PRAVEEN EDARA, Ph.D., P.E.

College of Engineering, University Missouri-Columbia
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Senior engineering leader with experience as Interim Dean and Department Chair at an AAU R1 institution. Proven record of growing research expenditures, building interdisciplinary centers, strengthening student success outcomes, and leading AI-driven academic innovation. Experienced in fundraising, budget restructuring, accreditation, and strategic enrollment growth.

QUALIFICATION HIGHLIGHTS

- Served in several senior administrative leadership positions at an AAU, R1, flagship and land grant institution in the past 10 years
- Built academic and research partnerships with other colleges, industry, and public sector
- Led strategic planning initiatives aligning research growth, enrollment management, faculty hiring, and infrastructure investments with institutional priorities.
- Interim Dean of College of Engineering for 11 months
- Department Chair of Civil and Environmental Engineering for 7 years
- Faculty Fellow for Research, Industrial Engagement and Entrepreneurship for 1 year
- Director of Graduate Studies of Civil and Environmental Engineering for 3 years
- Published over 150 refereed publications and led 43 grants as principal investigator

WORK EXPERIENCE

University of Missouri – Columbia
- Department Chair, 8/2019-present, Civil and Environmental Engineering
- Interim Dean, 9/2023- 7/2024, College of Engineering
- Faculty Fellow for Research, Industrial Engagement and Entrepreneurship, 2018-2019
- Professor, 9/2017-present, Civil and Environmental Engineering
- Director of Graduate Studies, 8/2016-7/2019
- James C. Dowell Professorship, 5/2014-8/2018, College of Engineering
- Associate Professor (with tenure), 9/2013-8/2017, Civil and Environmental Engineering
- Assistant Professor, 8/2007-8/2013, Civil and Environmental Engineering

Virginia Transportation Research Council, Virginia Department of Transportation
Associate Research Scientist, 9/2005–7/2007
System Operations (ITS) and Traffic Engineering Team

Turner-Fairbank Highway Research Center, US DOT Federal Highway Administration
Research Contractor, 1/2004–8/2005
Safety and Traffic Operations Group

EDUCATION
Ph.D. Civil Engineering (Transportation Systems Engineering), Virginia Tech, VA, 2005
M.S. Civil Engineering (Transportation Systems Engineering), Virginia Tech, VA, 2003
B.Tech. Civil Engineering, Indian Institute of Technology, Madras, India, 2002

ADMINISTRATIVE EXPERIENCE

Interim Dean, MU College of Engineering (9/2023 – 7/2024)

- Led a college of engineering with 6 departments, 10 B.S., 9 M.S., and 7 Ph.D. programs. The college has 130 faculty, 62 staff, 3,500 students, 55 student organizations, and 450,000 gross square feet of space.
- Managed an annual budget of $38M and external research expenditures of $31M.
- Raised $4.1M in philanthropy in FY 24 for scholarships, unrestricted funds, professorships, and student success initiatives.
- Led Engineering's fundraising efforts on a $160M Center for Energy Innovation building project in partnership with Advancement Office and other Colleges in FY 24.
- Addressed a $3.74M budget deficit from FY 24 to FY 25 by streamlining operations, partnering with other units on shared services, raising donor funds, implementing hiring freezes in non-critical programs, and cutting spending in low priority areas and projects.
- Led regular meetings with the Dean's Advisory Council to seek input on the strategic plan and action items. Council members include top executives from Dow, Boeing, AT&T, NASA's Jet Propulsion Lab, AOI, Black & Veatch, and Burns & McDonnell.
- Led the 2023 ABET Accreditation visit to accredit 10 degree programs in the college. All 10 programs, including two new programs, were accredited for a new six-year cycle.
- Led college-wide recruitment efforts that resulted in a 12% increase in freshman enrollment from 2023 to 2024.
- Strengthened student success initiatives that resulted in strong first-year college retention rate (92%), graduation rate (84%), and job placement rate (95.3%).
- Conducted annual performance evaluations of 5 department chairs, 2 associate deans, and 5 staff supervisors in the college of engineering.
- Hired highly successful faculty through MizzouForward hiring program in Artificial Intelligence, Energy, Biomedical, and Material Science.
- Held college-wide student forums and student mental health awareness initiatives in partnership with the Mizzou Engineering Student Council and Campus Wellness Center.

