

Jin Zhu

Assistant Professor
Civil and Environmental Engineering
University of Connecticut
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RESEARCH INTEREST

❖ Societal challenge

Resilient infrastructure, resilient communities, smart cities, resource efficiency, disaster response and recovery

❖ Research theory

Complex system science, network science, contingency theory, decision theory

❖ Research method

Dynamic network analysis, agent-based modeling, stochastic simulation, case study

EDUCATION

Florida International University 2016
Doctor of Philosophy in Civil Engineering

Florida International University 2015
Master of Public Administration
Graduate certificate in *Homeland Security and Emergency Management*

Southeast University, China 2009
Bachelor of Science in Construction Management
Minor in *Accounting*

ACADEMIC APPOINTMENT

Assistant Professor 2017.08-present
Civil and Environmental Engineering Department
University of Connecticut

- Research and teaching at both the undergraduate and graduate levels with primary duties in the areas of Construction Engineering & Management and Transportation courses

Postdoctoral Researcher 2016.08-2017.07
Zachry Department of Civil Engineering
Texas A&M University

- Data analysis and report writing for NSF project: Assessment of Cascading Failures and Collective Recovery of Interdependent Critical Infrastructure in Catastrophic Disasters: A Study of 2015 Earthquake in Nepal
- Mentored graduate and undergraduate students in research activities
- Research proposal development

Graduate Assistant 2010.08-2016.08

Florida International University

- Developed a system-of-systems framework and dynamic network simulation method in assessing project emergent properties (e.g., vulnerability, adaptive capacity, resilience)
- Conducted 3 case studies of complex construction projects using the proposed framework and methodology
- Published research findings in interdisciplinary journals and conferences

Research Assistant 2014.08-2016.08*Construction Industry Institute (CII) Research Team 322*

- Identified core project control metrics and reliability factors through literature review, questionnaire survey, case studies, and Delphi sessions
- Developed a computer-based Project Controls Improvement (PCI) tool for practitioners to learn and improve their project controls
- One of the principal authors of project final reports

HONORS AND AWARDS**Best Paper Award***2015 ASCE International Workshop on Computing in Civil Engineering, Austin, TX*

Best Paper from the Visualization, Information Modeling, and Simulation (VIMS) committee to the paper entitled “An Integrated Framework for the Assessment of the Impacts of Uncertainty in Construction Projects Using Dynamic Network Simulation”

Best Poster Award, Second-Place*2016 ASCE Construction Research Congress, San Juan, Puerto Rico*

The second-place award to the poster entitled “Building Safe-to-Fail Project Systems: Assessment of Resilience in Projects using Dynamic Meta-Network Simulation”

Dissertation Year Fellowship*Florida International University*

A merit-based scholarship awarded to highly-qualified doctoral students who are conducting outstanding research in their discipline and have established a notable record of publication during the data analysis and writing phase.

Best Poster Competition Finalist and Travel Grant*2016 Construction Industry Institute (CII) Annual Conference, National Harbor, MD*

One of the top 10 finalists in poster competition with the poster entitled “Building Safe-to-Fail Project Systems: Assessment of Resilience in Projects using Dynamic Meta-Network Simulation”

Best Poster Competition Finalist and Travel Grant*2015 Construction Industry Institute (CII) Annual Conference, Boston, MA*

One of the top 10 finalists in poster competition with the poster entitled “Meta-Network Modeling Framework for Integrated Assessment of Risk, Vulnerability, and Resilience in Complex Construction Projects”

Winter Simulation Conference Travel Grant*Association for Computing Machinery (ACM)*

Travel grant supporting participation in 2014 Winter Simulation Conference

Best Oral Presentation Award, Second-Place*Florida International University Graduate Student Scholarly Forum 2016*

The second-place award in the engineering panel competition to the oral presentation entitled “Ex-Ante Assessment to Uncertainty in Complex Construction Project Organizations”

Best Poster Award, Second-Place*Florida International University Graduate Student Scholarly Forum 2015*

The second-place award in the engineering panel competition to the poster entitled “Bouncing Back in the Face of Uncertainty: Ex-Ante Analysis of Organizational Vulnerability in Complex Construction Projects”

