

*Curriculum Vitae*

**Dong Zhao**

Michigan State University  
552 W Circle Dr., East Lansing, Michigan 48824, U.S.A.  
[dzhao@msu.edu](mailto:dzhao@msu.edu) | [www.msu.edu/~dzhao](http://www.msu.edu/~dzhao)

**EDUCATION:**

Ph.D., Building construction, Virginia Tech, Blacksburg, VA, 2014  
M.S. Building science, Virginia Tech, Blacksburg, VA, 2011  
M.S. Engineering management, Chongqing University, Chongqing, 2007  
B.E. Construction engineering, Chongqing University, Chongqing, 2004

**PROFESSIONAL APPOINTMENTS:**

Michigan State University, East Lansing, MI  
*Associate Professor*, School of Planning, Design and Construction, 2021–  
*Associate Professor*, Department of Civil and Environmental Engineering, 2015–  
*Assistant Professor*, School of Planning, Design and Construction, 2015–21  
*Assistant Professor*, Department of Civil and Environmental Engineering, 2015–21  
*Affiliated Faculty*, Environmental Science and Policy Program, 2016 –

Barton Mallow Holdings, Southfield, MI  
*BIM Residency Engineer*, Virtual Design and Construction Department, 2020

Virginia Tech, Blacksburg, VA  
*Postdoctoral Fellow*, Myers-Lawson School of Construction, 2014–15  
*Research/teaching Assistant*, Myers-Lawson School of Construction, 2008–14

Hong Kong Polytechnic University, Hong Kong  
*Research Associate*, Virtual Construction Prototyping Laboratory, 2007–08

**HONORS & AWARDS**

Election to Sigma Xi Scientific Research Honor Society, 2021  
CAREER Award, National Science Foundation (NSF), 2021  
ExCEED Teaching Award, American Society of Civil Engineers (ASCE), 2021  
Outstanding Reviewer, *ASCE Journal of Construction Engineering and Management*, 2021  
Outstanding Reviewer, *ASCE Journal of Civil Engineering Education*, 2021

Robert L. Bowen Fellowship, Associated General Contractors of America (AGC), 2020  
TEDx Selected Speaker, 2019  
Exemplary Tenure Stream Evaluation Packet, MSU, 2018  
ASCE ExCEEEd Fellow, American Society of Civil Engineers (ASCE), 2018  
Summer Professor Scholarship, National Association of Home Builders (NAHB), 2018  
Academy of Global Engagement Fellow, MSU, 2017  
Best Journal Article Award, *ASCE Journal of Architectural Engineering*, 2016  
Outstanding Dissertation Nomination Award, Virginia Tech, 2014  
Kevin P. Granata Award, Virginia Tech, 2014  
Annual Achievement Award, Virginia Center for Housing Research, 2013  
Outstanding Thesis Award, Chongqing University, 2007

## PUBLICATIONS

### Peer-reviewed Journal Papers

\* denotes students or advisees, † denotes corresponding author.

1. Xue, B., Liu, B., Yang, Z., Zhao, D., Sun, X., and Wang, W. (2021). “Formalizing an integrated metric system measuring urban sustainability: evidence from China?” *Sustainable Cities and Society*. Accepted.
2. Mo, Y.\*, and Zhao, D. (2021). “Effective factors for residential building energy modeling using feature engineering.” *Journal of Building Engineering*, 44, 102891. <https://doi.org/10.1016/j.jobe.2021.102891>
3. Zhao, D., Duva, M.\*, Mollaoglu, S., Frank, K., Garcia, A., and Tait, J.\* (2021). “Integrated collaboration in fragmented project organizations: A network perspective.” *Journal of Construction Engineering and Management*, 147(10), 04021115. [https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002149](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002149)
4. Garcia, A., Mollaoglu, S., Frank, K., Duva, M.\*, and Zhao, D. (2021). “Emergence and evolution of network structures in complex interorganizational project teams.” *Journal of Management in Engineering*, 37(5), 04021056. [https://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000951](https://doi.org/10.1061/(ASCE)ME.1943-5479.0000951).
5. Wang, L., Zhao, D., and Zhong, Y. (2021). “Sustainable allocation model of construction workforce for work resumption during COVID-19.” *Sustainability*, 13(11), 6481. <https://doi.org/10.3390/su13116481>.
6. Zhao, D., Simmons, D., and Chen, Z.\* (2021). “Interconnectivity in collaboration networks impacts member belongingness.” *Journal of Construction Engineering and Management*, 147(8), 04021078. [http://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002114](http://doi.org/10.1061/(ASCE)CO.1943-7862.0002114)
7. Jiang, Y.\*, Xing, Y., Zhao, D., and Jiao R. (2021). “Resale of green housing compensates its premium pricing”, *Journal of Green Building*, Accepted.

