Transportation Engineering Research
Currently at UNLV, faculty are engaged in studying research on various aspects of transportation systems and their associated infrastructure. These studies are addressing many areas, including:

- Traffic safety engineering
- Geographic Information Systems
- Infrastructure management
- Transportation planning
- Bridge engineering
- Pavement composition research
- Durability of concrete systems
- Foundation engineering
- Geotechnical studies
- Transportation systems analysis and evaluation
- Traffic operations and control

Our researchers are funded by various federal and state agencies. We would like to introduce you to some of our researchers. Please feel to contact us if we can help with future collaboration.
Transportation Engineering
Research Areas of Expertise

• Reinforced concrete structures
• Foundation engineering
• Pavements
• Durability, strength, and the behavior of concrete systems
• Admixtures and supplementary materials in concrete
• Seismic behavior, design, and finite element modeling of reinforced concrete structures
• Extreme loading of structures
• Sustainable design
• Innovative project delivery and contracting methods
• Construction economics and estimating
• Retrofit design and testing
• Fatigue and fracture of steel structures
• Planning for commissioning and startup
• Modular construction

• Construction and highway safety
• Intelligent transportation systems
• Highway monitoring
• Transportation emergency management
• Driver assistance systems
• Traffic and vehicle control systems and sensors
• Signal and video processing
• Internet and smartphone applications
• Questionnaire and survey design, deployment, and analysis
• Urban transportation planning
• Freight transportation
• Tracking of construction resources
• Proximity-based safety control in work zones
Why UNLV?

• UNLV is situated in the center of a metropolitan area with multiple transportation challenges.

• UNLV has a strong team of multi-disciplinary researchers who are developing new technologies to serve the transportation needs of Las Vegas, the region, and the world.

• UNLV is the home of the Transportation Research Center, which complements and expands the university’s existing education, research, and outreach activities.
Faculty Involved in Transportation Engineering Research

Dr. Jin Ouk Choi, E.I.T, LEED
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Dr. Nader Ghafoori
Professor, Department of Civil and Environmental Engineering and Construction

Dr. David James, P.E., F. NSPE
Associate Professor, Department of Civil and Environmental Engineering and Construction

Dr. Pushkin Kachroo, P.E.
Professor, Department of Electrical and Computer Engineering
Director, Mendenhall Innovation Program

Dr. Moses Karakouzian, P.E.
Professor, Department of Civil and Environmental Engineering and Construction

Dr. Brendan Morris
Associate Professor, Department of Electrical and Computer Engineering

Dr. Venki Muthukumar
Associate Professor, Department of Electrical and Computer Engineering

Dr. Mojdeh Pajouh
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Dr. Jee Woong Park
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Dr. Ryan Sherman, P.E.
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Dr. Pramen Shrestha, P.E.
Associate Professor & Graduate Coordinator, Department of Civil and Environmental Engineering and Construction

Dr. Hualing (Harry) Teng
Professor, Department of Civil and Environmental Engineering and Construction

Dr. Ying Tian, P.E.
Associate Professor, Department of Civil and Environmental Engineering and Construction
Transportation Engineering Research

Additional Resources

UNLV Applied Geophysics Center
UNLV Transportation Research Center
Transportation Engineering

Research Highlights
Transportation Engineering Research

Dr. Jin Ouk Choi, E.I.T., LEED Green Associate, A.M. ASCE
Assistant Professor,
Department of Civil and Environmental Engineering and Construction
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• Expertise
  • Construction engineering and project management
  • Modular construction (building, industrial, & civil)/ modularization / prefabrication / preassembly / industrialized buildings
  • Standardization strategy
  • Advanced scheduling
  • Sustainability
  • Pre-project planning
  • Planning for commissioning and startup
Recent Publications


Transportation Engineering Research

Dr. Nader Ghafoori
Professor, Department of Civil and Environmental Engineering & Construction
Phone: (702) 895-2531
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• Expertise
  • Durability, strength, and the behavior of concrete systems
  • Design and performance of advanced construction materials
  • Rheology and workability of cement-based materials
  • Optimization of chemical admixtures and supplementary cementitious materials in concrete
  • Use of industrial by-products and recycled aggregates in concrete

Corrosion with schematic
Transportation Engineering Research

Dr. Nader Ghafoori
Professor,
Department of Civil and Environmental Engineering & Construction

Recent Publications

Transportation Engineering Research

Dr. Dave James, P.E., F.NSPE
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Department of Civil and Environmental Engineering and Construction
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• Expertise
  • Evaluation of survey data for margins of error
  • Paved road and vacant land dust emissions
  • Dust control

• Relevant Projects
  • Paved Road Dust emissions, Sponsor: Clark County Department of Air Quality and Environmental Management.
  • Refined Emission Factors for Native Desert and Disturbed Open Land Area. Sponsored by Clark County Department of Air Quality and Environmental Management
Transportation Engineering Research

Dr. Dave James, P.E., F.NSPE
Associate Professor,
Department of Civil and Environmental Engineering and Construction

Recent Publications


Transportation Engineering Research

Dr. Pushkin Kachroo, P.E.
Professor,
Department of Electrical and Computer Engineering
Director, Mendenhall Innovation Program

Phone: (702) 895-4926
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- Expertise
  - Intelligent Transportation Systems
  - Transportation Safety Systems
  - Data processing, collection, and analysis
  - Traffic and vehicle control systems and sensors
  - Signal and video processing
  - Database design, development, and visualization
  - Internet and smartphone applications
  - Questionnaire and survey design, deployment, and analysis
  - Mathematical modeling, analysis, simulation, and statistics

