Fanjun Bu

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I am a Ph.D. candidate at Cornell Tech, advised by Dr. Wendy Ju. My research focuses on how context shapes human-robot interaction (HRI). I design systems that integrate environmental, social, and situational factors to improve robot adaptability and responsiveness. My work bridges robotics, human-computer interaction, and AI, aiming to advance the design of interactive robotic systems.

Outside Cornell, I work on the applications of diffusion models in driving domains at Toyota Research Institute.

EDUCATION

June 2021 – Present
PhD Candidate, Cornell Tech
Advised by Professor Wendy Ju,
New York, NY

August 2017 – June 2021
Johns Hopkins University, Baltimore, MD
Whiting School of Engineering, B.S. in Applied Mathematics and Statistics, Computer Science, and Cognitive Science.
Whiting School of Engineering, M.S. in Computer Science

POSITIONS

June 2025 – August 2025
Research Intern, Toyota Research Institute,
Human-Interactive Driving,
Los Altos

May 2024 – August 2024
Research Intern, Toyota Research Institute,
Human-Interactive Driving,
Los Altos

May 2020 – April 2021
Research Assistant, Personal Robotics Lab, University of Washington
Advised by Dr. Tapomayukh Bhattacharjee (now an assistant professor at Cornell University),
Remote

August 2020 – April 2021
Research Assistant, Intuitive Computing Lab, Johns Hopkins University
Advised by Professor Chien-Ming Huang,
Baltimore, Maryland

Jun 2019 – August 2019
Research Intern, Learning Algorithms and System Laboratory (LASA), École Polytechnique Fédérale de Lausanne

Laussane, Switzerland

October 2017–April 2021 **Research Assistant**, Honey Lab, Johns Hopkins University
Advised by Professor Christopher Honey,
Baltimore, MD

TEACHING ASSISTANTSHIPS

Spring 2023 **INFO5755/INFO6755/CS5755/CS6755. Mobile Human Robot Interaction Design.** Cornell Tech.
Develop new labs for students to learn ROS and build mobile robots.
(Outstanding TA Award)

Fall 2021 **CS4750/CS5750/ECE4770/MAE4760. Foundations of Robotics.** Cornell University.
Design assignments for students to learn robot kinematics, planning, and control.
(Outstanding TA Award)

Fall 2020 **601.457. Computer Graphics.** Johns Hopkins University.
Help students with basic computer graphics operations in C++.

Fall 2019, Spring 2020 **553.430. Introduction to Statistics.** Johns Hopkins University.
Teach weekly sessions to cover detailed statistical derivations and examples.

PUBLICATIONS

Papers **Fanjun Bu**, Melina Tsai, Audrey Tjokro, Tapomayukh Bhattacharjee, Jorge Ortiz, Wendy Ju. "Bootstrapping Autonomy in Social Human-Robot Interactions using Vision Language Models". In: *In Submission*. 2026.

Fanjun Bu, Kerstin Fischer, Wendy Ju. "Making Sense of Robots in Public Spaces: A Study of Trash Barrel Robots". In: *ACM Transactions on Human-Robot Interaction* (2025).

Fanjun Bu, Hiroshi Yasuda. "Boosting Visual Fidelity in Driving Simulations through Diffusion Models". In: *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*. 2025, pp. 1–6.

Matt Franchi, Maria Teresa Parreira, **Fanjun Bu**, Wendy Ju. "The Robotability Score: Enabling Harmonious Robot Navigation on Urban Streets". In: *Proceedings of the CHI Conference on Human Factors in Computing Systems*. 2025.

Hannah R.M. Pelikan, **Fanjun Bu**, Wendy Ju. "The People Behind the Robots: How Wizards Wrangle Robots in Public Deployments". In: *Proceedings of the CHI Conference on Human Factors in Computing Systems*. 2025.

Barry Brown, **Fanjun Bu**, Ilan Mandel, Wendy Ju. "Trash in Motion: Emergent interactions with robotic trashcans in a public square". In: *Proceedings of the CHI Conference on Human Factors in Computing Systems*. 2024, pp. 1–15.

Fanjun Bu, Alexandra Bremers, Mark Colly, Wendy Ju. "Field Notes on Deploying Research Robots in Public Spaces". In: *Extended Abstracts of the CHI Conference on Human Factors in Computing Systems*. 2024, pp. 1–6.