8. Zhao, D. (2021). "Peer pressure in BIM-based collaboration improves student learning." *Journal of Civil Engineering Education*, 147 (2), 04020019. [http://doi.org/10.1061/\(ASCE\)EI.2643-9115.0000038](http://doi.org/10.1061/(ASCE)EI.2643-9115.0000038)
9. Wang, L.\* and Zhao, D. (2021). "Cross-domain functions and trends in Chinese construction industry based on patent semantic analysis." *Technological Forecasting and Social Change*, 162, 120331. <http://doi.org/10.1016/j.techfore.2020.120331>.
10. Du, J., Zhao, D., Singh, N., and Issa, R. (2021). "BIM for improved project communication networks: empirical evidence from email log." *Journal of Computing in Civil Engineering*, 34(5), 04020027. [http://doi.org/10.1061/\(ASCE\)CP.1943-5487.0000912](http://doi.org/10.1061/(ASCE)CP.1943-5487.0000912).
11. Mo, Y.\*, Zhao, D.†, Du, J., Syal, M., Aziz, A., and H. Li. (2020). "Automated staff assignment for building maintenance using natural language processing." *Automation in Construction*, 113, 103150. <http://doi.org/10.1016/j.autcon.2020.103150>
12. Ma, R., Ren, B., Zhao, D. Chen, J., and Lu, Y. (2020). "Modeling urban energy dynamics under clustered urban heat island effect with local-weather extended distributed adjacency blocks." *Sustainable Cities and Society*, 56, 102099. <http://doi.org/10.1016/j.scs.2020.102099>
13. Zhang, Y., Wei, H-H, Zhao, D., Han, Y., and Chen, J. (2020). "Understanding the innovation diffusion and adaption strategies in megaproject networks through a fuzzy system dynamic model." *Frontiers of Engineering Management*, 8, 32-47. <http://doi.org/10.1007/s42524-019-0082-8>
14. Zhao, D.†, Thakur, N.\*, and Chen, J. (2019). "Optimal design of energy storage system to buffer charging infrastructure in smart cities." *Journal of Management in Engineering*, 36(2), 04019048. [http://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000742](http://doi.org/10.1061/(ASCE)ME.1943-5479.0000742)
15. Jiang, Y.\*, Zhao, D.†, Wang, D., and Xing, Y. (2019). "Sustainable performance of buildings through modular prefabrication in the construction phase: a comparative study." *Sustainability*, 11 (20), 5658. <http://doi.org/10.3390/su11205658>
16. Zhao, D.†, Miotto, A.\*, Syal, M., and Chen, J. (2019). "Framework for benchmarking green building movement: a case of Brazil." *Sustainable Cities and Society*, 48, 101545. <http://doi.org/10.1016/j.scs.2019.101545>
17. Du, J., Zhao, D., and Zhang, O. (2019). "Impacts of human communication network topology on group optimism bias in capital project planning: a human-subject experiment." *Construction Management and Economics*, 37(1), 44-60. <http://doi.org/10.1080/01446193.2018.1508848>
18. McCoy, A.P., Sanderford, A., and Zhao, D. (2019). "Demonstrating a new measure & index of U.S. homebuilder confidence." *Journal of Housing Research*, 27(2), 108-128. <http://doi.org/10.1080/10835547.2018.12092145>

19. Zhao, D.<sup>†</sup>, McCoy, A.P., Agee, P., Mo, Y.\* , Reichard, G., and Paige, F. (2018). “Time effects of green buildings on energy use for low-income households: a longitudinal study in the United States.” *Sustainable Cities and Society*, 40, 559-568.  
<http://doi.org/10.1016/j.scs.2018.05.011>.
20. Tatiya, A.\* , Zhao, D.<sup>†</sup>, Syal, M., Berghorn, H. G., and LaMore, R. (2018). “Cost prediction model for building deconstruction in urban areas.” *Journal of Cleaner Production*, 195, 1572-1580. <http://doi.org/10.1016/j.jclepro.2017.08.084>
21. Jiang, Y.\* , Zhao, D.<sup>†</sup>, Sanderford, A., and Du, J. (2018). “Effects of bank lending on urban housing prices for sustainable development: a panel analysis of Chinese cities.” *Sustainability*, 10(3), 642. <http://doi.org/10.3390/su10030642>
22. Du, J., Shi, Y., Zou, Z., and Zhao, D. (2018). “CoVR: cloud-based multiuser virtual reality headset system for project communication of remote users.” *Journal of Construction Engineering and Management*, 144(2).  
[http://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001426](http://doi.org/10.1061/(ASCE)CO.1943-7862.0001426)
23. McCoy, A.P., Zhao, D.<sup>†</sup>, Ladipo, T., Agee, P., and Mo, Y.\* (2018). “Comparison of green home energy performance between simulation and observation: a case of Virginia, U.S.” *Journal of Green Building*, 13(3), 70-88. <http://doi.org/10.3992/1943-4618.13.3.70>
24. Du, J., Zou, Z., Shi, Y., and Zhao, D. (2018). “Zero latency: real-time synchronization of BIM data in virtual reality for collaborative decision-making.” *Automation in Construction*, 85, 51-64. <http://doi.org/10.1016/j.autcon.2017.10.009>
25. Wang, D., Chen, J., Zhao, D., Dai, F., Zheng, C., and Wu, X. (2017). “Monitoring workers’ attention and vigilance in construction activities through a wireless and wearable electroencephalography system.” *Automation of Construction*, 82, 122-137.  
<http://doi.org/10.1016/j.autcon.2017.02.001>.
26. Feng, Y., Wu, P., Ye, G., and Zhao, D. (2017). “Risk compensation behaviors on construction sites: demographic and psychological determinants.” *Journal of Management in Engineering*, 33(4), 04017008. [http://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000520](http://doi.org/10.1061/(ASCE)ME.1943-5479.0000520).
27. Zhao, D.<sup>†</sup>, McCoy, A., Du, J., Agee, P., and Lu, Y. (2017). “Interaction effects of building technology and resident behavior on energy consumption in residential buildings.” *Energy and Buildings*, 134, 223-233.  
<http://doi.org/10.1016/j.enbuild.2016.10.049>
28. Liu, G, Li, K., Zhao, D., and Mao, C. (2017). “Business model innovation and its drivers in the Chinese construction industry during the shift of modular prefabrication.” *Journal of Management in Engineering*, 33(3), 04016051.  
[http://doi.org/10.1061/\(ASCE\)ME.1943-5479.0000501](http://doi.org/10.1061/(ASCE)ME.1943-5479.0000501).

