

ERIC JING DU, PH.D.

Associate Professor (Construction Engineering)

Department of Civil and Coastal Engineering

Department of Industrial and System Engineering (Affiliate)

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Weil Hall 460F, 1949 Stadium Rd., Gainesville, FL 32611

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EDUCATION

Ph.D. in Construction Management, MICHIGAN STATE UNIVERSITY, East Lansing, MI, 2012

- Dissertation: *Investigation of Interpersonal Cooperation in Construction Project Teams: An Agent-Based Modeling Approach*

Master of Science, Business Administration, TIANJIN UNIVERSITY, Tianjin, China, 2008

- Thesis: *A Study of Employee Performance Evaluation System*

Bachelor of Arts, Business Administration, TIANJIN UNIVERSITY, Tianjin, China, 2004

- Thesis: *A Mathematical Model of Enterprise Resource Management*

Bachelor of Engineering, Civil Engineering, TIANJIN UNIVERSITY, Tianjin, China, 2004

- Thesis: *Automated FEA-based Structural Design using Visual Basic and ANSYS (APDL)*

ACADEMIC EXPERIENCE

Associate Professor, UNIVERSITY OF FLORIDA, Gainesville, FL 2019-

- Department of Civil and Coastal Engineering
- Department of Industrial and System Engineering (Affiliate)

Assistant Professor, TEXAS A&M UNIVERSITY, College Station, TX 2015-2019

- Department of Construction Science

Assistant Professor, UNIVERSITY OF TEXAS AT SAN ANTONIO, San Antonio, TX 2013-2015

- Department of Construction Science

Research Assistant, MICHIGAN STATE UNIVERSITY, East Lansing, MI 2008-2012

- Played a key role in research projects funded by CII, TRB and other agencies.
- Engaged in the writing of proposals for NSF, MDOT, TRB and other agencies.

INDUSTRY EXPERIENCE

Kiewit Faculty Scholar

Kiewit Offshore Services, INC., Corpus Christi, TX

2017

- Faculty intern at Kiewit Offshore Services in the summer.

Consultant

ZACHRY HOLDINGS, INC., San Antonio, TX 2014-2017

- Providing consulting service in the area of risk management.

Senior Production and Cost Analyst

ZACHRY HOLDINGS, INC., San Antonio, TX 2011-2013

- Oversaw CMIS and Qtrax for monthly earned value and projection reviews; analyze and build models to predict PF and S-Curve; prepare and share reports using Tableau and MS SharePoint.
- Built a project data warehouse with Access, SQL server and SharePoint to facilitate PMR and studies of ongoing EPC projects; seamless project data integration has been realized at Zachry.
- Led a study to assess planning and scheduling practices at Zachry (e.g., redundant ties and proper level of details) with Acumen Fuse indicators and Primavera 6.
- Developed 57 metrics to assess engineering, procurement and construction performance of ongoing EPC projects.
- Promote the company's contribution and leadership in the construction market by publishing papers in partnership with Directors; compiled a 300 page manual on advancing internal project controls.
- Investigate the effects of human factors on project performance, a collaborative effort with HR.
- Directed cost and schedule performance studies of billion dollar projects in collaboration with multiple departments.
- Drove an estimated \$2 million savings during a 4 year period by creating an innovative site layout optimization tool using Genetic Algorithm and Process Mapping to reduce the number of tractors.
- Launched a productivity and quantity "success library" database, the basis for many control decisions.
- Improved efficiency by 50% with a previously unattainable margin of error of 10% by developing a tool for the estimating department for automatic parametric estimation using Artificial Neural Nets.
- Managed risk control through a Monte Carlo simulation implemented on the Project Controls team.
- Evaluated cost escalation through Time Series Analysis (ARIMA) study to aid the Project Controls team.
- Captured the learning curve of cost and safety performance by proposing new indices.

Project Manager

TIANJIN FREE TRADE ZONE ADMIN COMMITTEE, China 2007-2008

- Managed and analyzed foreign investment projects including Amdocs China RandD Center "The best foreign investment project in Tianjin, 2008." American Tennis Club, and Tianjin-Langfang highway.
- Oversaw, maintained, and tracked several multi-billion dollar projects.
- Coordinated two key visits: Amdocs delegation and Economic Cooperation Organization delegation.
- Spearheaded all efforts of public agencies, investors, lawyers, and accounting firms for large infrastructure and commercial projects including Tianjin Free Trade Zone (TJFTZ) and Tianjin Airport Economic Area (TAEA), the 2nd largest economic development area in China.

