teng XUE | Curriculum Vitae

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Education

École Polytechnique Fédérale de Lausanne — **Lausanne, Switzerland**
Ph.D Candidate — *11/2021–10/2025*
Supervisor: Dr. Sylvain Calinon

Shanghai Jiao Tong University — **Shanghai, China**
Masters in Robotics — *09/2017–12/2020*
GPA: 3.73/4.0 (90/100)

ETH Zurich — **Zurich, Switzerland**
Visiting student, Robotic Systems Lab (RSL) — *10/2019–03/2020*
Supervisor: Prof. Marco Hutter

Nanjing University of Aeronautics and Astronautics — **Nanjing, China**
B.Eng in Mechanical Engineering — *09/2013–06/2017*
Cumulative GPA: 4.2/5.0 (92/100)

Experience

Learning-based Control of Roller Grasper V2 for in-hand manipulation — **Remote**
Intern, Stanford Artificial Intelligence laboratory (SAIL), Stanford University — 05/2020–10/2020

- Built in-hand manipulation simulation environment with MuJuCo and used model-free reinforcement learning for optimal control in simulation environment
- Employed universal manipulation policies learning through Dagger Algorithm and achieved sim-to-real transfer of Roller Grasper

Learning-based pose estimation and control of soft hand — **Zurich, Switzerland**
Visiting Student, Robotic Systems Lab (RSL), ETH Zurich — 10/2019–03/2020

- Performed interactive pose estimation of Festo BionicSofthand using LSTM network
- Introduced a method for training control policy in simulation environment based on reinforcement learning and completed sim-to-real dynamics transfer of soft hand for dexterous in-hand manipulation

Robotic stable grasping based on visual-tactile fusion and deep learning — **Shanghai**
Research Engineer, Shanghai Jiao Tong University — 12/2018–05/2019

- Proposed a self-learning method based on the physical characteristics of unstructured environment and self-supervised learning method of tactile prior knowledge
- Pointed out the weaknesses of Regrasp policy, and proposed Bayesian strategy for stable grasp, which improved successful rate of 55% over traditional vision-based strategy

Tidy Up My Room Challenge in ICRA 2018 — **Brisbane, Australia**
Research Engineer, Australian Centre for Robotic Vision — 01/2018–05/2018

- Built object detection network to detect known objects (from COCO Dataset) and unknown objects based on Mask RCNN, and proposed a grasp planning method based on masks
- Won 1st place in Manipulation with a Stationary Robot task

Vision-based robot flexible sorting in intelligent warehousing — **Shanghai**
Research Engineer, Shanghai Fanuc Robot Technology Co. LTD — 12/2017–12/2018

- Proposed a novel object recognition network integrating occlusion relation for the scattered objects in dense environment, and put forward an automatic adsorption point prediction method and data

enhancement strategy based on CNN
- Executed V-Rep simulation and real-world experiments

Design and control of adaptive gripper for UAV delivery **Shenzhen**

Research Intern, Shenzhen DJI Innovation and Technology Co., Ltd. 07/2016–08/2016
- Designed UAV grasp and release structure inspired by the tentacles of octopuses, wrote NC programs and processed the carbon fiber using numerical control machine, and achieved visual detection of target objects based on OpenCV

COMAP's Mathematical Contest in Modeling **Nanjing**

Group leader, supervisor: Quan Yuan 02/2017
- Developed a 3D baseline cube model that included a defined Economic Development Index (EDI), Social Justice Index (SJI) and Environment Performance Index (EPI) to evaluate city development and measure the success of smart growth of a city
- Identified the most influential factors in city budget and proposed a smart growth plan
- Earned award of Outstanding Winner (1/8085)

Robomaster 2016 Robotics Competition **Xiamen**

Mechanical design engineer 12/2015–07/2016
- Designed the chassis suspension system and bullet firing system and achieved vehicle control based on McNamee wheel.

Publications

1) **T Xue**, H Girgin, TS Lembono, S Calinon. *Demonstration-guided Optimal Control for Long-term Non-prehensile Planar Manipulation.* Proc. IEEE Intl Conf. on Robotics and Automation 2023 (ICRA 2023)
2) **T Xue**, W Liu, W Wang et al. *Bayesian Grasp: Robotic visual stable grasp based on prior tactile knowledge.* IEEE International Conference on Robotics and Automation 2019 (ICRA2019) - ViTac Workshop
3) **T Xue**, W Wang, J Ma, et al. *Progress and prospects of multi-modal fusion methods in physical human-robot interaction: A Review*. IEEE Sensors Journal, 2020, 20(18): 10355-10370.
4) J Ma, **T Xue**, Q Shao, J Hu, W Wang. *Research on Spatially Adaptive High-Order Total Variation Model for Weak Fluorescence Image Restoration.* Journal of Shanghai Jiao Tong University (Science), 2018, 23(1): 1-7.
5) W Liu, W Wang, Y You, **T Xue,** Z Pan, J Qi, J Hu. *Robotic picking in dense clutter via domain invariant learning from synthetic dense cluttered rendering.* Robotics and Autonomous Systems, 2022, 147: 103901.
6) M Han, W Liu, Z Pan, **T Xue**, Q Shao, J Ma, W Wang. *Object-Agnostic Suction Grasp Affordance Detection in Dense Cluster Using Self-Supervised Learning.* arXiv preprint arXiv:1906.02995, 2019.

Honor

- *Outstanding Winner (1/8085)***,** The 2017 Mathematics Contest in Modeling held by American Consortium for Mathematics and Its Application (COMAP), 2017
- *First prize,* The 6th national mathematics contest for college students, 2014
- *Awardee (Top 1%),* Chinese National Scholarship, 2014 and 2018
- *Awardee (Top 0.5%),* Tang Lixin Scholarship, 2018
- *Outstanding graduate student (Top 5%)*, Shanghai Jiao Tong University, 2020
- *First-class academic scholarship (Top 5%),* Shanghai Jiao Tong University, 2017-2020
- *1st place*, ICRA2018- Tidy Up My Room Challenge, 2018
- *Third Prize,* Robomaster 2016 National Robotics Competition, 2016
- Outstanding volunteer, Youth Olympic Games (International Olympic Committee), 2014

Extracurricular and Social Activities

Vice President, Graduate Student Union in School of Mechanical Engineering 06/2018–06/2019
- Organized educational and social activities for 2500 students studying in School of Mechanical Engineering
- Communicated and collaborated with other student organizations

Volunteer, the 2014 Summer Youth Olympic Games 06/2014-08/2014

Volunteer, the 2018 Shanghai International Half Marathon 04/2018

Volunteer, SJTU's 123rd anniversary celebration 04/2019

Proficiencies

Software: Python, C++, Matlab, Pytorch, CAD, Solidworks, Crocoddyl, PyBullet, IsaacGym, MuJuCo

Others: CNC Engraving Machine, 3D-Printing, Arduino, AT89C51, ROS

Language: Chinese(native), English(fluent)