

**Saab – NTU Joint Lab**

# ARE HUMANS IN THE LOOP?

## THE FUTURE OF ATCOS IN MULTI-AIRPORT DIGITAL TOWERS

How can the Next Generation of Digital Towers be enabled by Human Factors research?

Human operators play a critical role in Digital Tower systems, and a deeper understanding of how operators interact with these systems will be a prime enabler in realizing the next generation of Digital Towers. As Digital Tower systems evolve towards complex multi-airport systems, the nature of human operations with them also becomes more complex, which drives a need for a better understanding of operator interaction dynamics. By gaining further insight into how humans can most effectively operate and manage these digital systems, the intelligent and interactive Digital Tower systems of the future will become a reality.

Join us for a webinar examining the latest developments in Digital Tower Human Factors research. Four distinguished speakers will share their cutting-edge research into a variety of Human Factors topics, including Air Traffic Controller workload, Augmented Reality in Air Traffic Control and the effects of Attention Switching in maintaining Situation Awareness.



**Welcome address:**  
Sandy Lozito  
NASA Ames



Dr Christiane Schmidt  
Linköping University,  
Sweden



Dr Tatiana Polischuk  
Linköping University,  
Sweden



Dr Zhenna Lu  
NTU, Singapore



Dr Pallavi Mohan  
NTU, Singapore

**THURSDAY,  
24 JUNE 2021**  
15:00 (SGT: UTC+8)  
09:00 (CET: UTC+1)



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Moderated by:  
Prof Sameer Alam  
Nanyang Technological  
University





### WEBINAR SPEAKERS

Christiane Schmidt (1981) is a Senior Lecturer in the Academic Excellence in ATM (and UTM) Research group at the Department of Science and Technology of Linköping University. She holds a PhD (2011) in Computer Science from Braunschweig University of Technology, Germany, as well as a docent (2020) in infra-informatics from Linköping University, Sweden. Her research interests include Algorithms, Computational Geometry, Mathematical Optimization and their application to transportation research, particularly ATM.

Tatiana Polishchuk (1976) is an Assistant Professor at Linköping University, Sweden, working in the Academic Excellence in ATM (and UTM) Research group. Tatiana received a MSc (2007) in Applied Mathematics and Statistics from the State University of New York at Stony Brook, USA, and a PhD (2013) in Computer Science from Helsinki University. Her research interests include network optimization, transportation logistics, route planning, remote tower organization and staff planning.

Zhenna Lu is a research fellow at the SAAB-NTU Joint Lab, investigating Human Factors in Multi Remote Tower for Air Traffic Control. Her research explores the usage of eye trackers and EEG as a less obstructive and more objective alternative to subjective self-rating for human performance assessment. She has a PhD in cognitive psychology and neuroscience from the National University of Singapore, studying how humans differentiate short time intervals and cognitive mechanisms resulting in temporal decision biases.

Pallavi Mohan is a Research Fellow of the Saab-NTU Joint Lab in the field of VR, with experience in HCI, Computer Vision, Computer Graphics and 3D animation. She has a PhD in Augmented Reality from Nanyang Technological University, Singapore and her research interests are in virtual/augmented reality human gesture recognition, interactive automation and digital towers.

### SAAB-NTU JOINT LAB

Nanyang Technological University, Singapore (NTU Singapore) and top Swedish defence and security technology leader, Saab, have launched a joint lab that builds on a collaboration that began in 2017 to develop research projects and programmes in high-end digital technology to tackle future challenges in air traffic management, and capture opportunities in the global unmanned underwater vehicles market.

Key Facilities include:

- Digital / Remote Tower System (for Air Traffic Management)
- Remote Tower Simulation System (for Air Traffic Management)
- Unmanned Underwater Vehicle Simulator
- GPU Servers for High Performance Computing
- Augmented Reality and Virtual Reality Systems
- Computational Workstations



NTU and Saab have jointly committed a total of ~\$13m for the R&D activities of the Saab-NTU Joint Lab with a growing number of research scientists and engineers (i.e. currently with 3 Research Fellows, 7 Research Engineers, 4 PhD Students, and involving more than 10 Master's and Undergraduate Students)

Key Research Capabilities:

- Artificial intelligence
- Machine learning
- Computer vision
- Anomaly detection
- Cybersecurity
- Human factors
- Underwater robotics
- Robot perception (sensing, detection and navigation)



**FOR MORE INFORMATION:**

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