

# Wanjia Fu

## PERSONAL INFORMATION

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Email wanjia\_fu@brown.edu  
Homepage <https://wanjia-fu.com/>  
GitHub <https://github.com/julia-fu0528>  
Google Scholar <https://scholar.google.com/citations?user=Y7gW52cAAAAJ>

## EDUCATION

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08/2022–05/2026 **Sc.B., Computer Science; A.B. Applied Mathematics**  
GPA: **4.0** | Brown University, Providence, RI, USA

## AWARDS

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10/2025 CRA Outstanding Undergraduate Researcher Awards Nomination (**top 4** per year)  
06/2025 Pathways@RSS 2025 Fellowship (**8%** acceptance rate)  
06/2025 CVPR 2025 Travel Support Award (\$1,000)  
05/2025 Advanced Undergraduate Research SPRINT Fellowship (\$2,500)  
04/2025 Randy Pausch Undergraduate Research Fellowship (\$13,350, **top 1** per year)  
04/2025 **First Place Award** at 10th Annual Brown CS Research Symposium (\$400, **top 1** per year)  
01/2024 Undergraduate Teaching and Research Awards (\$1,250)  
05/2023 Undergraduate Teaching and Research Awards (\$2,500)

## PUBLICATIONS

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\* represents equal contribution.

- [1] **Wanjia Fu\***, Hongyu Li\*, Ivy X. He, Stefanie Tellex, and Srinath Sridhar. *UniTac: Whole-Robot Touch Sensing Without Tactile Sensors*. Under review. (Link)
- [2] Rao Fu\*, Dingxi Zhang\*, Alex Jiang, **Wanjia Fu**, Austin Funk, Daniel Ritchie, Srinath Sridhar. *GigaHands: A Massive Annotated Dataset of Bimanual Hand Activities*. **Highlight paper (2%)** accepted by CVPR 2025. (Link)

## PRESENTATIONS

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1. **Wanjia Fu\***, Hongyu Li\*, Ivy X. He, Stefanie Tellex, and Srinath Sridhar. *Touch Your Robots Without Tactile Sensors*. Presented at ICRA 2025 Workshop “How do Robots Care”, Atlanta, Georgia, 2025.
2. **Wanjia Fu\***, Hongyu Li\*, Ivy X. He, Stefanie Tellex, and Srinath Sridhar. *UniTac: Whole-Robot Touch Sensing Without Tactile Sensors*. Presented at RSS 2025 Workshop on Human-Robot Contact and Manipulation, Los Angeles, California, 2025

## RESEARCH EXPERIENCE

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- 05/2025–Current **Visual-Tactile Dataset for Particle-Based Dynamics Models**  
Brown University, Columbia University  
Mentors: Prof. George Konidaris, Prof. Yunzhu Li, Dr. Kevin Smith, Hongyu Li
- Collect visuotactile dataset on single-hand and bimanual manipulation of deformable objects.
  - 3D print, assemble UMI gripper and integrate tactile sensors into the Brown Interaction Capture System (BRICS).
  - Implement deformable 3D gaussian splatting reconstruction for ground truth particle position and velocity.
  - Implement and Aruco marker detection for gripper wrist and finger 6D pose.
  - Train dynamics model on 150 instances of single-hand and bimanual manipulation of deformable objects.
  - Deploy model predictive control (MPC) using the Franka Research 3 arm model.
- 06/2025–Current **Large Model for Visuo-Tactile for Human Manipulation**  
Brown University, MIT  
Mentors: Prof. Srinath Sridhar, Prof. Paul Liang, Rao Fu
- Collect visuotactile dataset using tactile gloves and the Brown Interaction Capture System.

- Collect 2000 sequences of data with 22 volunteers tasks including static recognition and dynamic compliance.
- Label the collected tactile and 40-view RGB video data for vision tactile cross retrieval and tactile-conditioned video generation.

