Mingxuan Li (李明暄)

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EDUCATION BACKGROUND

Master: Tsinghua University, Beijing, China 09/2023–07/2026

- Laboratory: AutoRobot Lab, Department of Mechanical Engineering
- GPA: Overall: **3.90**/4.00
- Advisors: Prof. Yao Jiang

Visiting: Massachusetts Institute of Technology, Cambridge, U.S. 01/2025–04/2025

- Laboratory: Computer Science and Artificial Intelligence Lab (CSAIL)
- Supervisor: Prof. Edward H. Adelson

Bachelor: Tsinghua University, Beijing, China 09/2019–07/2023

- Major: Mechanical Engineering
- GPA: Overall: **3.72**/4.00

PUBLICATIONS & PATENTS

- Research Interests: ***Robotics Tactile Perception & Grasping***, ***Vision-Based Tactile Sensors***, ***Contact Modelling***
- Skills: C/C++, Python, OpenCV, PyTorch, MATLAB, AutoCAD, SolidWorks, Abaqus, Ansys, Unity, PS, PR, *et al*.

Research Paper & Preprint

- **Mingxuan. Li**, Lunwei. Zhang, Qiyin. Huang, Tiemin. Li, and Yao. Jiang, "Modeling, simulation, and application of spatio-temporal characteristics detection in incipient slip". [arXiv] [Preprint_PDF]
- **Mingxuan. Li**, Lunwei. Zhang, Tiemin. Li, and Yao. Jiang, "Learning gentle grasping from human-free force control demonstration", ***IEEE Robotics and Automation Letters (RA-L)***, vol. 10, no. 3, pp. 2391-2398, Mar. 2025. [Publication] [Preprint_PDF] [Video]
- **Mingxuan. Li**, Yen. Hang. Zhou, Lunwei. Zhang, Tiemin. Li, and Yao. Jiang, "OneTip: A soft tactile interface for 6-D fingertip pose acquisition in human-computer interaction", ***Sensors and Actuators: A. Physical (SNA)***, vol. 379, Sep. 2024, Art no. 115896. [Publication] [Preprint_PDF] [Video]
- **Mingxuan. Li**, Lunwei. Zhang, Yen. Hang. Zhou, Tiemin. Li, and Yao. Jiang, "EasyCalib: Simple and low-cost in-situ calibration for force reconstruction with vision-based tactile sensors", ***IEEE Robotics and Automation Letters (RA-L)***, vol. 9, no. 9, pp. 7803-7810, Sep. 2024. [Publication] [Preprint_PDF] [EasyCalib]
- **Mingxuan. Li**, Yen. Hang. Zhou, Tiemin. Li, and Yao. Jiang, "Incipient slip-based rotation measurement via visuotactile sensing during in-hand object pivoting", ***2024 IEEE International Conference on Robotics and Automation (ICRA)***, pp. 17132-17138, Aug. 2024. [Publication] [Preprint_PDF] [Video] [Poster] [Slides]
- **Mingxuan. Li**, Yen. Hang. Zhou, Tiemin. Li, and Yao. Jiang, "Real-time and robust feature detection of continuous marker pattern for dense 3-d deformation measurement", ***Measurement***, vol. 221, Nov. 2023, Art no. 113479. [Publication] [Preprint_PDF]
- **Mingxuan. Li**, Yen. Hang. Zhou, Tiemin. Li, and Yao. Jiang, "Improving the representation and extraction of contact information in vision-based tactile sensors using continuous marker pattern", ***IEEE Robotics and Automation Letters (RA-L)***, vol. 8, no. 2, pp. 1109-1116, Sep. 2023. [Publication] [Preprint_PDF]
- **Mingxuan. Li**, Tiemin. Li, and Yao. Jiang, "Marker displacement method used in vision-based tactile sensors—from 2D to 3D: A review", ***IEEE Sensors Journal (Sensors J.)***, vol. 23, no. 8, pp. 8042-8059, Apr. 2023. [Publication] [Preprint_PDF]
- **Mingxuan. Li**, Lunwei. Zhang, Tiemin. Li, and Yao. Jiang, "Continuous marker patterns for representing contact information in vision-based tactile sensor: principle, algorithm, and verification", ***IEEE Transactions on Instrumentation and Measurement (TIM)***, vol. 71, Aug. 2022, Art no. 5018212. [Publication] [Preprint_PDF]

Patent Application

- Yao. Jiang, **Mingxuan. Li**, Lunwei. Zhang, and Tiemin. Li, "Tactile sensor, robot, method and apparatus for achieving tactile information acquisition", Application No. 202210061023.8, Publish No. CN 114544052B, 2023-03-28.