Chair, Department of Civil and Environmental Engineering (8/2019 – present)

- Lead 21 faculty, 9 staff, 309 undergraduates, and 67 graduate students with an annual $3.9M budget and $5.3M endowment.
- Led development of a multi-year departmental strategic roadmap focused on research expansion, interdisciplinary center development, program growth, faculty hiring, and student success metrics.
- Led significant growth in research expenditures (from $2M in 2019 to $6.1M in 2024) and helped establish three interdisciplinary research centers:
  - *Missouri Center for Transportation Innovation* (four-university partnership)
  - *Missouri Water Center* (with the School of Natural Resources)
  - *Missouri Work Zone Safety Center of Excellence* (with MoDOT)

- Expanded degree offerings: launched B.S. in Environmental Engineering, Online M.S., and Accelerated M.S. programs; supported new minors and certificates in Construction Management and Sustainability.
- Strengthened inclusive excellence by recruiting and mentoring under-represented faculty and appointing women to leadership roles.
- Fostered faculty development through mentoring, workload equity initiatives, and participation in NSF iChange/Aspire and AAU STEM teaching cohorts.
- Guided departmental response to COVID-19, enabling seamless online instruction and lab continuity.

Key Strategic Initiatives (2024–2026)

LATTICE: Learning Advancement Through Teaching Innovation in Civil and Environmental Engineering

Launched a department-wide teaching excellence framework to strengthen instructional consistency, concept mastery, and student engagement across the curriculum. LATTICE positions CEE as a leader in innovative engineering education through coordinated faculty support, AI integration, and structural reforms that enhance student success.

Key elements include:

- **Chair-led class visits and course reviews** to promote continuous improvement and curricular alignment.
- **TA mentoring and recognition programs** to elevate instructional quality.
- **Smaller sections in high-enrollment gateway courses** to improve engagement and feedback.
- **Dedicated faculty development and Canvas redesign support**, along with enhanced student evaluation metrics for actionable improvement.
- Established a multi-tier **Civil Bridge Mentoring Program** connecting undergraduate and graduate students with peers, alumni, faculty, and industry professionals.

Digital Transformation Leadership: AI Integration Across Curriculum and Workforce Development

Spearheaded a department-wide digital transformation strategy integrating generative AI, immersive technologies, and data-driven pedagogy across undergraduate and graduate programs. Positioned CEE as a leader in AI-enabled engineering education aligned with industry and workforce evolution.

Key elements include:

- Launched AI-powered course study companions (24/7 GPT-based learning tools) across multiple core courses, enhancing concept mastery while preserving academic integrity.
- Invested $55K in FY25 to support 12 faculty in piloting AI-enhanced instructional design and assessment innovation.

- Embedded AI-supported refresher modules within prerequisite courses to strengthen knowledge retention and reduce DFW rates.
- Aligned curricular reform with workforce preparation in intelligent transportation systems, connected infrastructure, and AI-driven engineering practice.
- Leveraged AI- and VR-enabled research initiatives to inform instructional innovation and experiential learning models.

HONORS AND AWARDS

National Research Recognition
- **2025 High Value Research Project Award**, presented by the American Association of State Highway and Transportation Officials (AASHTO), July 2025. Award presented for research on *iTrain: Immersive Training of Department of Transportation Personnel*. (PI – Edara)
- **2022 High Value Research Project Award**, presented by AASHTO, July 2022. Award presented for research on *Investigation of Autonomous/Connected Vehicles in Work Zones*. (PI – Carlos Sun)
- **2021 High Value Research Project Award**, presented by AASHTO, May 2021. Award presented for research on *Using Virtual Reality to Train DOT Work Zone Inspection Staff*. (PI – Edara)
- **Best Paper Award**, Transportation Research Board (TRB) Committee on Work Zone Traffic Control (AHB 55), Washington, DC, January 2020. Paper title: *Simulator and Field Study of Green Lights on Truck Mounted Attenuators in Missouri.*
- **Best Paper Award**, Transportation Research Board (TRB) Committee on Operational Effects of Geometrics (AHB 65), Washington, DC, January 2017. Paper title: *Site-Specific Safety Analysis of Diverging Diamond Interchange Ramp Terminals.*
- **Best Paper Award**, Transportation Research Board (TRB) Committee on Operational Effects of Geometrics (AHB 65), Washington, DC, January 2016. Paper title: *Safety Evaluation of Diverging Diamond Interchanges in Missouri.*

Teaching and Mentoring Excellence
- **Excellence in Mentoring Undergraduate Research Award**, presented by the Council on Undergraduate Research, Posters on the Hill, Capitol Hill, Washington, DC, 2015.
- **Outstanding Professor Award**, selected by the University of Missouri College of Engineering Graduating Seniors, May 2009.
- **Finalist, Excellence in Teaching with Technology Award**, University of Missouri, 2009.