Project Controls Specialist (Intern)

CHINA NATIONAL PETROLEUM CORPORATION, China 2003-2004

- Coordinated and integrated weekly reports from job site in Huanghua, Hebei province.
- The maintenance of a DMS system for Huanghua project office.

PUBLICATIONS

Published Peer-Reviewed Journal Papers

** Denotes students under my supervision; * Denotes Corresponding Author.

- [1] Zhou, T.**, Zhu, Q.**, **Du, J.***, (2020). “Intuitive Robot Teleoperation for Civil Engineering Operations with Virtual Reality and Deep Learning Scene Reconstruction”. *Advanced Engineering Informatics*. (46) 101170. (Impact Factor: 4.04)
- [2] Shi, Y.**, **Du, J.***, Zhu, Q.** (2020). “The Impacts of Engineering Information Format on Task Performance: Gaze Scanning Pattern Analysis”. *Advanced Engineering Informatics*. (46) 101167. (Impact Factor: 4.04)
- [3] Shi, Y.**, Zhu, Y., Mehta, R. and **Du, J.*** (2020). “A Neurophysiological Approach to Assess Training Outcome under Stress: A Virtual Reality Experiment of Industrial Shutdown Maintenance using Functional Near-Infrared Spectroscopy (fNIRS)”. *Advanced Engineering Informatics*. (46) 101153. (Impact Factor: 4.04)
- [4] Shi, Y.**, and **Du, J.***, Worthy, D. (2020). “The Impact of Engineering Information Formats on Learning and Execution of Construction Operations: A Virtual Reality Pipe Maintenance Experiment”. *ELSEVIER Automation in Construction*. (119) 1033637 (ISSN: 0926-5805, Impact Factor: 4.437)
- [5] **Du, J.***, Zhao, D., Issa, R., and Singh, N.** (2020). “BIM for Improved Project Communication Networks: Empirical Evidence from Email Logs”. *ASCE Journal of Computing in Civil Engineering* (34) 5. (ISSN: 0887-3801, Impact Factor: 2.55).
- [6] Mo, Y., Zhao, D.*, **Du, J.**, Syal, M., Aziz, A., and Li, H. (2020). “Automated Staff Assignment for Building Maintenance using Natural Language Processing”. *ELSEVIER Automation in Construction*. 113 (2020): 103150. (ISSN: 0926-5805, Impact Factor: 4.437)
- [7] Shi, Y.**, **Du, J.***, and Ragan, E. (2020). “Review Visual Attention and Spatial Memory in Building Inspection: Toward a Cognition-driven Information System”. *ELSEVIER Advanced Engineering Informatics*. (44) 101061. (ISSN: 1474-0346, Impact Factor: 4.04)
- [8] **Du, J.***, Zhu, Q.**, Shi, Y.**, Wang, Q., Lin, Y., and Zhao D.** (2020). “Cognition-Digital Twins (Cog-DT) for Personalized Information Systems of Smart Cities – A Proof of Concept”. *ASCE Journal of Management in Engineering*. 36 (2), 04019052. (ISSN: 0742-597X, Impact Factor: 3.269)
- [9] Ligmann-Zielinska, A., Siebers, P., Maglioccia, N., Parker, D., Grimm, V., **Du, J.**, Cenek, M., Radchuk, V., Arbab, N., Li, S., Berger, U., Paudel, R., Robinson, D., Jankowski, P., An, L., Ye, X. (2019). “‘One size does not fit all’: a roadmap of purpose-driven mixed-method pathways for sensitivity analysis of agent-based models”. *Journal of Artificial Societies and Social Simulation* (JASSS). 23 (1). (ISSN: 1420-7425, Impact Factor: 2.194)
- [10] Shi, Y.**, **Du, J.***, Ahn, C., Ragan, E. (2019). “Impact Assessment of Reinforced Learning Methods on Construction Workers’ Fall Risk Behavior using Virtual Reality”. *ELSEVIER Automation in Construction* 104 (2019) 197-214. (ISSN: 0926-5805, Impact Factor: 4.437)
- [11] Yiu, Y.**, **Du, J.***, and Mahapatra, R. (2019). “Evolutionary Heuristic A* Search: Pathfinding Algorithm with Self-Designed and Optimized Heuristic Function”. *International Journal of Semantic Computing*, 13(01), 5-23.

