

RESOURCES FOR INDUSTRY

Institute for Physical Infrastructure and
Transportation (IPIT) uwm.edu/ipit/

Xiao Qin, Director qinx@uwm.edu

Mark Gottlieb, Associate Director markgott@uwm.edu

Fostering multi-disciplinary research activities in all areas of physical infrastructure and transportation through innovation, collaboration, education, and technology transfer in the following focus areas:

- *Data analytics, modeling, simulation and sensing technologies*
- *Durability and sustainability of transportation infrastructure*
- *Economy and policy*
- *Education and outreach*
- *Traffic safety*
- *Urban mobility*

KEY PARTNERS



Partner with us:

Andrew J. Graettinger, Associate Dean for Research,
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TRANSPORTATION & INFRASTRUCTURE RESEARCH EXPERTISE

OVERVIEW

Making our nation's roads, bridges, and physical infrastructure safer, more secure, greener and more connected. Our researchers are also training future transportation leaders and workforce in advanced technologies and innovative solutions to address our nation's infrastructure needs.

RESEARCH HIGHLIGHTS

Advancing safety

- Connected and autonomous systems
- Highway safety and crash modeling
- Intelligent transportation systems
- Bridge stability and testing
- Pedestrian and bicycle safety

Identifying and testing advanced materials

- Quality testing of high-strength, high-performance and ultra-high-performance composites
- Greener, more resilient concrete



EXPERT FACULTY AND FACILITIES

Highway Safety and Crash Modeling

Xiao Qin, Lawrence E. Sivak '71 Professor, Civil & Environmental Engineering, Director, UWM Institute for Physical Infrastructure and Transportation, qinx@uwm.edu

- Traffic operations and evaluation
- Intelligent transportation systems
- Sustainable transportation planning
- Statistical methods and applications in transportation
- GIS and GPS applications and spatial data analysis



Autonomous Vehicle Technology

Tom Shi, Assistant Professor, Civil & Environmental Engineering, tomshi@uwm.edu

- Connected and Automated Vehicles (CAVs)
- Vehicle-to-everything (V2X) Communications Technologies
- Cooperative Driving Automation (CDA) Systems

Risk Prevention

Andrew J. Graettinger, Associate Dean for Research, andrewjg@uwm.edu

- Crash mapping
- Bridge and tunnel strike prevention
- Motor vehicles risk mitigation
- Geographic Information Systems



AI and Cybersecurity

Zhen Zeng, Assistant Professor, Computer Science, zhenzeng@uwm.edu

- Cloud security
- Network security

Sustainable Transportation

Robert Schneider, Professor, Co-Chair, Urban Planning, rjschnei@uwm.edu

- Pedestrian and bicycle planning, design, and safety
- Travel behavior and the built environment
- Sustainable transportation policy
- Transportation standards and analysis methods

Non-Destructive Testing and Evaluation

Habib Tabatabai, Professor, Civil & Environmental Engineering, aht@uwm.edu

- Fatigue and fracture mechanics
- Design of buildings and bridges
- Failure investigation



Transportation Systems

Mark Gottlieb, Associate Director, UWM Institute for Physical Infrastructure and Transportation, markgott@uwm.edu
Former Secretary of the Wisconsin Department of Transportation (2011-2017)

Next-Generation Concrete

Konstantin Sobolev, Lawrence E. Sivak '71 Professor, Civil & Environmental Engineering, sobolev@uwm.edu
Director, Concrete Advancement Network (CAN) I/UCRC

- Making concrete more efficient, more rapidly deployable, and less dependent upon natural resources
- Nanotechnology for advanced cement-based materials
- Photocatalytic and photovoltaic materials
- Computational modeling of particles packing



Geotechnical and Pavement Engineering

Hani Titi, Lawrence E. Sivak '71 Professor, Civil & Environmental Engineering, hanititi@uwm.edu

- Characterization of subgrade soils and unbound pavement materials for mechanistic-empirical pavement design
- Finite element analysis with emphasis on behavior of driven piles
- Constitutive modeling of geomaterials
- Advanced laboratory tests of geomaterials
- X-ray micro computed tomography for durability characterization of aggregates
- Nondestructive test methods for pavement evaluation