Leadership and Institutional Recognition
- **James C. Dowell Professorship**, College of Engineering, 2014–2018.
- **MU Top Faculty Achievers**, University of Missouri, Stotler Lounge, Memorial Union, Columbia, Missouri, March 2016. (Selected by Chancellor Hank Foley)
- **UM System Leadership Development Program Participant**, 2019–2020 (one of thirty selected from across four UM campuses).

SERVICE

Journals
1. **Associate Editor,** Journal of Transportation Engineering, American Society of Civil Engineers (ASCE), 2016-2024
2. **Associate Editor,** IEEE Transactions on Intelligent Transportation Systems, Institute of Electrical and Electronics Engineers (IEEE), 2018-2021
3. **Special Issue Co-Editor,** ASCE Journal of Transportation Engineering, *Topic: New and Emerging Technologies in Transportation*, 2017-2018.
4. **Editor, North America Region,** International Journal of Transportation – Engineering, Planning, Modeling, Simulation and Management. ISSN: 2287-7940, Publisher: Science and Engineering Research Support Society, 2014-2016.
5. **Editorial Advisory Board Member,** Journal of Intelligent Transportation Systems: Taylor and Francis Publishers. 2013-
6. **Outstanding Reviewer Award**, ASCE Journal of Transportation Engineering, 2013.

Professional Committees
1. **Program Evaluator**, Accreditation Board for Engineering and Technology (ABET), 2022-
2. Served on **National Science Foundation CMMI's Game Changers Academy**, 2021
3. Membership in the National Academies' Transportation Research Board Committees
   - **Member**: Traffic Control Devices Committee (ACP 55). 2022-2025
   - **Secretary and Member**: Artificial Intelligence and Advanced Computing Applications to Transportation Committee. 2009-2017.
   - **Member**: Work Zone Traffic Control Committee (AHB 55). 2010-2021.
   - **Chair**: Work Zone Traffic Simulation Subcommittee. 2017-2020
4. **Vice-Chair**, ASCE Transportation & Development Institute's Advance Technology Committee, 2015-2018.

University Service
1. **Founding Director,** Missouri Work Zone Safety Center of Excellence, 2023-
2. **Board Member**, Missouri Innovation Center, 2023-2024
3. **Chair,** Associate Dean Search Committee, College of Engineering, Fall 2020
4. **Department Chair,** Civil and Environmental Engineering Department, 2019-
5. **Faculty Fellow for Research, Industrial Engagement, and Entrepreneurship,** College of Engineering Leadership Team, 2018-2019
6. **Chair**, Big Data Analytics Faculty Search Committee in Transportation Systems, College of Engineering, 2016-2018
7. **Chair**, Smart Cities Faculty Search Committee in Sustainability, College of Engineering, 2018-2019
8. **Director of Graduate Studies** for the Civil Engineering Department, 2016–2019
9. Search Committee Member for **Vice Chancellor for Inclusion, Diversity and Equity,** University of Missouri, 2019-2020.
10. Served on **Department Chair Search Committee**, Civil and Environmental Engineering, 2016

PUBLICATIONS

Summary: 72 refereed journal articles, 7 NCHRP Synthesis reports, 4 book chapters, 70 refereed conference proceedings, 54 sponsored research reports.

Recent Refereed Articles (Graduate student authors are underlined)