03/2025–Current    **Whole-Robot Touch Sensing Without Tactile Sensors in Dynamic Setting**  
Brown University | Mentor: Prof. Srinath Sridhar.

- Extend UniTac to localize touch on Boston Dynamic’s Spot quadruped when it is walking rather than standing.
- Train and deploy walking policy using reinforcement learning in IsaacSim for data collection in simulation.

11/2024–03/2025    **UniTac: Whole-Robot Touch Sensing Without Tactile Sensors**  
Brown University | Mentors: Prof. Srinath Sridhar, Prof. Stefanie Tellex, Hongyu Li

- Leveraged built-in joint torque sensors to achieve live whole-body touch sensing across various robot platforms.
- Localize to within 7.2 centimeters at around 2,000 Hz on an RTX 3090 GPU without additional sensors to the robot.
- Collected joint data with touch on 104 points on Spot and 10 on the Franka arm to train regression model.
- Trained a 4-layer MLP model that maps joint torques and joint positions to touch locations.
- Demonstrated touch-based human-robot interaction, including bio-inspired quadruped choreography.

09/2024–11/2024    **GigaHands: A Massive Annotated Dataset of Bimanual Hand Activities**  
Brown University | Mentors: Prof. Srinath Sridhar, Prof. Daniel Ritchie, Rao Fu

- Synchronized RGB videos across 51 BRICS camera views for 2D, 3D key points and MANO model fitting.
- Worked on 3D dynamic gaussian splatting on multiple camera views of hand object interactions.
- Collected data for the GigaHands dataset, with over 50 actions with text annotations.
- Generated contact heatmap across bimanual hand-object and hand-hand activities of diverse scenes.

01/2024–09/2024    **Vibration Haptics: Hand Contact Detection and Localization with IMU**  
Brown University | Mentors: Prof. Srinath Sridhar, Hongyu Li

- Designed portable wrist hardware device with Inertial Measurement Unit (IMU) for sensor data collection.
- Built a neural network model to improve hand-object contact detection and localization.
- Integrated IMU sensor and data visualization into BRICS through hardware assembling and software calibration.

09/2023–12/2023    **Shaped-Based Skill Transfer by Learning Policy on Object Parts**  
Brown University | Mentor: Prof. George Konidaris, Skye Thompson

- Incorporated Segment-Anything model to segment images of object parts and back projected them into point clouds.
- Worked on Robot Operating System (ROS) and bimanual KUKA manipulators with multisense cameras.

06/2023–08/2023    **Pinhole Camera Models in Computer Vision vs. Computer Graphics**  
Brown University | Mentor: Prof. James Tompkin.

- Employed front-end and back-end development to create a website tutorial on camera projection matrices
- Improved upon 2 existing tutorials on affine transformations and the fundamental matrix for course development

## TEACHING

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09/2024 – 12/2024    **Head Teaching Assistant**  
CSCI 1430 Introduction to Computer Vision

01/2024 – 05/2024    **Undergraduate Teaching Assistant**  
CSCI 1430 Introduction to Computer Vision

## SKILLS

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**Technical Skills**    (*Fluent*) Python, HTML, CSS; (*Experience*) Java, C++, C, Javascript, OpenGL, Golang, React  
**Language**            Trilingual proficiency in English, Spanish (Awarded C1 by El Instituto Cervantes), Chinese

## LEADERSHIP & EXTRACURRICULARS

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09/2023 – 05/2024    **Brown IgniteCS**

- Designed, developed, and taught AI courses as guest lecturer for 30 students at Nathanael Greene Middle School.
- Designed, developed, and taught the coding club on HTML, CSS at the Sophia Academy for 1.5 hours per week.

09/2022 – Current    **Moli East Asian Dance Company**

- Lead 35 members per year as co-secretary chair, co-captain, co-performance director each year, respectively.
- Organize members, logistics, and finance, communicate with student activities office and financial supervisors.