TEXAS A&M
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Data Science

Seminar Series

Date:
April 14, 2025

Time:
2:00 - 3:00 pm

Location:
Blocker 220 and Zoom

Faculty Host:
Dr. Jian Tao,
Director of TAMIDS Digital Twins Lab

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Zoom ID:
974 9688 4861
Passcode: 923446

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Dr. JungHyun Han

Professor, Department of Computer Science, Korea University

JungHyun Han is a professor at Korea University, where he directs the Superintelligence Research Center. Prior to joining Korea University, he worked at the School of Information and Communications Engineering of Sungkyunkwan University in Korea, and also at the Manufacturing Systems Integration Division of the US Department of Commerce National Institute of Standards and Technology. He received a B.S. degree in Computer Engineering from Seoul National University and a Ph.D. degree in Computer Science from the University of Southern California. His research interests lie in computer graphics and virtual/augmented realities.

Augmented Reality Applications for Air Conditioner and Construction Industries

In this talk, Professor Han presents two AR applications: a mobile AR system for visualizing airflow and temperature change made by virtual air conditioners, and an object-based camera tracking method for inspection in the domain of the construction industry.

Even though there have been efforts to integrate the results of airflow/temperature simulation into the real world via AR, they support neither interactive modeling of the environments nor real-time simulation. This talk presents an AR system, where 3D mapping and air conditioner installation are made interactively, and then airflow/temperature simulation and visualization are made in real-time.

Currently, it is a norm to design a semiconductor fab using building information models (BIMs). The comprehensive data provided by BIMs include 3D geometric models. This talk presents a 3D model-based camera tracking method, which is targeted at navigating a fab's wide indoor environment. The key observation made in designing the method is that there are a number of fixed objects in such an indoor environment. The columns are representative of them. The proposed method extracts the columns from the input image and matches them to their BIMs to estimate the camera pose.

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