29. Zhao, D.<sup>†</sup>, McCoy, A. P., Kleiner, B. M., and Feng, Y. (2016). “Integrating safety culture into OSH risk mitigation: a pilot study on the electrical safety.” *Journal of Civil Engineering and Management*, 22(6), 800-807.  
<http://doi.org/10.3846/13923730.2014.914099>
30. Du, J., Kim B., and Zhao, D. (2016). “Cost performance as a stochastic process: EAC projection by Markov chain simulation.” *Journal of Construction Engineering and Management*, 142(6), 04016009. [http://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001115](http://doi.org/10.1061/(ASCE)CO.1943-7862.0001115)
31. Du, J., El-Gafy, M., and Zhao, D. (2016). “Optimization of change order management process with object-oriented discrete event simulation: case study.” *Journal of Construction Engineering and Management*, 142(4), 05015018.  
[http://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001092](http://doi.org/10.1061/(ASCE)CO.1943-7862.0001092)
32. Zhao, D.<sup>†</sup>, McCoy, A. P., and Du, J. (2016). “An empirical study on the energy consumption in residential homes after adopting green building standards.” *Procedia Engineering*, 145, 766-773. <http://doi.org/10.1016/j.proeng.2016.04.100>
33. Shi, Y., Du, J., Lavy, S., and Zhao, D. (2016). “A multiuser shared virtual environment for facility management.” *Procedia Engineering*, 145, 120-127.  
<http://doi.org/10.1016/j.proeng.2016.04.029>
34. Zhao, D.<sup>†</sup>, McCoy, A. P., Kleiner, B. M., Du, J., and Smith-Jackson, T. L. (2016). “Decision-making chains in electrical safety for construction workers.” *Journal of Construction Engineering and Management*. 142 (1), 04015055.  
[http://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001037](http://doi.org/10.1061/(ASCE)CO.1943-7862.0001037)
35. Zhao, D.<sup>†</sup>, McCoy, A. P., Kleiner, B. M., Smith-Jackson, T. L., and Liu, G. (2016). “Sociotechnical systems of fatal electrical injuries in the construction industry.” *Journal of Construction Engineering and Management*, 142 (1), 04015056.  
[http://doi.org/10.1061/\(ASCE\)CO.1943-7862.0001036](http://doi.org/10.1061/(ASCE)CO.1943-7862.0001036)
36. Zhao, D.<sup>†</sup>, McCoy, A. P., Kleiner, B. M., Mills, T., and Lingard, H. (2016). “Stakeholder perceptions of risk in construction.” *Safety Science*, 82, 111-119.  
<http://doi.org/10.1016/j.ssci.2015.09.002>
37. Zhao, D.<sup>†</sup>, McCoy, A. P., and Smoke, J. (2015). “Resilient built environment: new framework for assessing residential construction market.” *Journal of Architectural Engineering*, 27(4), B4015004. [http://doi.org/10.1061/\(ASCE\)AE.1943-5568.0000177](http://doi.org/10.1061/(ASCE)AE.1943-5568.0000177)  
(Recipient of the **Best Paper Award** of the year)
38. Zhao, D.<sup>†</sup>, McCoy, A. P., Kleiner, B. M., and Smith-Jackson, T. (2015). “Control measures of electrical hazards: an analysis of construction industry.” *Safety Science*, 77, 143-151. <http://doi.org/10.1016/j.ssci.2015.04.001>

39. Zhao, D.<sup>†</sup>, and Lucas, J. (2015). “Virtual reality simulation for construction safety promotion.” *International Journal of Injury Control and Safety Promotion*. 22(1), 57-67. <http://doi.org/10.1080/17457300.2013.861853>
40. Zhao, D.<sup>†</sup>, McCoy, A., Bulbul, T., Fiori, C., and Nikkhoo, P. (2015). “Building collaborative construction skills through BIM-integrated learning environment.” *International Journal of Construction Education and Research*, 11(2), 97-120. <http://doi.org/10.1080/15578771.2014.986251>
41. Zhao, D.<sup>†</sup>, Thabet, W., McCoy, A. P., and Kleiner, B. M. (2014). “Electrical deaths in the U.S. construction: an analysis of fatality investigations.” *International Journal of Injury Control and Safety Promotion*, 21(3), 278-288. <http://doi.org/10.1080/17457300.2013.824002>
42. Ren, H., and Zhao, D.<sup>†</sup> (2006). “Innovation of construction projects management based on the five-dimension modeling.” *Journal of Chongqing University*, 29(9), 152-155. <http://doi.org/10.11835/j.issn.1000-582X.2006.09.035>
43. Huang, Z., and Zhao, D.<sup>†</sup> (2006). “An empirical study and forecast of the cyclic fluctuation of real estate investment in China.” *Journal of Civil and Environmental Engineering*, 28(4), 110-113. <http://doi.org/10.11835/j.issn.1674-4764.2006.04.028>
44. Zhao, D.<sup>†</sup>, Bi, W., and Liu, L. (2005). “A study on the investment of real estate development under the Macro-regulation in China.” *Journal of Civil and Environmental Engineering*, 27(s), 128-130.
45. Wang, H., and Zhao, D.<sup>†</sup> (2005). “A study of the effect of construction project design quality on the overall cost management and control.” *Journal of Civil and Environmental Engineering*, 27(s), 109-111.
46. Ren, H. and Zhao, D.<sup>†</sup> (2005). “Thinking on China western area real estate industry's development.” *Special Zone Economy*. 2005(2): 112-113.
47. Huang, Z. and Zhao, D.<sup>†</sup> (2004). “The analysis of the relationship between cyclic fluctuation of real estate industry and Macroeconomy.” *Chuanshan Journal*, 262-263.

### Peer-reviewed Conference Papers

1. Wang, Q\*, Zhao, D., Gates, T., and Savolainen, P. (2021). “Development of virtual reality-based driving simulator for assessing digital speed feedback signs.” *Proc. the 2022 Construction Research Congress (CRC)*, accepted.
2. Duva, M\*, Mollaoglu, Zhao, D., and Frank, K. (2021). “Network topologies and team performance: A comparative study of AEC projects.” *Proc. the 2022 Construction Research Congress (CRC)*, accepted.
3. Chen, Z\*, and Zhao, D. (2021). “Relationship between student engagement and academic network properties.” *Proc. the 2022 Construction Research Congress (CRC)*, accepted.