Simulator used to study driver behavior in various traffic conditions.
Dr. Pushkin Kachroo, P.E.
Professor,
Department of Electrical and Computer Engineering
Director, Mendenhall Innovation Program

Recent Publications

Dr. Moses Karakouzian
Professor,
Department of Civil and Environmental Engineering and Construction

Phone: (702) 895-0959
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• Expertise
  • Geotechnical engineering
  • Foundation engineering
  • Construction materials
  • Highway and pavement materials
Recent Publications

- S. Mahmoud Motahari Karein, Mohammad Balapour, Moses Karakouzian. Improving the hardened and transport properties of perlite incorporated mixture through different solutions: Surface area increase, nanosilica incorporation or both. *Construction and Building Materials*, Volume 209, 10 June 2019, Pages 187-194.


Transportation Engineering Research

Dr. Brendan Morris
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• Expertise
  • Intelligent transportation systems
  • AI and deep learning
  • Self-driving vehicles
  • Safety
  • Real-time activity analysis
Transportation Engineering Research

Dr. Brendan Morris
Associate Professor,
Department of Electrical and Computer Engineering

Recent Publications

Transportation Engineering Research

Dr. Venki Muthukumar
Associate Professor,
Department of Electrical and Computer Engineering
Phone: (702) 895-3566
Email: venkatesan.muthukumar@unlv.edu
Website: http://faculty.unlv.edu/vm

• Expertise
  • High performance and real-time embedded systems for ITS applications
  • Video processing for vehicle and pedestrian detection, tracking, and conflict analysis
  • UAV systems and their applications in ITS
  • Traffic safety, distracted driving deterrents
  • Embedded sensors for smart traffic data collection, archiving, and visualization
Dr. Venki Muthukumar
Associate Professor,
Department of Electrical and Computer Engineering

Recent Publications

Articles
Dr. Mojdeh Pajouh
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Phone: (702) 895-4509
Email: mojdeh.pajouh@unlv.edu

- Expertise
  - Extreme load engineering
  - Design of resilient and sustainable infrastructural systems
  - Design of roadside safety barriers
  - Numerical modeling and impact engineering
  - Full-scale crash testing
  - Geotechnical Earthquake Engineering
Dr. Mojdeh Pajouh
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Recent Publications


Dr. Jee Woong Park
Assistant Professor, Department of Civil and Environmental Engineering and Construction

Phone: (702) 895-1568
Email: jee.park@unlv.edu

- Expertise
  - Construction engineering and project management
  - Information and sensing technology
  - Proximity-based safety control in work zone
  - Tracking of construction resources
  - Construction safety
Recent Publications


Dr. Ryan Sherman, P.E.
Assistant Professor
Department of Civil & Environmental Engineering & Construction
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Website: https://faculty.unlv.edu/wpmu/rsherman/

• Expertise
  • Fatigue and fracture of steel structures
  • Retrofit design and testing
  • Fitness-for-service evaluation
  • Large-scale structural testing
  • Field monitoring and testing of structures
  • Redundancy of structural systems
  • Bridge design, fabrication, construction, and performance
  • Evaluation and preservation of historic structures
Transportation Engineering Research

Dr. Ryan Sherman, P.E.
Assistant Professor,
Department of Civil & Environmental Engineering & Construction

Recent publications

Journal Articles


Technical Reports

• Sherman, R. (2016). “Standards to Control Fracture in Steel Bridges Through the Use of High-Toughness Steel and Rational Inspection Intervals.” Purdue University. West Lafayette, IN.

Conference Proceedings

Dr. Pramen Shrestha, P.E.
Associate Professor & Graduate Coordinator,
Department of Civil and Environmental Engineering and Construction
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Email: pramen.shrestha@unlv.edu

- Expertise
  - Innovative project delivery and contracting methods
  - Benchmarking of construction projects
  - Heavy highway construction materials
  - Sustainability
  - Construction safety
  - Highway safety
  - Work zone safety
  - Quantitative methods
  - Transportation emergency management
  - Life cycle cost analysis

Hoover Dam Bypass Bridge Construction
Recent Publications


Dr. Pramen Shrestha, P.E.
Associate Professor,
Department of Civil and Environmental Engineering & Construction

Recent Publications


Dr. Hualiang (Harry) Teng
Professor,
Department of Civil and Environmental Engineering and Construction
Phone: (702) 895-4940
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- Expertise
  - Railroad and high speed rail
  - Intelligent transportation systems (ITS)
  - Air quality analysis

Emission measurements from mobile sampling technology and their true distribution.

Evaluation of speed monitoring displays for work zones in Las Vegas.
Recent Publications

Dr. Ying Tian, P.E.
Associate Professor,
Department of Civil and Environmental Engineering and Construction
Phone: (702) 895-4917
Email: Ying.Tian@unlv.edu

- Expertise
  - Seismic evaluation and rehabilitation of bridges
  - Advanced non-linear dynamic response analyses
  - Earthquake engineering
  - Extreme loading of structures
  - Design and behavior of reinforced concrete structures

Collapse of a building caused by interior column removal.
Transportation Engineering Research

Dr. Ying Tian, P.E.
Associate Professor,
Department of Civil and Environmental Engineering and Construction

- Qian, K., Li, B., Tian, Y. “Recent progress in understanding of load resisting mechanisms for mitigating progressive collapse” (2016) *American Concrete Institute, ACI Special Publication*, 2016-January (SP 309), pp. 67-83.