Fanjun Bu, Wendy Ju. "ReStory: VLM-Augmentation of Social Human-Robot Interaction Datasets". In: *International Conference on Social Robotics*. Springer. 2024, pp. 457–466.

Fanjun Bu, Stacey Li, David Goedicke, Mark Colley, Gyanendra Sharma, Wendy Ju. "Portobello: Extending Driving Simulation from the Lab to the Road". In: *Proceedings of the CHI Conference on Human Factors in Computing Systems*. 2024, pp. 1–13.

Sharon Yavo-Ayalon, Yuzhen Zhang, Ruixiang Han, Swapna Joshi, **Fanjun Bu**, Cooper Murr, Lunshi Zhou, Wendy Ju. "Behind the Scenes of CXR: Designing a Geo-Synchronized Communal eXtended Reality System". In: *Designing Interactive Systems Conference*. DIS '24. IT University of Copenhagen, Denmark: Association for Computing Machinery, 2024, pp. 180–196.

David Goedicke, Alexandra WD Bremers, Sam Lee, **Fanjun Bu**, Hiroshi Yasuda, Wendy Ju. "XR-OOM: MiXed Reality driving simulation with real cars for research and design". In: *Proceedings of the 2022 CHI Conference on Human Factors in Computing Systems*. 2022, pp. 1–13.

Jan Ondras, Abrar Anwar, Tong Wu, **Fanjun Bu**, Malte Jung, Jorge Jose Ortiz, Tapomayukh Bhattacharjee. "Human-robot commensality: Bite timing prediction for robot-assisted feeding in groups". In: *6th Annual Conference on Robot Learning*. 2022.

Fanjun Bu, Chien-Ming Huang. "Object permanence through audio-visual representations". In: *IEEE Access* 9 (2021), pp. 131574–131582.

Konstantinos Chatzilygeroudis, Bernardo Fichera, Ilaria Lauzana, **Fanjun Bu**, Kunpeng Yao, Farshad Khadivar, Aude Billard. "Benchmark for bimanual robotic manipulation of semi-deformable objects". In: *IEEE Robotics and Automation Letters* 5.2 (2020), pp. 2443–2450.

Shima Rahimi Moghaddam, **Fanjun Bu**, Christopher J Honey. "Learning Representations from Temporally Smooth Data". In: *arXiv preprint arXiv:2012.06694* (2020).

Demos and Videos

Fanjun Bu, Ilan Mandel, Wen-Ying Lee, Wendy Ju. "Trash Barrel Robots in the City". In: *Companion of the 2023 ACM/IEEE International Conference on*

Human-Robot Interaction. HRI '23. Stockholm, Sweden: Association for Computing Machinery, 2023, pp. 875–877. ISBN: 9781450399708.

OTHERS

Academic Service

Associate Editor for International Conference on Social Robotics +AI (2024)

Press

Sarah Marquart, "Virtual, Mixed Realities Converge in New Driving Simulator", Cornell Chronicle, Jun 21, 2024

Abby Hughes, "New Yorkers treat these remote-controlled 'robot' garbage bins like people, say researchers", CBC Radio, August 4, 2023

Catalina Gonella, "These 'trash bots' have been helping keep Brooklyn's Albee Square clean", Gothamist, August 2, 2023

Roger Clark, "Robots helping keep Downtown Brooklyn clean," Spectrum News NY1, August 1, 2023

Patricia Waldron, "(Almost) everyone likes a helpful trash robot," Cornell Chronicle, April 19, 2023.

Ayesha Rascoe, "Researchers released robot trash cans in NYC to see how people would react," National Public Radio (NPR), April 16, 2023.

Mike Snider, "Robots in the Big Apple: Robo-trash cans patrolling New York plaza make friends, creep out some," USA TODAY, April 15, 2023.

Staff, "These robotic trash cans were filmed to test human-robotic interactions. Watch what happened," CNN Business, April 12, 2023.

Evan Ackerman, "Humans (Mostly) Love Trash Robots > Simple robots wander NYC asking for trash and recycling, and it's adorable," IEEE Spectrum, Mar 10, 2023