4. Mo, Y\*, and Zhao, D. (2021). "Spatial analysis on routine occupant behavior patterns and associated factors in residential buildings." *Proc. the 2022 Construction Research Congress (CRC)*, accepted.
5. Mo, Y\*, Zhao, D., Kang, T., and Kim, J. (2021). "Analysis of energy use behaviors in residential buildings using real-world home energy sensors." *Proc. the 2021 International Conference of Computing in Civil Engineering (i3CE)*, accepted.
6. Mo, Y\* and Zhao, D. (2021). "Application of occupant behavior prediction model on residential big data analysis." *Proc. ACM Building System (BuildSys)*, under review.
7. Duva, M\*, Zhao, D., Mollaoglu, and Frank, K. (2021). "Knowledge exchanges in complex project networks: Influence model." *Proc. the 2022 Construction Research Congress (CRC)*, accepted.
8. Duva, M.\*, Mollaoglu, S., Zhao, D., and Frank, K. (2020). "Expertise flows in AEC projects: An analysis of multilevel teams for sustainability." *Proc. the 18th Engineering Project Organization Conference (EPOC)*. Virtual.
9. Mo, Y\*, Zhao, D., Sorce, J. (2020). "Daily occupant behavior pattern affecting energy use in residential buildings." *Proc. the 2020 Construction Research Congress (CRC)*, Tempe, AZ, March 8-10, 2020. <https://doi.org/10.1061/9780784482865.055>
10. Garcia, A.J., Duva, M.\*, Mollaoglu, S., Zhao, D., Frank, K., and Benitez, J. (2020). "Expertise flows and network structure in AEC project teams." *Proc. the 2020 Construction Research Congress (CRC)*, Tempe, AZ, March 8-10, 2020. <https://doi.org/10.1061/9780784482889.011>
11. Mo, Y.\*, Zhao, D., Syal, M. (2019). "Effective features to predict residential energy consumption using machine learning." *Proc. the ASCE International Conference on Computing in Civil Engineering*, Atlanta, GA, June 17-18, 2019. <http://doi.org/10.1061/9780784482445.036>
12. Zhao, D., Simmons, D. R., Duva, M.\* (2019). "Measuring students' class-level sense of belonging: A social-network-based approach." *Proc. the 154th American Society of Engineering Education Annual Conference*, Tampa, FL, June 16-19, 2019. <https://doi.org/10.18260/1-2--33093>
13. Zhao, D., Thakur, N.\*, and Chen, J. (2019). "Optimum network of battery storage to support electric vehicle charging infrastructure in smart cities." *Proc. the 52nd Hawaii International Conference on System Sciences (HICSS)*, Wailea, HI, January 2019. <https://doi.org/10.24251/HICSS.2019.237>
14. Agee, P., McCoy, A., Reichard, G., Kleiner, B., Zhao, D., & Paige, F. (2019). "Human factors of high performance multifamily housing." *Proc. the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Winter Conference*. Atlanta, GA, January 12-19, 2019.

15. Zhao, D., McCoy, A.P., Agee, P., Mo, Y., Paige, F. and Reichard, G. (2018). "Energy consumption, capital costs and paybacks of green buildings for low-income households in the United States: A longitudinal study." *Proc. the 8th International Symposium on Energy*; Aberdeen, Scotland, United Kingdom, August 6-9, 2018.
16. Zhao, D., Valdes-Vasquez, R., Simmons, R., and Parrish, K. (2018). "Assessing the graduate education in research methodology on sustainability topics." *Proc. the 2018 Construction Research Congress (CRC)*, New Orleans, LA, April 2-4, 2018.  
<https://doi.org/10.1061/9780784481301.011>
17. Mo, Y. \*, Zhao, D., Du, J., Liu, W., and Dhara, A.\* (2018). "Data-driven approach to scenario determination for VR-based construction safety training." *Proc. the 2018 Construction Research Congress (CRC)*, New Orleans, LA, April 2-4, 2018.  
<https://doi.org/10.1061/9780784481288.012>
18. Shi, Y., Du, J., Tang, P., and Zhao, D. (2018). "Characterizing the role of communications in teams carrying out building inspection." *Proc. the 2018 Construction Research Congress (CRC)*, New Orleans, LA, April 2-4, 2018.  
<https://doi.org/10.1061/9780784481271.054>
19. Paige, F., Philip Agee, P., Zhao D., McCoy, A. (2018). "The longitudinal impact of energy education on affordable energy efficient multifamily senior housing." *Proc. the 4th Residential Building Design and Construction Conference (RBDCC)*, State College, PA.
20. Mo, Y. \*, Zhao, D., Syal, M., and Aziz, A. (2017). "Construction work plan prediction for facility management using text mining." *Computing in Civil Engineering 2017*,  
<https://doi.org/10.1061/9780784480847.012>
21. Mo, Y. \*, Zhao, D., McCoy, A., Du, J., and Agee, P. (2017). "Latent relationship between construction cost takeoffs and energy efficiency for multifamily green buildings." *Computing in Civil Engineering*, 273-280. <https://doi.org/10.1061/9780784480847.034>
22. Zou, Z., Du, J., Shi, Y., and Zhao, D. (2017). "Simultaneous data exchange between BIM and VR for collaborative decision-making." *Computing in Civil Engineering 2017*,  
<https://doi.org/10.1061/9780784480830.001>
23. Zhao, D., McCoy, A. P., Agee, P., and Ladipo, T. (2016). "Impacts of housing technology and behavior on energy efficiency for affordable rental housing." *Proc. the 41st IAHS World Congress – Sustainability and Innovation for the Future*, Algarve, Portugal.
24. Zhao, D., McCoy, A. P., and Kleiner, B. M. (2016). "Do designers and builders share similar understanding of occupational safety and health risks?" *Proc., the 2016 Construction Research Congress (CRC)*, San Juan, Puerto Rico, pp. 2821-2830.  
<http://doi.org/10.1061/9780784479827.281>



