

Roshan Panahi, Ph.D.

Tallahassee, Florida
rpanahi@eng.famu.fsu.edu

EDUCATION

Oregon State University, Corvallis, OR

Doctor of Philosophy, Construction Engineering and Management

September 2019-March 2024

Dissertation Topic: Automated Monitoring of Modular Construction Factories using Computer Vision

Advisor: Dr. Joseph Louis

Oregon State University, Corvallis, OR

Master of Engineering, Computer Science

June 2022

Iran University of Science and Technology, Tehran, Iran

Master of Science, Construction Engineering and Management

July 2018

Thesis: Multi-objective Discrete Event Simulation-based Bridge Construction Site Layout Optimization

Advisor: Dr. Mostafa Khanzadi

Tabriz University, Tabriz, Iran

Bachelor of Science, Geomatics Engineering

June 2015

AWARDS

Best Paper Award *ISARC: International Symposium on Automation and Robotics in Construction*,
IIT Madras Research Park, Chennai, India

July 2023

Scholarly Presentation Award, Oregon State University, Corvallis, OR

June 2021

PROFESSIONAL EXPERIENCE

Postdoc Scholar, FAMU-FSU College of Engineering, Tallahassee, FL

August 2025-Present

Supervisor: Dr. Juyeong Choi, Associate Professor

- Project: *CBET-2302506 NSF, a Spatiotemporal Sustainability Method for Post-Disaster Debris Management.*

Data Scientist, Skanska, Hillsboro, OR

April 2024 - October 2024

Supervisor: Dr. Ian Cassidy, Senior Data Scientist

- Enhance productivity of project engineers by 10% via process automation and AI.
- Improve safety of the field crew developing an AI-powered safety training web application.
- Advise management on root causes of delays analyzing data from 250+ past projects.

Data Scientist/Project Engineer, Full/Part-time Internship, Skanska, Hillsboro, OR

June 2022 - September 2023

Supervisor: John P. Kivlin, Senior Project Manager

- Draft meeting minutes, RFIs, work and change orders, and issue Requests for Proposals.
- Assist with scheduling and planning, and conduct site visits and inspections.

Research & Development Engineer, AradCMPioneers, Tehran, Iran

July 2017 - February 2018

Supervisor: Dr. Saleh Dashti, Assistant Professor

- Develop virtual reality experiences for industrial facilities' maintenance to enhance coordination.
- Develop augmented reality visualization for MEP contractors to reduce rework and errors.
- Simulate and visualize construction as-planned progress and perform BIM-based quantity takeoffs.

Project Engineer, ArashArmeh General Contracting, Tehran, Iran

February 2013 - February 2016

- Draft RFIs, submittals, subcontractor contracts, and progress reports for management and clients.
- Manage budget, issue change orders, and process subcontractor invoices.
- Assist manager and estimator in planning, scheduling, and quantity take-off.

RESEARCH EXPERIENCE

Research Assistant at School of Construction Engineering and Management, Oregon State University (September 2019-March 2024), *Supervisor:* Dr. Joseph Louis, Associate Professor

- Research feasibility of automated non-intrusive monitoring systems in modular construction factories.
- Propose computer vision-based bottleneck detection methods to improve productivity & throughput.
- Develop automated computer vision-based labor activity recognition and assembly monitoring methods.
- Integrate BIM, computer vision, and data augmentation to address occlusion challenges in progress monitoring.

Research Assistant at School of Civil Engineering, Iran University of Science and Technology (September 2016- July 2018), *Supervisor:* Dr. Mostafa Khanzadi, Professor

- Research the impact of logistics planning on highway bridge construction efficiency.
- Simulate construction process using discrete event simulation (DES) & conduct scenario analysis.
- Optimize temporary facility layout using multi-objective time-cost trade-off analysis.

TEACHING EXPERIENCE

Teaching Assistant (Fall 2022, Fall 2023, Winter 2024) - Oregon State University *Course*

Title: CEM 471: Electrical Facilities.

Instructor: Joseph Fradella III

Teaching Assistant (Fall 2022, Fall 2023, Winter 2024) - Oregon State University *Course*

Title: CEM 472: Mechanical Facilities.

Instructor: Joseph Fradella III

Teaching Assistant (Fall 2022, Fall 2023, Winter 2024) - Oregon State University *Course*

Title: CCE 481: Capstone Course

Instructor: Dr. Judy Liu

Responsibilities: Evaluate homework, quizzes, and exams; hold office hours; proctor exams and serve as a chaperone for undergraduate students during multiple construction site visits, coordinate logistics, ensure safety, and provide real-world insights for students into construction processes and techniques.

PUBLICATIONS

Articles in refereed journals:

Heydari, E.; **Panahi, R.**; Esfidvajani, A.; Koo, C.; Choi, J. "*Enhancing Operational Efficiency and Energy Consumption of Lift System for High-Rise Building Construction Using Hybrid Agent- and DES-Based Multi-Objective Optimization.*" *Journal of Computing in Civil Engineering*, 2025, *In Preparation*.

Koo, C.; **Panahi, R.**; Choi, J.; Koh, K.; Hong, T. "*Enhancing the Operational Efficiency of Zoning-Based Vertical Transportation Logistics in Skyscraper Construction Using Agent-Based Simulation Modelling.*" *International Journal of Systems Science: Operations & Logistics*, 2025, *Under Review*.