- [12] Basavaraju, A., **Du, J.**, Zhou, F., and Ji, J*. (2019). "A Machine Learning Approach to Road Surface Anomaly Assessment using Smartphone Sensors". *IEEE Sensors*. vol. 20, no. 5, pp. 2635-2647. (ISSN 1558-1748, Impact Factor: 3.269)
- [13] Zhang, J.***, **Du, J.***, Yiu, J. and Ligmann-Zielinska, A. (2019). "Improved Global Sensitivity Analysis for Critical Factor Analysis with Intercorrelated Inputs: Power Plant Cost Example". *ASCE Journal of Computing in Civil Engineering*. 33(4). (ISSN: 0887-3801, Impact Factor: 2.31).
- [14] **Du, J.***, Zhao, D., Zhang, O. (2018). "Impacts of Human Communication Networks on Collective Optimism Bias: A Human Subject Experiment". *Construction Management and Economics*, 2018 (10), 1-17. (ISSN: 0144-6193, Impact Factor: 1.21)
- [15] **Du, J.***, Wang, Q., and Shi, Q. (2018). "Experience Based Decision under Imperfect Information – Information Continuum and Aggressive Cost Estimating in Capital Projects". *Engineering, Construction and Architectural Management* (Vol. 26 No. 6, pp. 1151-1170). (ISSN: 0969-9988, Impact Factor: 1.44)
- [16] **Du, J.***, Zou, Z.***, Shi, Y.***, and Zhao, D. (2018). "Real-time Synchronization of BIM data in Virtual Reality for Collaborative Decision-Making". *ELSEVIER Automation in Construction*, 2018 (85), 51-64. (ISSN: 0926-5805, Impact Factor: 4.437)
- [17] Akhavan, A., Phillips, N., **Du, J.**, Chen, J., Sadeghinassr, B., and Wang, Q.*(2018). "Accessibility Inequality in Houston." *IEEE Sensors Letters*. 2018 Nov 22.
- [18] Jiang, Y., Zhao, D.* , 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. (ISSN 2071-1050, Impact Factor: 1.34)
- [19] Rincon, J.***, Fernandez-Solis, J., Lavy, S., **Du, J.** (2018). "Stakeholder 'Autonomous Agent' Affecting Last Planner System Performance in Texas". *ASCE Journal of Management in Engineering*. 35.1 (2018): 04018050. (ISSN: 0742-597X, Impact Factor: 3.269)
- [20] **Du, J.***, Shi, Y.***, Zou, Z.***, and Zhao, D. (2017). "A Cloud-based Multiuser Virtual Reality Headset System for Project Communication of Remote Members". *ASCE Journal of Construction Engineering and Management*, 144 (2). (ISSN: 0733-9364, Impact Factor: 1.735)
- [21] Zhao, D.* , McCoy, A.P., **Du, J.**, Agee, P. and Lu, Y. (2017). "Interaction Effects of Building Technology and Resident Behavior on Energy Consumption in Residential Buildings". *ELSEVIER Energy and Buildings*, 134, 223-233. (ISSN: 0378-7788, Impact Factor: 4.599)
- [22] Olabisi, L.S.* , Saweda L.T., Rivers, L., Ligmann-Zielinska, A., **Du, J.**, Denny, R., Marquart-Pyatt, S., and Sidibé., A. (2017) "Using Participatory Modeling Processes to Identify Sources of Climate Risk in West Africa." *Environment Systems and Decisions* (2017): 1-10. (ISSN: 2194-5403, Impact Factor: 0.59)
- [23] Denny, R. C., Marquart-Pyatt, S. T.* , Ligmann-Zielinska, A., Olabisi, L. S., Rivers, L., **Du, J.**, and Liverpool-Tasie, L. S. O. (2017). "Food Security in Africa: a Cross-Scale, Empirical Investigation using Structural Equation Modeling". *Environment Systems and Decisions* (2017): 1-17. (ISSN: 2194-5403, Impact Factor: 0.59)
- [24] Whitley, C. T., Rivers III, L.* , Mattes, S., Marquart-Pyatt, S. T., Ligmann-Zielinska, A., Olabisi, L. S., and **Du, J.** (2017). "Climate-Induced Migration: Using Mental Models to Explore Aggregate and Individual Decision-Making". *Journal of Risk Research*, 1-17. (ISSN: 1366-9877, Impact Factor: 1.34)

