Mengjun Wang

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Research interests

Computer-aided civil engineering, Construction robotics, Smart building, Ground penetrating Radar (GPR) sensing

Education

University of Tennessee — Knoxville, TN
PhD in Civil Engineering — 08 2021 – Present
Mentor: Dr. Shuai Li. — *GPA: 3.97/4.0.*

Changsha Unversity of Science and Technology — Changsha, China
BA in Traffic Engineering — 09 2016 – 06 2020
Mentors: Dr. Kejun Long, Dr. Zhengwu Wang. — *GPA: 3.68/4.0 (1/73).*

Honors and scholarships

Honor Graduates in Hunan Province, China	2020
Merit Student	2016-2020
National Encouragement Scholarship	2016-2020
The First Prize Scholarship	2016-2020

Publications

Urban Subsurface Mapping via Deep Learning Based GPR Data Inversion
Mengjun Wang, Da Hu, Jiannan Cai, Shuai Li*.
2022 Winter Simulation Conference (WSC). IEEE, 2022. (Oral Presentation)

Drones and Other Technologies To Assist in Disaster Relief Efforts
Shuai Li, Amirsalar Moslehy, Da Hu, Mengjun Wang, Nicholas Wierschem, Khalid Alshibli, Baoshan Huang.
Tennessee. Department of Transportation, 2022.

License Plate Recognition and Matching Using Neural Networks
Kelvyn Sosoo, David Ouyang, Mengjun Wang
RECSEM Project Report: jics.utk.edu, 2019.

Automatic Underground Infrastructure Mapping with Deep Learning on Radargrams
Mengjun Wang, Da Hu, Junjie Chen, Shuai Li*
Automation in Construction, Under Review.

Detecting and Classifying Objects in Hospital Facilities
Da Hu, Shuai Li*, Mengjun Wang
Engineering Applications of Artificial Intelligence, Under Review.

Automated Inspection for Underwater Bridge Pier using Underwater Robot
Mengjun Wang, Da Hu, Shuai Li*
ASCE International Conference on Computing in Civil Engineering 2023, Abstract Accepted.

Teleoperation in the Construction Site Assisted by Sounds Information when Performing Excavation
Mengjun Wang, Shuai Li*
Construction Research Congress 2024, Abstract Accepted.

A Method to Augment the Operator's View while Performing Teleoperation Tasks
Mengjun Wang, Shuai Li*
Construction Research Congress 2024, Abstract Accepted.

From Teleoperation to Generalizable Keyframe-Based Imitation Learning for Construction
Yan Li, Mengjun Wang, Shuai Li*
Under Preparation.

Research experience

FW-HTF-R/Collaborative Research: FAIR4WISE: Future AI and Robotics for Women in Smart Engineering
Mentors: Dr. Shuai Li Sponsor: NSF 2222810 09 2022 – present
This research will develop a new robot teleoperation method based on deep learning and blockchain certification to augment construction workers' capability and promote diversity, equity, and inclusiveness in the workplace. Considering the human factors especially the gender difference to augment gender-related diversity and workers' performance. Mainly contributing to the robot teleoperation system design and implementation. Project description page.

CRII: CPS: Modeling Subsurface Features and Connected Autonomous Vehicles as Cyber-Physical Systems for Reciprocal Mapping and Localization
Mentors: Dr. Shuai Li Sponsor: NSF 1850008 09 2021 – 05 2022
This project proposed automated tools that make better maps of urban subsurface to improve buried infrastructure and prevent accidents when digging is required; as well as create a new means to navigate autonomous vehicles in cluttered and distressed urban areas during and after natural or man-made disasters. Contributed to the simulated data generation of underground GPR radargram and corresponding labels. Meanwhile, developed the underground pipeline detection model and aboveground 3D reconstruction part. Designed and implemented the validation experiments. Project description page.

Drones and Other Technologies to Assist in Disaster Relief Efforts
Mentors: Dr. Shuai Li Sponsor: TDOT 08 2021 – 05 2022
This research proposed a framework based on 3D reconstruction, deep learning, and optimization to process drone-acquired data and drone mission planning, which can be applied in various disaster scenarios. Mainly contributed to reference management, scene exploration, and report documentation. Project description page.

Summer Research Experiences for Undergraduates (REU) - RECSEM REU
Mentors: Dr. Kwai Wong, Dr. Lee D Han Sponsor: NSF 05 2019 – 08 2019
This project aims to direct undergraduate students to explore computational science models and techniques via a number of cohesive compute and data-intensive applications. Mainly contributed to the license plate recognition and matching project in the data matching part. Match the recognized car plate number in different highway cameras to extract specific cars' speed and route information. Project description page.

Teaching experience

Teaching Assistant, Department of CEE (UTK) Spring 2022
CE 441/448: (Honors) Construction Engineering and Management II
Mainly take the homework, and exams grading responsibility.

Teaching Assistant, Department of CEE (UTK) Fall 2021
CE 210: Geomatics
Mainly take the homework, lab reports, and exams grading responsibility.

Talks and tutorials

Urban Subsurface Mapping via Deep Learning Based GPR Data Inversion 12 2022
2022 Winter Simulation Conference (WSC), Singapore, oral presentation

An Integrated Subsurface Mapping and Localization System 09 2022
ISSE Annual Research Conference, UT Conference Center, poster presentation

Skills

Programming
Proficient in: python.
Familiar with: Matlab, C.

Languages
English (fluent).
Chinese (advanced)