25. Valdes-Vasquez, R., Simmons, D.R., Zhao, D., and Parrish, K. (2016). "Lessons learned from the Michael Horman symposium: developing a network of researchers and mentorship for sustainability topics." *Proc., the 2016 Construction Research Congress (CRC)*, San Juan, Puerto Rico. <http://doi.org/10.1061/9780784479827.129>
26. Zhao, D., Sanderford, A. R., and McCoy, A. P. (2016). "Homebuilder's confidence: a new index of land, labor, capital, and opportunities." *Proc., the 2016 American Real Estate Society Annual Conference (ARES)*, Denver, CO.
27. Zhao, D., Feng, Y., Ye, Y., and Suh, M. J. (2014). "Integrating safety culture into OSH risk mitigation via information technologies." *Lecture Notes in Electrical Engineering*, 241 LNEE, 335-344. [http://doi.org/10.1007/978-3-642-40078-0\\_29](http://doi.org/10.1007/978-3-642-40078-0_29)
28. Keefe, M., McCoy, A., Sanderford, A., and Zhao, D. (2014). "Adoption patterns of energy efficient housing technologies 2000–2010: Builders as innovators." *Proc., the 2nd Residential Building Design and Construction Conference*, Bethlehem, PA.
29. Zhao, D. (2014). "BIM-integrated group learning in construction education." *Proc., the 6th Conference on Higher Education Pedagogy*, Blacksburg, VA.
30. Feng, Y., Zhao, D., Wu, P., and Xia, B. (2013). "Risk compensation and safety interventions in construction site." *Proc., the 38th Australasian Universities Building Education Association Conference*, Auckland, New Zealand.
31. Zhao, D. (2013). "Merging habitus into safety risk management: A case from the U.S. construction industry." *Proc., the 7th IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, Bangkok, Thailand, 507 - 511. <http://doi.org/10.1109/IEEM.2013.6962463>
32. Zhao, D., Sands, K., Wang, Z., and Ye, Y. (2013). "Building Information Modeling-enhanced team-based learning in construction education." *Proc., the 12th International Conference on Information Technology Based Higher Education and Training (ITHET)*, Antalya, Turkey, 1-5. <http://doi.org/10.1109/ITHET.2013.6670999>
33. Zhao, D., Thabet, W., McCoy, A., and Kleiner, B. (2012). "Managing electrocution hazards in the US construction industry using VR simulation and cloud technology." *Proc., the 2012 European Conference of Product and Process Modeling (ECPM)*, Reykjavik, Iceland, 759-764. <http://doi.org/10.1201/b12516-120>
34. Zhao, D., and Ye, Y. (2012). "Using virtual environments simulation to improve construction safety: An application of 3D online-game based training." *Lecture Notes in Electrical Engineering*, 172 LNEE, 269-277. [http://doi.org/10.1007/978-3-642-31006-5\\_33](http://doi.org/10.1007/978-3-642-31006-5_33)
35. Zhao, D., Lucas, J., and Thabet, W. (2009). "Using virtual environments to support electrical safety awareness in construction." *Proc., the 2009 Winter Simulation Conference (WSC)*, Austin, TX, 2679-2690. <http://doi.org/10.1109/WSC.2009.5429258>

36. Zhao, D., and Ren, H., (2006). "The instauration of China construction labor market using international experiences." *Proc. Reform and Innovation of China Construction Labor Policy*, Beijing, China, Construction Industry Press, 10-14.

### **Book**

1. Sanderford, A. R., McCoy A. P., Zhao, D., and Koebel, T. (2016). *Case-specific Studies on Housing Innovation*. Momentum Press, New York, NY. ISBN-13: 978-1-60650-566-3

### **Book Chapters**

1. McCoy, A., Zhao, D., Mo, Y., Agee, P., Paige, F. (2019). "Latent Relationships between Construction Cost and Energy Efficiency in Multifamily Green Buildings," In David Ting & Rupp Carriveau (Ed.), *Energy Generation and Efficiency Technologies for Green Residential Buildings*. The Institution of Engineering and Technology (IET).
2. Zhao, D. (2014). "Mobile virtual reality: An approach for safety management," In Cecilia S. Lanyi (Ed.), *The Thousand Faces of Virtual Reality*. InTech Press. ISBN 978-953-51-1733-9.
3. Zhao, D., and Ren, H. (2008). "Constructing security systems for public housing in rural and urban areas," In *Blue Book of Chongqing Municipality*. Chongqing: Chongqing Press Group. ISBN 978-7-5366-9419-4, pp91-99

### **Research Reports/Abstracts/Others**

1. Zhao, D., and Duva, M., (2018). *Smart cities and infrastructure for Michigan*. A report to EDA University Center for Regional Economic Innovation, July 2018.
2. McCoy, A. Zhao, D., Agee, P., Mo, Y., & Paige, F. (2017). *Educating for Energy Efficiency: Longitudinal Evidence of Sustained Energy Savings in Virginia's Affordable Housing*. A Report by the Virginia Center for Housing Research (VCHR) at Virginia Tech for Housing Virginia. October 6, 2017.
3. Kleiner, B., and Zhao, D. (2017). *Preventing Fatalities in the Construction Industry*. Report to the Associated General Contractors of America (AGC).  
<https://www.agc.org/industry-priorities/safety-health/construction-fatalities-study-0>
4. McCoy, A., Zhao, D., et al. (2015). *Report: Impact of Energy Efficient Design and Construction on LIHTC Housing in Virginia*. Virginia Center for Housing Research, Virginia Tech, Blacksburg, VA.
5. Zhao, D., Kleiner, B., McCoy, A., and Mills, T. (2014). *Research on Safety in Construction Supply Chain*." The 2014 College of Architecture and Urban Studies Research Symposium, Virginia Tech, Blacksburg, VA.
6. Kleiner, B., McCoy, A., Chen, A., and Zhao, D. (2014). "A 'Whole Industry' Approach to Construction Safety through International Collaboration and Benchmarking." The 2014 Deans' Forum on Global Engagement, Virginia Tech, Blacksburg, VA

7. Kleiner, B., Zhao, D., et al. (2014). "From Finger-Pointing to Lifesaving: A Supply Chain Approach to Construction OSH." IC-SAFE, Virginia Tech, VA.
8. McCoy, A., Jones, M., Zhao, D., et al. (2014). Consolidated Plan for the Fairfax County, Virginia. Virginia Center for Housing Research, Virginia Tech, VA.
9. Ren, H, Liu, G., Zhao, D., and et al (2007). Design and Development of Public Housing in Chongqing Municipality: An Investigation Report. School of Construction Management and Real Estate, Chongqing University, China.

