

# Human-Robot Collaboration for the Future of Engineering Operations

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The collaboration between robots and human agents has become a defining symbol of Industry 4.0. The civil engineering industry has begun to utilize collaborative robots to extend workers' capability, such as the use of robotic arms, ground robots, and snake robots to facilitate complex operations in a more efficient and safe way. Robot teleoperation, i.e., human workers manipulating and/or commanding a remote robotic system at a distance, is particularly suited to converge the advantages of robotic systems and human agents in complex construction tasks, presenting a logical next step for moving to a fully automated civil engineering industry. However, the human-robot interaction (HRI) design for teleoperation tasks is challenged by the complexity and variability of operational needs such as the evolving work environment, dynamic and unexpected workflows, motor-intensive manipulations, and hard-to-define human robot collaboration requirements. This presentation will introduce the recent works at Du Lab that focus on the innovative HRI designs for civil engineering robot teleoperation that enriches the human operator's perception of the remote robot workplaces.

## About Dr. Eric Jing Du

Before joining University of Florida in January 2019, he was a faculty member at Texas A&M University, and a senior production analyst at Zachry Industrial. His primary area of research is the automation technologies in complex civil engineering works. His ongoing projects involve the use of emerging information technologies in construction, such as Virtual and Augmented Reality, as well as human-robot collaboration in complex construction operations. He is the receiver of the 2015 Best Paper Award of ASCE Journal of Construction Engineering and Management and the 2014 Best Paper Award of International Conference on Innovative Technologies in Construction. He has received more than \$5 million research support from National Science Foundation (NSF), The National Aeronautics and Space Administration (NASA), and National Institute of Standards and Technology (NIST).

Wednesday

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**Location:** Zoom

**Registration Required at:**  
<https://tiny.one/n4pa577j>



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