Best Poster Award, Third-Place*Florida International University Graduate Student Scholarly Forum 2014*

The third-place award in the engineering panel competition to the poster entitled “An Integrated Project Performance Assessment Framework: A System-of-Systems Approach”

FIU Travel Grant*Graduate and Professional Student Committee, Florida International University*

Travel grant supporting participation in 2016 ASCE Construction Research Congress

FIU Travel Grant*Graduate and Professional Student Committee, Florida International University*

Travel grant supporting participation in 2015 ASCE International Workshop on Computing in Civil Engineering

Honor Graduate*Southeast University, China, 2009***Excellent Undergraduate Thesis Award***Southeast University, China, 2009***PUBLICATIONS****1. Refereed Journal Articles*****1.1 Journal articles published or accepted*****Zhu, J.** and Mostafavi. A. (2017). Performance Assessment in Complex Engineering Projects Using a Systems-of-Systems Framework. *IEEE Systems Journal*. 10.1109/JSYST.2017.2671738**Zhu, J.** and Mostafavi. A. (2017). Discovering Complexity and Emergent Properties in Project Systems: A New Approach to Understanding Project Performance. *International Journal of Project Management*, 35(1), 1-12.

Zhu, J., and Mostafavi, A. (2017). Meta-Network Framework for Integrated Performance Assessment under Uncertainty in Construction Projects. *ASCE Journal of Computing in Civil Engineering*, 31(1), 04016042.

Zhu, J., and Mostafavi, A. (2014). A System-of-Systems Framework for Performance Assessment in Complex Construction Projects. *Organization, Technology & Management in Construction: An International Journal*, 6(3), 1083-1093. (**Invited Paper from 2014 Project Management Symposium**)

Li, D. Z., **Zhu, J.**, Hui, E. C. M., Leung, Y. P., and Li, Q. M. (2011). An Emergy Analysis-Based Methodology for Eco-Efficiency Evaluation of Building Manufacturing. *Ecological Indicators*, 11(5), 1419-1425.

Wang, X. X., **Zhu, J.**, Li, Q. M., and Deng, X. P. (2010). Analysis of Top 200 Design Firms in International Construction Market of 2008. *Construction Economy*, 2, 26-28. (In Chinese)

1.2 Journal articles under review

Zhu, J., Manandhar, B., Truong, J., Ganapati, N. E., Pradhananga, N., Davidson, R., and Mostafavi, A. (201X). Assessment of Infrastructure Systems Resilience in the 2015 Gorkha Earthquake. *Earthquake Spectra*.

Orgut, R. E., **Zhu, J.**, Batouli, M., Mostafavi, A., Jaselskis, E. (201X). Metrics That Matter: Core Metrics and Indicators for Improved Project Controls Analytics. *ASCE Journal of Construction Engineering and Management*.

2. Refereed Conference Papers

2.1 Papers in conference proceedings

Zhu, J., Mostafavi, A., and Whyte J. (2017). Towards Systems Integration Theory in Megaprojects: A System-of-Systems Framework. *Lean & Computing in Construction Congress*, July 4-12, Heraklion, Crete, Greece.

Zhu, J., and Mostafavi, A. (2016). Dynamic Meta-Network Modeling for Integrated Project Performance Assessment under Uncertainty. *ASCE Construction Research Congress*, May 31-June 2, San Juan, Puerto Rico.

Orgut, R. E., Batouli, M., **Zhu, J.**, Mostafavi, A., and Jaselskis, E. (2016). Metrics That Matter: Evaluation of Metrics and Indicators for Project Progress Measurement, Performance Assessment, and Performance Forecasting during Construction. *ASCE Construction Research Congress*, May 31-June 2, 2016, San Juan, Puerto Rico.

Zhu, J., and Mostafavi, A. (2015). An Integrated Framework for Ex-Ante Assessment of Performance Vulnerability in Complex Construction Projects. *International Construction Specialty Conference*, Canadian Society for Civil Engineering, June 8-10, 2015, Vancouver, Canada.