## **GRANTS AND CONTRACTS:**

### **External Competitive:**

1. Trends of occupational injuries and intervention on construction job sites. Job-site Safety Institute. \$29,504, 2021–2022, PI.
2. CAREER: Intelligent energy retrofit decisions for large-scale residential buildings. National Science Foundation. \$505,626, 2021–2026, PI.
3. Training tools for effective advancement of digital technologies for construction field operations. Michigan Department of Transportation. \$212,898, 2020–2022, Co-PI
4. REU for social network interventions. National Science Foundation. \$16,000, 2019–2020, Co-PI
5. Understanding impacts of social network interventions on engineering project outcomes. National Science Foundation. \$453,560, 2018–2021, Co-PI
6. Smart cities and transportation in Michigan. US Economic Development Administration, Center for Community and Economic Development. \$8,000, 2018–2019, PI.
7. Research on the operational costs and benefits of speed feedback signs. Michigan Department of Transportation. \$200,706, 2018–2020, Co-PI
8. Effects of energy education on the residential energy efficiency. Housing Virginia. \$3,000, 2016–2017, PI.
9. Work zone safety training grant. DOT Federal Highway Administration. \$2m, MSU: \$233,000, 2016–2021, Co-PI
10. Data mining on economic impacts and planning strategies for housing development. Virginia Housing Development Authority. \$615,138, MSU \$10,000, 2016–2018, MSU PI.
11. Tool of engagement measurement to propel academic success of students. National Science Foundation. \$891,857, 2016–2019, Co-PI
12. Data mining, analysis, and visualization for construction fatality and prevention. Associated General Contractors of America. \$22,406, MSU \$13,458, 2015–2016, MSU PI.

13. Construction economics, strategies, and planning. Better Housing Coalition. \$10,144, MSU \$5,000, 2015–2016, MSU PI.
14. Resident energy education as the next step for affordable housing. Housing Virginia. \$55,141, MSU \$10,000, 2016–2018, MSU PI.
15. Housing affordability sourcebook and playbook development. Housing Virginia. \$46,017, MSU \$3,000, 2016–2017, MSU PI.

### **Internal Competitive**

16. Development of an assistive App to improve mobility for people with hearing, vision, and developmental disabilities. MSU SPDC. \$15,000, 2019–2020, Co-PI with T. Qu.
17. Professional development microgrant. MSU CANR, \$2,820, 2018–2019, PI.
18. Enhanced teaching and learning environment for building information modeling (BIM) technology and practice. MSU TLE, \$3,509, 2017–2018, PI.
19. Professional development microgrant. MSU, CANR, \$3,000, 2016–2017, PI.
20. Sociotechnical systems of workplace injuries for residential construction. Virginia Tech. \$3,000, 2014–2015, PI.

### **PRESENTATIONS:**

#### **Invited Seminars & Talks**

- “Green building movement framework in societal perspective,” Tsinghua University, virtual/online, April 2021
- “Research career in building technologies and engineering management,” Tianjin University, virtual/online, March 2021.
- “Green building movement: paradigm and comparison,” Building Science and Technology Institute, Tsinghua University, virtual/online, March 2021.
- “Smart cities and infrastructure for Michigan,” Innovate Michigan! Summit, East Lansing, MI, September 2018.
- “Will green buildings improve housing affordability for sustainable cities?” Michigan State University, Urban Planning program, East Lansing, MI, September 2018.
- “Intelligent construction for automation and sustainability,” Robert Bosch LLC, Plymouth, MI, August 2018.
- “Occupant behaviors in smart buildings for housing affordability”, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, July 2018.
- “Human-technology interactions in smart buildings and cities,” Eindhoven University of Technology, Eindhoven, Netherlands, July 2018.
- “Energy efficiency in residential buildings beyond engineering,” University of Michigan, Ann Arbor, MI, May 2018.

- “Occupant behavior simulation and interventions for residential building energy efficiency,” National Lawrence Berkeley Lab, Berkeley, CA, April 2018.
- “Time effects of green building technologies on public housing.” Chongqing University, Chongqing, China, November 2017
- “Voice behavior in construction management.” Tianjin University, China, November 2017
- “Construction Industry and Construction Project Management.” BOSCH North America Vice President, East Lansing, MI, 2017.
- “Be a Spartan: Perspectives of research in built environment.” Michigan State University, School of Planning, Design and Construction, East Lansing, MI, 2015.
- “The game changer: BIM’s worldwide implementation.” Chongqing University, College of Built Environment, Chongqing, China, 2015
- “Toward the future of housing: leveraging technology and efficiency.” Chongqing University, Faculty of Built Environment, Chongqing, China, 2015.
- “Uncertainty management and risk mitigation in building design and construction.” Southwest Jiao Tong University, School of Economics & Management, Chengdu, China, 2015.
- “Market behavior effects on innovative green building technologies for US residential firms.” Southwest Jiao Tong University, School of Economics & Management, Chengdu, China, 2015.
- “Control measures of electrical hazards for construction workers.” Virginia Tech, CIB Chapter, Blacksburg, VA, 2015.

### **Conference Presentations**

- “Occupant behavior prediction model based on energy consumption,” 5th International Symposium on Occupant Behavior (OB-19), San Antonio, TX, March 13, 2019.
- “Effective features to predict residential energy consumption,” Presented with Y. Mo at the ASCE International Conference on Computing in Civil Engineering, Atlanta, GA, June 17-18, 2019.
- “Student sense of belonging and social network,” Presented at the 154<sup>th</sup> American Society of Engineering Education Annual Conference, Tampa, FL, June 17, 2019.
- “Optimum design of charging infrastructure network,” Presented at the Hawaii International Conference on System Sciences, Wailea, HI, January 8–11, 2019
- “Graduate education in research methodology on sustainability.” Co-presented with Valdes-Vasquez at the Construction Research Congress (CRC), New Orleans, LA, April 04, 2018
- “Data-driven approach to determine VR-based safety training scenario.” Co-presented with Mo, Y. at the Construction Research Congress (CRC), New Orleans, LA, April 03, 2018
- “Toward the future of housing efficiency: leveraging technology, behavior, education and cost.” Presented with A. McCoy, Keynote at International Congress on Engineering and

Sustainability in the XXI century – INCREaSE 2017, Faro, Portugal, October 11–13, 2017.