- [25] He, S.** , **Du, J.***, and Huang, J. (2017). “A Singular Value Decomposition Feature Extraction (SVD FE) for Cost Prediction”. *ASCE Journal of Computing in Civil Engineering*, 31.5 (2017): 04017043.
(ISSN: 0887-3801, Impact Factor: 2.31)
- [26] Liu, R.* , **Du, J.**, Issa, R., and Giel, B. (2016). “BIM Cloud Score: Building Information Model and Modeling Performance Benchmarking”. *ASCE Journal of Construction Engineering and Management*, 04016109.
(ISSN: 0733-9364, Impact Factor: 1.735)
- [27] **Du, J.***, and El-Gafy, M. (2016). “A Cloud Based Shareable Library of Cooperative Behaviors in Construction Project Teams for Agent Based Modeling”. *ELSEVIER Automation in Construction*, (2016) 62. 89-100.
(ISSN: 0926-5805, Impact Factor: 4.437)
- [28] Shi, Y.** , **Du, J.***, Lavy, S., Zhao, D. (2016). “A Multiuser Shared Virtual Environment for Facility Management”. *Procedia Engineering*, (145), 120-127.
(ISSN: 1877-7058, Impact Factor: 0.73)
- [29] Zhao, D.* , McCoy, A., **Du, J.** (2016). “An Empirical Study on the Energy Consumption in Residential Buildings after Adopting Green Building Standards”. *Procedia Engineering*, (145), 766-773. (ISSN: 1877-7058, Impact Factor: 0.73)
- [30] **Du, J.***, El-Gafy, M., and Zhao, D. (2015). “Optimization of Change Order Administrative Process by Object-Oriented Discrete Event Simulation: A Case Study”. *ASCE Journal of Construction Engineering and Management*, (2015): 05015018.
(ISSN: 0733-9364, Impact Factor: 1.735)
- [31] Zhao, D.* , McCoy, A., Kleiner, B., **Du, J.**, and Smith-Jackson, T. (2015). “Decision-Making Chains in Electrical Safety for Construction Workers”. *ASCE Journal of Construction Engineering and Management*, 142.1 (2015): 04015055.
(ISSN: 0733-9364, Impact Factor: 1.735)
- [32] **Du, J.***, Kim, B., and Zhao, D. (2015). “Cost Performance as a Stochastic Process: EAC projection by Markov Chain Simulation”. *ASCE Journal of Construction Engineering and Management*, (2015): 04016009.
(ISSN: 0733-9364, Impact Factor: 1.735)
- [33] **Du, J.*** and Arika Ligmann-Zielinska (2015). “The Volatility of Data Space: Topology Oriented Sensitivity Analysis”. *PLOS ONE*. 10.9 (2015): e0137591.
(ISSN: 1932-6203, Impact Factor: 2.806)
- [34] **Du, J.*** and El-Gafy, M. (2015). “Organizational Learning Enabled by Human Computation: Example of Conceptual Estimating”. *Journal of Information Technology in Construction (ITcon)*, Vol. 20, pg. 275-294.
(ISSN: 1874-4753, Impact Factor: 1.08)
- [35] **Du, J.***, Liu, R., and Issa, R. (2014). “BIM Cloud Score: Benchmarking BIM Performance”. *ASCE Journal of Construction Engineering and Management*, 140(11), 04014054. **2015 Journal Best Paper Award.**
(ISSN: 0733-9364, Impact Factor: 1.735)
- [36] **Du, J.***, and El-Gafy, M. (2014). “Using Agent Based Modeling to Investigate Goal Incongruence Issues in Proposal Development - Case Study of an EPC Project”. *ASCE Journal of Management in Engineering*. 10.1061, 05014025.

