# Xinyuan LUO

University of Illinois at Urbana-Champaign
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## EDUCATION

**Autonomy and Robotics MEng, University of Illinois at Urbana-Champaign** Aug 2023- present

**Core Courses:** Introduction to Robotics(A), Principle of Safe Autonomy(A-), Human-Robot Interaction(A), Applied Machine Learning(A+), Deep Learning for robotic manipulation(A), Autonomous Vehicle System Engineering(A-)

**Department of Instrument Science and Engineering, Shanghai Jiao Tong University** Sept 2019- Jun 2023

B.E. in Measurement Control Technology and Instruments, Overall GPA: 3.69/4.3 (12/60)

**Core Courses:** Robotics Foundation (96/100), Reinforcement Learning (87/100), Natural Language Processing (86/100), Image Processing and Intelligent Recognition (86/100), Principle of Automatic Control B (94/100), Principles of Sensor (95.4/100)

**Honor:** Endress+Hauser scholarship (3/60)

## RESEARCH EXPERIENCES

**Tactile-Adaptive Robotic Grasping-Cutting System**

| University of Illinois at Urbana-Champaign | Research Assistant Mar 2024-present

Advisor: Wenzhen Yuan, assistant professor at the Department of Computer Science, University of Illinois at Urbana-Champaign

- Use deep learning to estimate the stability of grasping, and ensure the object is being grasped stably with minimal force.
- Fully automated data collection pipeline design.
- Robot grasping-cutting system pipeline design.

**An Intelligent Robotic System for Perceptive Pancake Batter Stirring and Precise Pouring**

| University of Illinois at Urbana-Champaign | Research Assistant Sept 2023 -Mar 2024

Advisor: Wenzhen Yuan, assistant professor at the Department of Computer Science, University of Illinois at Urbana-Champaign

- Leverage Force/torque sensor to estimate viscous liquid properties including liquid level, uniformity, and viscosity.
- Precise pouring based on liquid property.
- Pancake-making robot stirring, perceiving, and pouring pipeline design.
- IROS 2024 conference paper oral presentation.

**Tendon-driven minimally invasive surgical robot based on double-position closed-loop detection**

| Shanghai Jiao Tong University | Research Assistant Oct 2022 -June 2023

Advisor: Hongbing Li, associate professor at Instrument Science and Engineering, Shanghai Jiao Tong University

- Design of tendon drive configuration of surgical robot.
- Research on double closed loop position detection method of tendon-drive mechanism.
- Complete the kinematic analysis of the tendon drive of the surgical robot and carry out the motion simulation analysis.

**Human and aerial robot collaborate to carry object**

| Shanghai Jiao Tong University | Research Assistant Oct 2021 -Aug 2022

Advisor: Hesheng Wang, professor at the Department of Automation, Shanghai Jiao Tong University

- Aerial robot assists people in moving objects while supervising and avoiding obstacles.
- Physical human-robot interaction task on the platform of aerial robot.
- Designed a variable admittance controller based on deep reinforcement learning.

**Unmanned boat charging system** | Shanghai Jiao Tong University | Group Leader Apr 2021- Sept 2021

Advisor: Chunyu Zhao, associate professor at Department of Instrument Science and Engineering, Shanghai Jiao Tong University

- Design a smart vehicle to autonomously find and charge an unmanned boat when the boat is out of power.
- Wireless charging solution; combine OpenCV(camera) and GPS to determine the position of the boat.
- Led a team with five members, designed image processing and vehicle control algorithm.
- Embedded Chip and System Design Competition | Second Prize of the East China.

## SKILLS

Programming Languages: Python, C/C++, Matlab, Java, HTML, CSS, JavaScript

Skills: Robot Operating System (ROS), Robot using experiences (UR5e, UR3, F1-tenth), Pytorch, RaspberryPi, Arduino, STM32, Solidworks, UG

Languages: Mandarin(native), English(fluent)

TOEFL: Total 101 (Reading 29, Listening 27, Speaking 22, Writing 23)

GRE: Total 330.5 (Verbal 157, Quantitative 170, Writing 3.5)