- “Sustaining energy efficiency: longitudinal evidence of Virginia’s low-income housing tax credit properties.” Co-presented with Agee, P., McCoy, A., Paige, F., and Mo, Y. at Virginia Housing Alliance 5th Annual Housing Credit Conference, Richmond, VA, September 25–26, 2017.
- “Latent relationship between construction cost and energy efficiency: an exploratory study.” Presented at International Workshop of Computing in Civil Engineering (IWCCE), Seattle, WA, June 25–27, 2017.
- “Construction work plan prediction for facility management using text mining.” Co-presented with Mo, Y., at International Workshop of Computing in Civil Engineering (IWCCE), Seattle, WA, June 25–27, 2017.
- “Impacts of housing technology and behavior on energy efficiency for housing in Virginia.” Co-presented with A. McCoy & P. Agee at the 41<sup>st</sup> International Association of Housing Science World Congress, Albufeira, Portugal, September 13–16, 2016.
- “Do designers and builders share similar understanding of OSH risks?” Presented at Construction Research Congress (CRC), San Juan, PR, May 31–June 2, 2016.
- “Energy consumption in residential buildings after adopting green building standards.” Present at International Conference on Sustainable Design, Engineering, and Construction, Tempe, AZ, 2016
- “Construction safety through international collaboration and benchmarking.” Co-presented with B. Kleiner at Virginia Tech Deans’ Forum on Global Engagement, Blacksburg, VA, 2014
- “Research on safety in construction supply chain.” Co-presented with B. Kleiner at Virginia Tech, CAUS Studies Research Symposium, Blacksburg, VA, 2014
- “Integrating safety culture into OSH risk Mitigation via information technologies.” Presented at Drexel University, Philadelphia, PA, 2014.
- “Team-based learning in building information modeling education.” Presented at the International Conference on Information Technology Based Higher Education and Training, Antalya, Turkey, 2012
- “Merging habitus into safety risk management.” Presented at IEEE International Conference on Industrial Engineering and Engineering Management, Bangkok, Thailand, 2012
- “Managing electrical hazards through VR and cloud technology in the US construction.” Presented at the European Conference of Product and Process Modeling in the Building Industry, Reykjavik, Iceland, 2012
- “Using virtual environments to support electrical safety awareness in construction.” Co-presented with J. Lucas at Winter Simulation Conference (WSC), Austin, TX, 2009

## **COURSES TEACHING:**

### **Michigan State University**

- CMP828: Advanced Virtual Design and Construction (Newly developed)
- CMP328: Construction Presentation Graphics and BIM (Redeveloped)
- CMP222: Statics & Strengths Materials
- CMP891: Advanced Topic in Construction Management – BIM
- PDC491: Special Topic in Planning, Design and Construction – BIM

### **Virginia Tech**

- CNST 5124: Integrated Construction Studio
- ISE 4994: Undergraduate Research - Data Mining

## **STUDENTS ADVISING:**

### **Committee Chair (with year of completion)**

- Meltem Duva, Ph.D., MSU, Construction Management, 2018- (*Co-Chair with S. Mollaoglu*)
- Yunjeong Mo, Ph.D., MSU, Construction Management, 2018. (*Now tenure-track faculty at University of North Florida*)
- Aditya Taware, M.S., MSU, Construction Management (Thesis), 2021-
- Shaisav Unager, M.S., MSU, Construction Management (Plan B), 2021-
- Shreshth Mangla, M.S., MSU, Construction Management (Thesis), 2021-
- Harsh Bakliwal, M.S., MSU, Construction Management (Plan B), 2021
- Nishchhal Pandey, M.S., MSU, Construction Management (Thesis), 2019- (*Co-Chair with S. Mollaoglu*)
- Zhiting Chen, M.S., MSU, Construction Management (Thesis), 2020.
- Qichao Wang, M.S., MSU, Construction Management (Plan B), 2020.
- Navwant Thakur, M.S., MSU, Construction Management (Thesis), 2017.
- Sahil Navlani, M.S., MSU, Construction Management (Plan B), 2017.

### **Committee Member (with year of completion)**

- Folarin Abatan, Ph.D., MSU, Civil Engineering, In progress
- Debrudra Mitra, Ph.D., MSU, Civil Engineering, In progress
- Nusayba Megat Johari, Ph.D., MSU, Civil Engineering, In progress
- Hadis Nouri, Ph.D., MSU, Civil Engineering, In progress
- Steven York Stapleton, Ph.D., MSU, Civil Engineering, 2020.
- Faizan Shafique, Ph.D., MSU, Construction Management, 2020.
- Zach Hansmann, Ph.D., MSU, Construction Management, 2019.
- Nishchay Pidiha, M.S., MSU, Construction Management (Thesis), 2021.
- Mrudul Patil, M.S., MSU, Construction Management (Thesis), 2020.

- Nitesh Dubey, M.S., MSU, Construction Management (Thesis), 2020.
- Reynolds, Lukas, M.S., MSU, Construction Management (Plan B), 2019.
- Harshal Shah, M.S., MSU, Construction Management (Plan B), 2017.
- Pranathi Ramaswamy, M.S., MSU, Construction Management (Plan B), 2017.
- Ana Beatriz Miotto, M.S., MSU, Construction Management (Plan B), 2017.

#### **Undergraduate Students (\* with honors)**

- Nick Guthrie, MSU, Computer Science, 2020–2021 (NSF- REU)
- Rachel Sanders\*, MSU, Construction Management, 2021
- Quinn Mickens, MSU, Construction Management, 2020
- Kendal Albrecht, MSU, Anthropology, 2019–2020 (MIDSURE - Undergraduate)
- Jack McClear, MSU, Construction Management, 2019–2020 (NSF-REU)
- Katie Cross, MSU, Construction Management, 2018–2019 (NSF-REU)
- Jackeline Benitez, California State University-Fullerton, 2019 (SRQP, co-advising with *S. Mollaoglu and K. Frank*)
- Patty Girardot, MSU, Construction Management, 2018–2019 (NSF-REU, **First-Place Award for MSU Undergraduate Research**)
- Carolyn Whiting, MSU, Construction Management, 2018–2019 (NSF-REU, **First-Place Award for MSU Undergraduate Research**)
- Zhiting Chen\*, MSU, Construction Management, 2018–2019 (*Recipient of NAHB Student Scholarship*)
- Yusuf Njoroge, MSU, Construction Management, 2017.

