



# AeRoTwin

Twinning coordination action for spreading  
excellence in Aerial Robotics

## INVITED TALK

6th March 2020

Human-robot collaboration to extend space missions  
through telerobotics

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101019151



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## 1. INVITED TALK DETAILS

**Date:** 6<sup>th</sup> March 2020

**Time:** 09:40 a.m.

**Location:** Auditorium Hall, University of Zagreb Faculty of Electrical Engineering (UNIZG-FER), Unska 3, Zagreb, Croatia

**Title:** Human-robot collaboration to extend space missions through telerobotics

**Name:** Neal Y. Lii

**Affiliation:** Robotics and Mechatronics Center, German Aerospace Center (DLR)

## 2. ABSTRACT

Robotics is playing an increasingly valuable role in space missions. From rovers on Mars, the moon, and other celestial bodies, to the Canadarm on board the space shuttle and the ISS, robotics have helped us in a wide variety of ways in learning about, and operating in space. On the other hand, human supervision should remain at top of the command chain of mission operation. Superior human intelligence and reasoning capability further enhance robotic functionalities in handling mundane, repetitive tasks, as well as the hazardous and harsh environments of space. This collaborative working relationship helps to ensure safety and increase mission success.

This talk focuses on the possibilities for space missions using human-robot collaboration with telerobotics. We will explore together the various modalities of commanding different types of robotic assets to perform increasingly complex tasks. From immersive teleoperation of robots as avatars with haptic telepresence, to supervised autonomy of intelligent co-workers, we can examine how to best utilize robotics with humans in charge. We will look through the lens of several space telerobotics experiments carried out by several agencies, as well as the visions put forth by the space community to bring human-robot collaboration forward.



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 830021.



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### 3. LECTURER BIOGRAPHY



Neal Y. Lii received the Bachelor of Science in Aerospace Engineering from Purdue University, USA in 1995, Master of Science in Mechanical Engineering from Stanford University, USA in 1999, and the Ph.D. degree from University of Cambridge, UK, in 2009. he served as the Principal Investigator of the ISS-to-Earth telerobotic experiments, METERON SUPVIS Justin until its conclusion in 2018. He is the head of the Modular Dexterous Robots (MODEX) Lab and Teleoperation and Supervised Autonomy Group, as well as the domain head of Robotic Assistance, all at the Robotics and Mechatronics Center of the German Aerospace Center (DLR).