Orgut, R., **Zhu, J.**, Batouli, M. Mostafavi, A., and Jaselskis, E. (2015). A Review of the Current Knowledge and Practice related to Project Progress and Performance Assessment. International Construction Specialty Conference, Canadian Society for Civil Engineering, June 8-10, 2015, Vancouver, Canada.

Zhu, J., and Mostafavi, A. (2015). An Integrated Framework for the Assessment of the Impacts of Uncertainty in Construction Projects Using Dynamic Network Simulation. ASCE International Workshop on Computing in Civil Engineering, June 21-23, 2015, Austin, TX. **(Best Paper Award from VIMS Committee)**

Batouli, M., Swei, O.A, **Zhu, J.**, Gregory, J., Kirchain, R., and Mostafavi, A. (2015). A Simulation Framework for Network Level Cost Analysis in Infrastructure Systems. ASCE International Workshop on Computing in Civil Engineering, June 21-23, 2015, Austin, TX.

Zhu, J., and Mostafavi, A. (2014). Integrated Simulation Approach for Assessment of Performance in Construction Projects: A System-of-Systems Framework. Winter Simulation Conference, December 7-10, 2014, Savannah, GA.

Zhu, J., and Mostafavi, A. (2014). An Integrated Framework for Bottom-Up Assessment of Performance in Construction Projects. Project Management Symposium, June 9-10, 2014, College Park, MD. **(Invited to submit a journal article in Organization, Technology & Management in Construction: An International Journal)**

Zhu, J., and Mostafavi, A. (2014). Project Organizations as Complex System-of-Systems: Integrated Performance Assessment at the Interface of Emergent Properties, Complexity, and Uncertainty. Engineering Project Organizations Conference, July 29-31, 2014, Winter Park, Colorado.

Zhu, J., and Mostafavi, A. (2014). System-of-Systems Modeling of Performance in Complex Construction Projects: A Multi-Method Simulation Paradigm. ASCE International Conference on Computing in Civil and Building Engineering, June 23-25, 2014, Orlando, FL.

Zhu, J., and Mostafavi, A. (2014). Towards a New Paradigm for Management of Complex Engineering Projects: A System-of-Systems Framework. IEEE Systems Conference, March 31 – April 3, 2014, Ottawa, Canada.

2.2 Conference Paper Accepted

Zhu, J., and Mostafavi, A. (2017). Characterization of the Underlying Mechanisms of Vulnerability in Complex Projects Using Dynamic Network Simulation. Winter Simulation Conference, December 1-3, Las Vegas, NV.

3. Reports

Construction Industry Institute. (2016). Metrics That Matter: Improving Project Progress and Performance Assessment. Austin, TX.

Construction Industry Institute. (2016). Project Control Improvement (PCI) Software and User Guide. Austin, TX.

4. Posters

Zhu, J., and Mostafavi, A. (2016). Building Safe-to-Fail Project Systems: Assessment of Resilience in Projects using Dynamic Meta-Network Simulation. Construction Industry Institute Annual Conference, August 1-3, 2016, National Harbor, MD. **(One of the top 10 Best Poster Competition Finalists)**

Zhu, J., and Mostafavi, A. (2016). Building Safe-to-Fail Project Systems: Assessment of Resilience in Projects using Dynamic Meta-Network Simulation. ASCE Construction Research Congress, San Juan, Puerto Rico. **(Recipient of the Second-Place Best Poster Award)**

Zhu, J., and Mostafavi, A. (2015). Meta-Network Modeling Framework for Integrated Assessment of Risk, Vulnerability, and Resilience in Complex Construction Projects. Construction Industry Institute Annual Conference, August 1-3, 2016, Boston, MA. **(One of the top 10 Best Poster Competition Finalists)**

Zhu, J., and Mostafavi, A. (2015). Bouncing Back in the Face of Uncertainty: Ex-Ante Analysis of Organizational Vulnerability in Complex Construction Projects. Florida International University Graduate Student Scholarly Forum, April 10, 2015, Miami, FL. **(Recipient of the Second-Place Best Poster Award in Engineering Panel)**

Zhu, J., and Mostafavi, A. (2014). Integrated Simulation Approach for Assessment of Performance in Construction Projects: A System-of-systems Framework. Winter Simulation Conference PhD Colloquium, December 7-10, 2014, Savannah, GA.