#### **Visiting Researchers**

- Dr. Wang L., Xi'an University of Architecture and Technology, China, 2017-18
- Dr. Jiang Y., Shandong Jianzhu University, China, 2016–2017

#### **SERVICES:**

##### **Reviewing for Agencies and Foundations**

- National Science Foundation (NSF), 2016, 17, 18, 19, 20, 21.
- Hong Kong Environmental Protection Department, 2017,18.
- Luxembourg National Research Foundation (FNR), 2021

##### **Editorships**

- Editorial Board, *Advances in Civil Engineering*, 2018–
- Editorial Board, *Buildings*, 2020–
- Guest Editor, *Buildings*, 2021–
- Guest Editor, *Advances in Civil Engineering*, 2018
- Review Editor, *Frontiers in Built Environment*, 2017–



## **Reviewing for Journals (50+ journals)**

*Accident Analysis & Prevention; Advanced Engineering Informatics; Advances in Civil Engineering; Applied Energy; Architectural Engineering & Design Management; ASCE Journal of Architectural Engineering; Journal of Building Engineering; ASCE Journal of Computing in Civil Engineering; ASCE Journal of Construction Engineering & Management; ASCE Journal of Management in Engineering; ASCE Journal of Civil Engineering Education; ASCE Journal of Professional Issues in Engineering Education & Practice; Automation in Construction; Building Research & Information; Buildings; Canadian Journal of Civil Engineering; Computer-Aided Civil & Infrastructure Engineering; Construction Innovation; Construction Management & Economics; Energy & Buildings; Energy & Environment; Energy Research & Social Science; Engineering; Engineering Computations; Engineering, Construction & Architectural Management; Environment, Development & Sustainability; Environmental Impact Assessment Review; Forests; IEEE Transactions on Sustainable Computing; IEEE Transactions on Visualization & Computer Graphics; International Journal of Construction Education & Research; Frontiers in Built Environment; Indoor & Built Environment; International Journal of Construction Management; International Journal of Environmental Research & Public Health; International Journal of Injury Control & Safety Promotion; International Journal of Strategic Property Management; Journal of Asian Architecture and Building Engineering; Journal of Computational Design and Engineering; Journal of Civil Engineering & Management; Journal of Cleaner Production; Journal of Energy Storage; Journal of Green Building; Journal of Urban Technology; Journal for Global Engineering Education; Habitat International; Renewable & Sustainable Energy Reviews; Resources, Conservation & Recycling; Safety Science; Safety & Health at Work; Sustainability; Sustainable Cities & Society; Sustainable Production & Consumption.*

## **Reviewing for Conferences**

- ASCE Construction Research Congress (CRC), 2016, 18, 20, 22
- ASCE International Conference on Computing in Civil Engineering, 2017, 19
- ASCE International Conference on Sustainable Design, Engineering and Construction, 2016
- ASCE International Structural Engineering and Construction Conference, 2017
- ASEE Annual Conference, 2016, 17, 18
- ASC Annual Conference, 2015
- IEEE Industrial Engineering and Engineering Management Conferences, 2015–
- CIB W78, CONVR, IGLC, 2017
- West Africa Built Environment Research Conference, 2013
- Winter Simulation Conference (WSC), 2020

## **Committees of Professional Organizations**

- Member at Large, ASCE Data Sensing & Analysis (DSA), 2021–
- Member, ASCE Data Sensing & Analysis (DSA), 2017–

- Member, ASCE Visualization, Information, Modeling, & Simulation (VIMS), 2017–
- Member, Construction Industry Institute Academic Committee, 2015–
- Member, Construction Research Council (CIB), 2016–

#### **Committees for Conferences**

- Scientific committee member, ASCE CRC, 2018
- Scientific committee member, CIB W78, CONVR, IGLC, 2017
- Scientific committee member, ASCE IWCCE, 2017, 19 (Session chair),
- Scientific committee member, ASCE ICSDEC, 2016
- Scientific committee member, IEEE IEEM, 2015
- Organizing committee member, CIB W78, 2010

#### **MSU Service:**

- SPDC Faculty Search Committee (Chair), 2021–2022
- SPDC Teaching Specialist Search Committee, 2021
- SPDC School Advisory Committee (SAC), 2020–
- SPDC Technology Committee, 2019–2021 (Co-Chair)
- SPDC Bylaws Review Committee, 2018–2021.
- SPDC Faculty Search Committee, 2019.
- MSU GATE Leadership Program, faculty advisor, 2018.
- CM Curriculum Review Committee, 2017, 18
- CM Great Lakes Builders Show Exhibit and Job Fair, Novi MI, 2016, 17
- SPDC Academic Advisor Search Committee, 2016
- CEE Doctoral Candidate Examination Committee, 2018–
- MSU High School Engineering Institute Summer Program, 2017–
- NSF Preparing African American Males for Energy & Education Program, 2017

#### **CERTIFICATIONS:**

- LEED Accredited Professional (BD+C), #10855929, US Green Building Council.
- Machine Learning Certificate, Stanford University
- Applied AI Professional Certificate, IBM

#### **PROFESSIONAL AFFILIATIONS:**

- American Society of Civil Engineers (ASCE)
- American Society of Engineering Education (ASEE)
- U.S. Green Building Council (USGBC)
- International Council for Building (CIB)
- Sigma Xi, The Scientific Research Honor Society

**MEDIA APPEARANCES:**

*MSU Today (featured), August 10, 2021; MSU Today, February 26, 2021; Fox News, April 20, 2017; MSU Today, April 19, 2017; InfoTrack Radio, July 16, 2016; Eco-Business, June 20, 2016; The Fifth Estate, Australia, June 14, 2016; Energy Daily, June 10, 2016; Science Daily, June 10, 2016; Phys.org, June 8, 2016; MSU Today, June 8, 2016*