1. **Edara, P.** Reframing Undergraduate Transportation Education in the United States. *ASCE Journal of Transportation Engineering*. Vol. 151, Issue 11, 2025. (***Editorial***)
2. **Edara, P.** Disparities in Traffic Fatality Rates in the United States. *The 105th Annual Meeting of the Transportation Research Board of the National Academies*. January 2026.
3. Qing, Z**., Edara, P.** Work Zone Assistant: Customized ChatGPT for Work Zone Planning and Operations. *The 104th Annual Meeting of the Transportation Research Board of the National Academies*. January 2025.
4. Li, C., Edara, P., Shang, Y. **Crash Frequency Modeling using Realistic Artificial Data**. 2023 *IEEE Conference on Artificial Intelligence.* June 5-6, 2023. Santa Clara, CA, USA.
5. Li, C., Qing, Z., Edara, P., Sun, C., Balakrishnan, B., Shang, Y. **Semi-Automatic Construction of Virtual Reality Environment for Highway Work Zone Training using Open-Source Tools**. 2023 *IEEE Conference on Virtual Reality and 3D User Interfaces Conference.*
6. Qing, Z., Edara, P., **Integrating Virtual Reality into Work Zone Flagger Training – Useability Analysis and Behavioral Assessment**". *Transportation Research Record: Journal of the Transportation Research Board*, Vol. 2678, No. 6. 2023.
7. Qing, Z., Edara, P. **Human Vision vs. Computer Vision: A Readability Study in a Virtual Reality Environment**. 2022 *IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (VRW).*
8. Bharadwaj, N., Edara, P., Sun, C. **Analyzing the Effect of Distractions and Impairments on Young Driver Safety using Naturalistic Driving Study Data**. *ASCE Journal of Transportation Engineering*. Vol. 149, Issue 1, 2023. (***Editor's Choice Selection***)
9. Bharadwaj, N., Edara, P., Sun, C. **Examining Vehicle Kinematics of Rear-End Safety-Critical Events using Naturalistic Driving Data.** *The 100th TRB Annual Meeting, 2021.*
10. Shu, X., Adu-Gyamfi, Y., Sun, C., Edara, P. **Interactive, Web-based Platform for "Big" Transportation Data Integration and Analytics.** *The 100th TRB Annual Meeting,* 2021.
11. Bian, R., Murray-Tuite, P., Edara, P., Triantis, K. **Modeling the Impact of Traffic Management Strategies on Households' Stated Evacuation Decisions.** *Progress in Disaster Science.* 2022*.*
12. Chang, D., Edara, P., Murray-Tuite, P., Trainor, J., Triantis, K. **Taking the Freeway: Inferring Evacuee Route Selection from Survey Data.** *Transportation Research Interdisciplinary Perspectives*, Vol. 11, 2021. DOI: 10.1016/j.trip.2021.100421
13. Bharadwaj, N., Edara, P., Sun, C. **Sleep Disorders and the Risk of Traffic Crashes: A Naturalistic Driving Study Analysis.** *Safety Science,* Vol. 140, 2021. DOI: 10.1016/j.ssci.2021.105295
14. Hou, Y., Edara, P. **Network Scale Travel Time Prediction Using Deep Learning**. *Transportation Research Record,* 2672 (45), pp. 115-123, 2018.
15. Claros, B., Edara, P. Sun, C. **When driving on the left side is safe: Safety of the diverging diamond interchange ramp terminals**. *Accident Analysis and Prevention*, 100, 133-142, 2017.

RESEARCH FUNDING

Since joining University of Missouri in 2007, I have secured 70 sponsored research grants (43 as PI) from various sources including NSF, National Academies, US DOT, FHWA, OSHA, and state DOTs. Examples of current and recently completed grants are listed below.

Project Title	Funding Agency	Principal Investigator	Funding	Contract Period
Missouri Construction Pathways Initiative (McPIe)	US Department of Education	Edara	$1,892,886	2/26-1/30
AI-Enabled Immersive Multi-Agency Traffic Incident Management Training Platform – Phase 1	Missouri DOT	Edara	$75,000	10/25-9/26
Transforming Roadway Construction Training using Artificial Intelligence and Virtual Reality	Occupational Safety and Health Administration	Edara	$75,000	10/24-9/25
Multibody Dynamics Modeling of TMA Truck and Driver Safety Systems	Missouri DOT	Edara	$249,997	8/23-2/25
Integrating Virtual Reality into Multiple Work Zone Training Programs	US DOT Federal Highway Administration	Edara	$749,999	11/23-10/28
Effective Methods to Safely Communicate with Commercial Motor Vehicles	Missouri DOT	Edara	$200,000	7/23-12/24
MIMIC: Multidisciplinary Initiative on Methods to Integrate and Create Artificial Realistic Data	US DOT Exploratory Advanced Research Program	Edara	$1,073,255	9/19-9/22
iTrain – Immersive Training of Department of Transportation Workforce using Virtual Reality	Federal Highway Administration Accelerated Market Readiness Program/Missouri DOT	Edara	$460,238	5/21-5/23
Safety Evaluation of J-turn Intersections– Phase II	Missouri DOT	Edara	$300,000	1/23-8/24
Truck Escape Ramp Design and Operation	NCHRP/National Academies	Brown	$55,000	11/22-10/23
Identification of a Response and Rescue Network for the St. Louis Region	Missouri DOT	Edara	$225,000	6/22-6/24
NCHRP 17-108: Developing Crash Modification Factors for Alternative Intersections	NCHRP/National Academies	Salim (UNC)	$600,000	7/22-6/25
Preparing Local Governments for Automated Driving Systems – Implementing WZDx	Federal Highway Administration/St. Charles County	Adu-Gyamfi	$100,000	5/21-4/23
Regional Intelligent Transportation Systems Data Sharing Initiative – Phase I	EW Gateway Council of Governments, St. Charles County, Missouri DOT	Adu-Gyamfi	$1,499,987	12/19-10/22
Collaborative Research: Hurricane Evacuation Performance Measurement	National Science Foundation	Edara	$110,455	9/15-8/19