Zhu, J., and Mostafavi, A. (2014). Ex-Ante Assessment of Performance in Construction Projects: A System-of-Systems Approach. ASCE Construction Research Congress, May 19-21, 2014, Atlanta, GA.

Zhu, J., and Mostafavi, A. (2014). An Integrated Project Performance Assessment Framework: A System-of-Systems Approach. FIU Graduate Student Scholarly Forum, April 10, 2014, Miami, FL. **(Recipient of the Third-Place Best Poster Award in Engineering Panel)**

Zhu, J., and Mostafavi, A. (2014). An Integrated Project Performance Assessment Framework: A System-of-Systems Approach. Florida International University Civil and Environmental Engineering Department Graduate Research Day Poster Session, February 21, 2014, Miami, FL.

Zhu, J., and Mostafavi, A. (2013). System-of-Systems Assessment of Performance in Complex Construction Projects. Florida International University Civil and Environmental Engineering Department Graduate Research Day Poster Session, September 26, 2013, Miami, FL.

INVITED TALKS

Invited webinar presentation “Towards a New Paradigm for Management of Complex Engineering Projects: A System-of-Systems Framework” at System of Systems Engineering Collaborators Information Exchange (SoSECIE) hosted by Office of the Secretary of Defense (OSD), November 10, 2015.

Invited webinar presentation “Towards a New Paradigm for Management of Complex Engineering Projects: A System-of-Systems Framework” at International Council on System Engineering (INCOSE) New Mexico Chapter, February 10, 2016.

TEACHING AND MENTORING EXPERIENCE

Instructor

University of Connecticut

Fall 2017

[CE3220] Principles of Construction I

Teaching Assistant

Florida International University

Fall 2010-Spring 2016

[BCN 3727] Construction Site Work and Equipment

[BCN 3753] Financial Management of Construction Organizations

[BCN 3761] Construction Documentation and Communication

[CCE 4001] Heavy Construction

[CCE 5405] Advanced Heavy Construction

[CCE 4031] Project Planning for Civil Engineers

PROFESSIONAL SERVICE

1. Volunteer

Volunteer at Florida International University Society of Women Engineers

- Mentored high-school female students during visits to FIU Engineering Center

Volunteer at the 2015 South Florida Regional Competition of the National Engineers Week

- Served as judge in the National Engineers’ Future City Competition, participated by sixth, seventh and eighth grade students interested in math, science and engineering

Volunteer at 2015 Miami-Dade STEM Expo’s Science and Engineering Fair

- Served as judge in competitions of elementary school students in order to encouraging and guiding them to participate in the fields of science, technology, arts, engineering, and mathematics (STEAM)

Volunteer at 2014 FIU McNair Scholars Research Conference

- Served as judge in the poster panel of FIU McNair Scholar Research Conference which provides opportunities for undergraduate students to share their work and prepare themselves for graduate schools

2. Organizer

Organizer of OHL School of Construction State-of-the-art in Construction Research Webinars

- Organized and hosted webinar presentations “Situational Awareness for Construction Safety Risks Management” (April 12, 2016), and “Activity Recognition of Construction Equipment and Workers using Smartphones” (March 22, 2016)

Student assistant at 2013 FIU/MIT Transportation Infrastructure Sustainability Summit

3. Review Service

Reviewer, IEEE Systems Journal

Reviewer, International Journal of Project Management

Reviewer, 2017 IEEE Systems Conference

Reviewer, 2016 ASCE Construction Research Congress

Reviewer, 2016 IEEE Systems Conference

Reviewer, 2016 IEEE International Symposium on Systems Engineering

Reviewer, 2016 IEEE Systems Conference

Reviewer, 2015 IEEE International Symposium on Systems Engineering

CERTIFICATION AND LICENCE

Engineering in Training (EIT) since 2013

COMPUTER SKILLS

Programming Languages: Java, C++, MATLAB, MATHCAD

Applications: AnyLogic, ORA, SPSS, Autodesk Revit, Primavera P6