



# Department of Computer Science

Designing User-Centered Interfaces for Human-Robot Interaction

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**Hosted by Jing LI**

**Date:** Monday, December 9, 2024  
**Coffee:** 2:15 PM – 2:30 PM  
**Time:** 2:30 PM – 3:30 PM  
**Location:** GITC 4402 (4<sup>th</sup> floor Seminar Lecture Hall)

**Zoom Link:** <https://njit-edu.zoom.us/j/99665533063?pwd=slfoClkscnXkyOh61Y73KG27ZLPtmW.1>

## **Abstract:**

As robots increasingly integrate into real-world applications such as healthcare and scientific exploration, they hold immense potential to augment human capabilities. However, diverse task characteristics (e.g., time constraints) and domain contexts (e.g., unstructured environments) can lead to unreliable performance, disrupting human-robot interaction. In this talk, I will present my vision for fostering human-robot symbiosis, where robots effectively collaborate with users of diverse abilities and experiences. By adopting a human-centered approach, I empower users to interact effectively with robots of varying hardware configurations and autonomy levels across paradigms such as direct operation, shared control, and supervised autonomy. I will introduce three foundational elements driving this symbiosis: (1) **Human-Robot Interfaces**, enabling intuitive interactions across users and robots; (2) **Workload Adaptation**, dynamically balancing user and robot contributions based on user states; and (3) **Effective Training Protocols**, equipping users to utilize robotic assistance in complex environments. These elements redefine robots as adaptive and accessible collaborators, advancing scalable human-robot interaction. Finally, I will discuss open questions for future exploration toward large-scale robot deployment.

## **Bio:**

Tsung-Chi Lin is a Postdoctoral Fellow in the Department of Computer Science at Johns Hopkins University, affiliated with the Malone Center for Engineering in Healthcare. He completed his Ph.D. in Robotics Engineering at Worcester Polytechnic Institute. His research focuses on advancing human-robot interaction to enable the seamless integration of robots into daily life. By developing algorithms and interfaces that empower end-users with diverse abilities, his work contributes to the development of adaptive and collaborative robots for real-world applications. He has published in top Robotics (e.g., RA-L, ICRA, IROS) and Human-Robot Interaction (e.g., THRI) venues, and actively serves the community as a workshop organizer (e.g., RSS) and referee.