STUDENT ADVISING

Postdoctoral researchers

1. Dr. Zhu Qing, May 2021-Jan 2024, Virtual Reality-based Research
2. Dr. Daeyeol Chang, July 2021- September 2024, Earthquake Evacuation Modeling

Graduate student advisees

Student	Degree	Graduation	Current Employment
Hojun Baek	PhD	Current	
Hojun Baek	MS	2023	PhD Student at MU
Khaled Aati	PhD	2022	**Asst. Prof.,** Jazan University, Saudi Arabia
Daeyeol Chang	PhD	2020	**Postdoc** at MU
Nipjyoti Bharadwaj	PhD	2020	**Asst. Prof.,** Indian Institute of Technology - Guwahati
Khaled Aati	MS	2019	PhD student
Yohan Chang	PhD	2018	**Research Fellow,** Center for Big Data, KRIHS, South Korea
Boris Claros	PhD	2017	**Research Scientist,** UW-Madison
Roozbeh Rahmani	PhD	2017	**Research Scientist,** U. Florida
Brett Williams	MS	2017	Unknown
Eric Zhu	PhD	2016	**Research Scientist,** Beijing Transport Institute
Yi Hou	PhD	2014	**Senior Research Scientist,** National Renewable Energy Lab, DOE
Yue Zhang	MS	2015	**Traffic Analyst**, Colorado DOT
Sawyer Breslow	MS	2013	**National Sales Operations Manager**, Rhythm Engineering
Andrew Robertson	MS	2013	**Traffic and Transportation Engineer**, CF&S Engineers
Lei Fang	PhD	2013	**Lead Traffic Engineer**, WSP Global
Jalil Kianfar	PhD	2013	**Assoc. Prof.**, Saint Louis University
Chen Chen	MS	2013	Unknown
Eric Zhu	MS	2012	
Nick Ressel	MS	2012	**Marine Operations Manager**, 50Hertz Transmission
Naghma Hassan	MS	2012	Unknown
Amit Dhatrak	MS	2010	Unknown
Siddharth Sharma	MS	2008	**Associate Partner**, Ernst & Young
Indrajit Chatterjee	MS	2008	**Lead Scientist**, American Airlines
Clay Keller	MS		Resident Engineer, BLA Inc.

TEACHING EXPERIENCE

I enjoy teaching undergraduate and graduate level courses. I have developed and taught the following six courses in transportation since joining MU.

CE 4106/7106: INTELLIGENT TRANSPORTATION SYSTEMS
Joint undergraduate and graduate class

Topics: Sensing, communication, control, and computing technologies to improve safety, mobility and sustainability. Connected and Automated Vehicles (CAVs), robotaxis, smart infrastructure IoTs, drones, shared mobility, and digital twins. Course emphasizes Systems Thinking, policy and real-world deployment.

CE 4110/7110: TRANSPORTATION SIMULATION
Joint undergraduate and graduate class

Topics: Introduction to modeling and simulation, Simulation terminology and software, Review of probability and statistics, Random numbers in simulation, Simulating car-following behavior, lane changing behavior, traffic signals, roundabouts, signalized corridors, adaptive traffic signals, Calibration of commercial simulators, Safety surrogates from simulation.

CE 3100: FUNDAMENTALS OF TRANSPORTATION ENGINEERING
Undergraduate only class

Topics: Functional classification of roads and design vehicles, Horizontal design, Cross-section and superelevation design, Vertical design, Traffic flow theory, Traffic control (MUTCD warrants), Signal timing, Transportation planning (Four-step method), Pavement design.

CE 8100: TRANSPORTATION PLANNING AND MODELS
Graduate only class

Topics: Introduction to planning and models, Sampling and survey methods, Trip generation, Trip distribution, Mode choice, Traffic assignment models, Discrete choice models.

CE 8110: THEORY OF TRAFFIC FLOW
Graduate only class

Topics: Time-space diagrams, Car following models, Traffic stream characteristics, Fluid flow models, Shock wave analysis, and Signalized and unsignalized intersection analysis.

CE 8160: ADVANCED RESEARCH METHODS IN TRANSPORTATION
Graduate only class

Topics: Time-series methods (AR, MA, ARIMA, Smoothing), Ordered Probability Methods (Logit and Probit), Artificial Intelligence Methods (Fuzzy Sets and Neural Networks), Regression methods.