- **Mingxuan. Li**, Aijun. Yang, Yanping. Xu, Xue. Qi, and Dongqin. Li, "Method, apparatus, and electronic device for detecting image sticking in display screen", Application No. 202211286586.3, Publish No. CN 115509040A, 2022-12-23.
- **Mingxuan. Li**, Yanping. Xu, Xue. Qi, Dongqin. Li, and Fan. Wang, "Method and apparatus for touch screen detection", Application No. 202111074563.1, Publish No. CN 113984337A, 2022-01-28.

SELECTED AWARDS AND HONORS

Academic Awards

- **2025 National Scholarship**, Ministry of Education, P.R. China (Top scholarship in China. 0.2% domestically) 10/2025
- Awarded the Wang Dazhong Scholarship (**One of the highest awards for students at Tsinghua University**) in 2024 Tsinghua Scholarship Awards Ceremony 12/2024
- **Shortlisted for Tsinghua Top Grade Scholarship (Prestigious Scholarship, 清华大学特等奖学金) in 2024 (five master students per year from all departments and grades)** 11/2024
- Exceptionally awarded the **Comprehensive Excellent First-Class Scholarship** as a first-year graduate 11/2023
- **Excellent Graduates** of Tsinghua University, 2023 06/2023
- Named the **Person of the Year** in the Department of Mechanical Engineering, Tsinghua University 04/2023
- **Neng Ke Scholarship**, Tsinghua University (**Highest amount** in M.E. department, **Top 2%** of 300) 11/2022
- **Comprehensive Outstanding Award Scholarship**, Tsinghua University (**Top 5%** of 126) 11/2021
- **1st Prize** in National Zhou Peiyuan Mechanics Competition, 2021 (**Top 0.2%**) 08/2021
- **1st Prize** in National Undergraduate Physics Competition, 2020 (**Top 1%**) 12/2020

Research Performances

- **Excellent Oral Presentation**, The 777th Doctoral Academic Forum of Tsinghua University 04/2025
- **Excellent Oral Presentation**, The 734th Doctoral Academic Forum of Tsinghua University 04/2024
- **Excellent academic paper**, The 16th National Conference on Undergraduate Innovation 12/2023
- **Outstanding Graduation Thesis** of Tsinghua University, 2023 06/2023
- **1st Place** in "New Engineering" Undergraduate Graduation Thesis Competition 06/2023
- **Project leader** of iStar Program from the Fundamental Industry Training Center, Tsinghua University (**Excellent rating**) 05/2023
- **Best Poster Award** and **Excellent Oral Presentation Award** at Tsinghua Youth Science and Innovation Forum 03/2023
- **Grand Prize of Outstanding Project** of 2022 Tsinghua University Student Research Training (SRT) Program for Undergraduates (**Top 5 of 1938**, and was **the only single person study** among them) 12/2022
- **Project leader** of National Training Program of Innovation and Entrepreneurship for Undergraduates (**Excellent rating**) 06/2022
- **Project leader** of A-level Tsinghua University Initiative Scientific Research Program (**Excellent rating**) 05/2022
- Served as the co-first author, led the team to win the **only Grand Prize in Tsinghua Craftsmanship Awards, 2022**

(Received the award from **the President of Tsinghua University as the only representative**, and was **widely reported by mainstream medias in China**, including the report of **Xinhua News** with over **1.3 million views**) 04/2022

- Selected to **"Spark" Innovative Talent Cultivation Program** (**Top 2%** for outstanding research performance) 03/2022

