

FACULTY PROFILES:

Dr. Tingting Wu

Dr. Tingting Wu was appointed as Associate Professor of Civil and Environmental Engineering. She has been with the Department of Civil and Environmental Engineering since 2014. Her research focuses on physio-chemical methods for advanced water/wastewater treatment and reuse and non-point source pollution control. Research conducted in her group has been supported by NSF, EPA, DOD, state of Alabama, and UAH.

Dr. Abdullahi Salman

Dr. Abdullahi Salman is an assistant professor in the Department of Civil and Environmental Engineering. Dr. Salman's research focuses on improving the resilience of critical civil infrastructure systems subjected to natural hazards. His work involves statistical natural hazard modeling, infrastructure resilience assessment, modeling the interdependency of critical infrastructure systems, infrastructure maintenance planning and optimization, and community resilience. He is particularly interested in developing cost-effective risk mitigation and resilience improvement strategies based on a probabilistic risk assessment framework. The ultimate goal of his research is to develop a comprehensive decision support framework that will guide stakeholders to make risk-informed decisions and prioritize investment in the planning, operation, and management of critical civil infrastructure systems. Dr. Salman is also interested in developing and testing sustainable materials and structural components for lunar applications. His research on this topic is funded by NASA Marshall Space Flight Center.

Dr. Rui Ma

Dr. Rui Ma is an Assistant Professor in the Department of Civil and Environmental Engineering at UAH. He received his Ph.D. degree in Civil Engineering from Rensselaer Polytechnic Institute in 2013, and his B.Eng. degree in Automation from Tsinghua University in 2009. He joined UAH in 2019. He was a Lecturer and Postdoc Scholar in the Department of Civil and Environmental Engineering at University of California, Davis. Dr. Ma's research interests include understanding and analyzing dynamic commuting traffic patterns with new mobility services in both analytical and numerical forms, designing accessible and intelligent control strategies to enhance the performance in efficiency and toward an environment and public health-friendly transportation system, and leveraging real-time infrastructure data and crowd-sourcing data for forecasting and managing traffic systems. Standing at the crossroads where the traditional planning, control, and optimization theories meet the revolutionary technologies, services, and social trends, Dr. Ma's long-term research goal is to develop an innovative modeling framework for new mobility services. By analyzing how dynamic traffic patterns would interdependently impact the planning and operations of intelligent infrastructure, and optimizing urban mobility and sustainability by intelligent and nonconventional control strategies, his research would ultimately contribute to both the advancement of transportation science and the contemporary transportation industries. Dr. Ma is a Transportation Research Board standing committee member on Transportation Network Modeling (AEP40) and an active member of Institute for Operations Research and the Management Sciences (INFORMS).

DEGREES:

Master of Science in Engineering with specializations in:

Structural Engineering
Environmental Engineering
Transportation Engineering
Materials Engineering

Doctor of Philosophy

RESEARCH LABS:

Computer Lab
Geographical Information
Systems Lab
Hazardous Waste &
Environmental Design
Treatment Lab
Hydraulics Lab
Materials Lab
Soils Lab
Surveying Lab Water Quality/
Unit Operations Lab

RESEARCH

Ph.D. Student – Chi Thanh Vu

Thanh is working on development of low-cost multifunctional adsorbent materials for water quality control, including stormwater management, advanced wastewater treatment, and groundwater treatment. His advisor is Dr. Wu.

Ph.D. Student – Gabrielle Savoie

Gabrielle is working on resource recovery from wastewater. Her advisor is Dr. Wu.

Ph.D. Student – Amir Ahmadi Zahrani

Amir is working on innovative advanced oxidation processes for water treatment and reuse. His advisor is Dr. Wu.

Ph.D. student – Babak Salarieh

Babak's research focuses on developing a framework for optimizing risk mitigation measures for coastal buildings and infrastructures considering the time-dependent change in hurricane hazard due to climate change. Specific objectives include quantifying current and future hurricane hazard considering climate change, developing an optimization model for implementing mitigation measures, and incorporating socio-economic metrics such as forced relocation, job loss, need for shelter, and access to healthcare services into the framework.

Ph.D. student – Irtiza Khan

Irtiza is working on Traffic Simulation Study on the Interaction among Autonomous/autopilot Vehicles and Cyclists in Urban Environment. This ongoing research project aims to investigate the interaction and potential conflicts among the emerging autonomous vehicles and the cyclists in the urban streets. Simulation platforms, including the SUMO, an open source traffic simulation platform focusing on microscopic simulation, and CARLA, a newly developing autonomous simulation environment, are utilized to develop simulation testing scenarios. Scenarios with different levels of autonomous vehicle market penetration rates, as well as levels of cyclist activities, will be generated and tested. Various strategies of the autonomous vehicles on routing and reacting against potential conflicts with the cyclists will be developed and tested in the above mentioned simulation platforms.

Ph.D. student – Muhammad Usama

Muhammad is working on Traffic Simulation Study on the congestion propagation and the spillover impact of interstate's congestion on the speed of adjacent arterial roads. This study explores the impact of interstate congestion on adjacent roadways to determine if decreasing average speed on the interstate negatively affects the speed on other adjacent roads in the system. He also works on the Traffic Simulation Study on the Interaction among Autonomous/autopilot Vehicles and Cyclists in Urban Environment with Irtiza.