Panahi, R.; Louis, J.; Podder, A.; Swanson, C.; Pless, S.; Mirhasani, S. "*Monitoring Installation of Partially Occluded Subassemblies in Modular Construction Factories Using BIM, Ray Tracing, and Computer Vision.*" *Journal of Construction Robotics*, 9(2), 2025.

Panahi, R.; Louis, J.; Podder, A.; Swanson, C.; Pless, S. "*Bottleneck Detection in Modular Construction Factories Using Computer Vision.*" *Sensors*, 23, 3982, 2023.

Peer-reviewed conference proceedings:

Panahi, R.; Choi, J. "Toward Smarter Demolition Permitting: Leveraging Agentic RAG for Compliance and Resilient Recovery" *Construction Research Congress*, San Antonio, TX, March 18–21, 2026., *Under Review*.

Panahi, R.; Louis, J.; Podder, A.; Pless, S.; Swanson, C.; Jafari, M. "Automated Progress Monitoring in Modular Construction Factories Using Computer Vision and Building Information Modeling." *ISARC: International Symposium on Automation and Robotics in Construction*, 2023, IIT Madras Research Park, Chennai, India July 3–9, 2023.

Panahi, R.; Louis, J.; Swanson, C.; Podder, A.; Pless, S. "Automated Construction Progress Monitoring in Modular Construction Factories Using Computer Vision-Based Instance Segmentation." *I3CE International Conference on Computing in Civil Engineering*, Corvallis, OR June 25–28, 2023.

Panahi, R.; Kivlin, J. P.; Louis, J. "Request for Information (RFI) Recommender System for Pre-Construction Design Review Application Using NLP and Computer Vision." *I3CE International Conference on Computing in Civil Engineering*, Corvallis, OR June 25–28, 2023.

Panahi, R.; Louis, J.; Fodder, A.; Swanson, C. "Tracking Volumetric Units in Modular Factories for Automated Progress Monitoring Using Computer Vision." *Construction Research Congress, Arlington, Virginia, March 9–12, 2022*.

Panahi, R.; Louis, J.; Aziere, N.; Podder, A.; Swanson, C. "Identifying Modular Construction Worker Tasks Using Computer Vision." *I3CE International Conference on Computing in Civil Engineering*, Orlando, FL, September 12–14, 2021

ORAL PRESENTATIONS

Panahi, R.; Kivlin, J. P.; Louis, J. "Request for Information (RFI) Recommender System for Pre-Construction Design Review Application Using NLP and Computer Vision." *Proceedings of the ASCE International Conference on Computing in Civil Engineering*, Corvallis, OR, 2023.

Panahi, R.; Louis, J.; Swanson, C.; Podder, A.; Pless, S. "Automated Construction Progress Monitoring in Modular Construction Factories Using Computer Vision-Based Instance Segmentation." *Proceedings of the I3CE International Conference on Computing in Civil Engineering*, Corvallis, OR, 2023.

Panahi, R.; Louis, J.; Aziere, N.; Podder, A.; Swanson, C. "Identifying Modular Construction Worker Tasks Using Computer Vision." *Proceedings of the ASCE International Conference on Computing in Civil and Building Engineering*, Orlando, FL, 2021.

PEER REVIEW, SERVICE, AND ENGAGEMENTS

Reviewer (2020–present): Reviewed 40+ manuscripts for leading journals and 30+ for conferences in construction engineering and management, including *Automation in Construction*, *Advanced Engineering Informatics*, *Journal of Construction Engineering & Management*, *Journal of Architectural Engineering*, *Smart and Sustainable Built Environment*, *Winter Simulation Conference*, *ASCE International Conference on Computing in Civil Engineering*, and *Construction Research Congress*.

Conference Organizing Assistant: Member of the organizing committee for *ASCE International Conference on Computing in Civil Engineering (i3CE 2023)*, Corvallis, OR, June 25–28, 2023.

Panel Member, Connecting with Prospective Students: Volunteered on a graduate student panel to provide Q&A sessions, mentorship on application preparation, housing, and career development.

CEM Student Representative Panel Member, Selection of Associate Dean of Graduate Programs: Participated in candidate evaluation sessions, providing assessments based on graduate student needs in the Construction Management program.

WORKSHOPS

Writing Teaching Philosophy Statements, Center for the Advancement of Teaching, Florida State University

Undergraduate Research Mentorship, Undergraduate Research Opportunities Program (UROP), Center for Undergraduate Research & Academic Engagement (CRE) by Florida State University

GRANTS

Choi, Juyeong. (PI), **Panahi, Roshan.** (Co-PI), (Jan. 2026–Dec. 2026). *Persona-Based Hurricane Evacuation Travel Demand Analysis to Support Transportation Planning*. Funding by the Rural Safe Efficient Advanced Transportation (R-SEAT): Total award \$140,724, Under Review

MENTORSHIP

Mentor for FSU Undergraduate Research Opportunity Program (UROP) and FAMU Educating Engineering Students Innovatively (EESI) programs

MEMBERSHIPS

Member, National Postdoctoral Association (NPA), 2025-Present

Member, ASCE CTA Artificial Intelligence Taskforce 2025-Present

Member, NHERI Graduate Student Council (GSC), 2025-Present

Student Member, ASCE Computing Division, Visualization, Information Modeling and Simulation (VIMS) Committee, 2021 - 2024

Student Member, ASCE Computing Division, Data Sensing and Analysis (DSA) Committee, 2023-present

Student Member, American Society of Civil Engineers (ASCE), 2020-2024

Coalition of Graduate Employees (CGE), Oregon State University, 2019-2024