Innovation & Entrepreneurship

Student head of the ***'ClearTactile'*** tech startup team

- **Team of Excellence**, 2024 China-U.S. Young Maker Centers Annual Conference 05/2024
- **Grand Prize** in the 2023 "Challenge Cup" Capital Science and Technology College of Extra-curricular Academic Competition 06/2023
- **4th Place** in the "Kunshan Cup" 24th Tsinghua University Entrepreneurship Competition 03/2023
- **Bronze Award** in the 8th China College Students' "Internet+" Innovation and Entrepreneurship Competition, National Finals 12/2022
- **3rd Place** in the 4th "Beijing-Tianjin-Hebei and Guangdong-Hong Kong-Macao" Youth Innovation Competition 09/2022
- **1st Prize** in the 8th China College Students' "Internet+" Innovation and Entrepreneurship Competition, Beijing Area 07/2022
- **The Top Ten Teams** in the China College Students' "Internet+" Innovation and Entrepreneurship Competition, Tsinghua University, 2022 (The only undergraduate student team) 06/2022

COMMUNITY SERVICES AND LEADERSHIP

- Reviewer: *ICRA 2024, ICRA 2025 (twice), IEEE Transactions on Instrumentation and Measurement (twice), Measurement, Visual Computer, Scientific Reports (twice), Recent Patents on Mechanical Engineering*
- Serves as **Vice President and Academic Affairs Representative of the Graduate Association**, Department of Mechanical Engineering, Tsinghua University.
- Served as **Chairman of the Sub-forum** "Robotics and Intelligent Manufacturing" and the **Organizational Committee Member**, The 777th Doctoral Academic Forum of Tsinghua University.
- Served as **Chairman of the Sub-forum** "Key Components and Equipment" and the **Organizational Committee Member**, The 734th Doctoral Academic Forum of Tsinghua University.
- **Former Vice President** of Hunan Cultural Student Association of Tsinghua, in charge of science & innovation and lecture activities.
- **Invited to give a keynote speech** at the 2022 Tsinghua Maker's Day New Age Creativity Education Forum.

RESEARCH&WORK EXPERIENCE

Embodied Intelligence Algorithm Internship 12/2025–07/2026

The ByteDance-Seed Team

- Just started my journey, can't wait to learn more from my colleagues.

China-Italy Laboratory on Advanced Manufacturing (CILAM) Summer School 2025 07/2025–08/2025

University of Bergamo and Federico II University of Naples

- Participate in lectures on topics such as Sustainability and Circularity, Additive Manufacturing, Robotics, Smart Energy & Electrification, and New Business Models.
- Visit innovation hubs including San Giovanni Academy, CeSMA Laboratory, and the Kilometro Rosso Innovation District

Research on designing and building new robot tactile sensors 01/2025–04/2025

Visiting Research, MIT CSAIL, supervised by Prof. Edward H. Adelson

- Design, build, and test novel robot tactile sensors for robotic manipulation.
- Evaluate the effects of viscoelasticity on robotic grasping based on contact modeling.

Research on the Artificial Intelligence Industry and Market 07/2024–09/2024

Interned in Equity Investment Department, Tsinghua Tongfang Technology Co., Ltd.

- Research and analyze the development, industrial layout, and investment opportunities of the artificial intelligence industry.
- Write a detailed research report for internal reference within the company.

Research on Representation and Extraction of Robotic Tactile information 04/2021–07/2023

Student Research Training Program, supervised by Prof. Yao Jiang, Tsinghua University

- Served as the sole participant (student), focused on improving the representation and extraction of tactile representation.
- Developed tactile sensor prototypes and verified the high-precision, high-resolution, and high-reliability.

Self-Initiated Research Interest Group for Undergraduates, supervised by Prof. Yao Jiang, Tsinghua University

- Served as the **student leader** of "Tactile Information Representation and Extraction" undergraduate research group.
- Developed a tactile sensor with the advantages of high information density, 3D information, compactness, etc.

Research on Innovation and Application of Intelligent Software Testing 01/2021–02/2021, 07/2022–08/2022

Interned in LCFC Luzhou Laboratory, LCFC (Hefei) Electronics Technology Co., Ltd.

- Studied the detection device of LCD touch screen based and the detection method of image sticking in LCD screen.
- The first case in the company's patent application that was granted both invention patent and utility model patent.

Studying on Under-Actuated Robotic Hands and Soft Robots 09/2020–04/2021

Independent Research, supervised by Prof. Wenzen Zhang, Tsinghua University

- Studied the basic theory of robotic grasping and manipulation based on the underactuated mechanism and soft brake
- Proposed a soft robot hand based on self-curling underactuated structure and developed the prototypes.