(ISSN: 0742-597X, Impact Factor: 2.011)

- [37] Liu, R.*, **Du, J.**, and Issa, R. (2014). “Cloud-based Deep Immersive Game for Human Egress Data Collection: A Framework”. *Journal of Information Technology in Construction (ITcon)*. Vol 19, 336-349.
(ISSN: 1874-4753, Impact Factor: 1.08)
- [38] **Du, J.*** (2014). “The ‘Weight’ of Models, and Complexity”. *Complexity*. doi: 10.1002/cplx.21612.
(ISSN: 1076-2787, Impact Factor: 4.621)
- [39] **Du, J.***, and Bormann, J. (2014). “Improved Similarity Measure in Case Based Reasoning with Global Sensitivity Analysis: An Example of Construction Quantity Estimating”. *ASCE Journal of Computing in Civil Engineering*, 28(6), 04014020.
(ISSN: 0887-3801, Impact Factor: 2.31)
- [40] **Du, J.** and El-Gafy, M.*, (2012). “Virtual Organizational Imitation for Construction Enterprises (VOICE): An Agent Based Simulation Framework for Exploring Human and Organizational Implications in Construction Management”. *ASCE Journal of Computing in Civil Engineering*, 26 (3), 282-297.
(ISSN: 0887-3801, Impact Factor: 2.31)
- [41] **Du, J.*** and Wang, Q., (2011). “Exploring Reciprocal Influence between Individual Shopping Travel and Urban Form: Agent-Based Modeling Approach”. *ASCE Journal of Urban Planning and Development*. 137(4), 390-401.
(ISSN: 0733-9488, Impact Factor: 1.99)
- [42] **Du, J.** and El-Gafy, M.*, (2011). “Feasibility Analytical Mapping (FAM) for Bidding Decision: A Graphic Bidding Decision Making Model using Multidimensional Scaling and Discriminant Analysis”. *ASC International Journal of Construction Education and Research*. 7 (3), 198-209.
(ISSN: 1557-8771, Impact Factor: 0.45)
- [43] **Du, J.*** and Zhao, L. M., (2008). “Theoretical and Empirical Research on Performance Graph”. *Journal of Statistics and Decision*, 2008 No.1
- [44] **Du, J.*** and Zhao, L. M., (2008). “The Limitations of Principal Component Analysis in Comprehensive Evaluation”. *Journal of Inner Mongolia Agricultural University*, 2008 No.1
- [45] **Du, J.***, (2007). “The Status Quo and Development Forecast of the Service Industry in Hebei: An International Comparative Research”. *Journal of Modern Business*, 2007 No.18
- [46] **Du, J.***, (2007). “A Graphic Model for Evaluating and Developing Employee Performance and Its Empirical Study”. *International Journal of Business and Management*, 2007 No.5
- [47] **Du, J.*** and Zhao, L. M., (2006). “A Vector Analysis Model of Employee Performance”. *Journal of Dalian University of Technology*, Vol.27 No.4

Published Peer-Reviewed Conference Proceedings

** Denotes students under my supervision; * Denotes Corresponding Author.

- [48] Zhu, Q.**, Wei, P.**, Shi, Y.**, **Du, J.*** (2020). “Cognitive Benefits of Human-Robot Collaboration in Complex Industrial Operations: A Virtual Reality Experiment”. *2020 ASCE Construction Research Congress (CRC 2020)*.
- [49] Shi, Y.**, **Du, J.***, Zhu, Q.**, Liu, X.** (2020). “The Impact of Engineering Information Formats on Workers’ Cognitive Load in Working Memory Development”. *2020 ASCE Construction Research Congress (CRC 2020)*.

- [50] Shi, Y.**, Zheng, Y.**, **Du, J.***, Zhu, Q.**, Liu, X.** (2020). “The Impact of Engineering Information Complexity on Working Memory Development of Construction Workers”. *2020 ASCE Construction Research Congress (CRC 2020)*.
- [51] Wang, Y., Wang, Q.*, **Du, J.**, and Lin, Y. (2020). “Comparison and Quantification of Cognitive Load generated by Sternberg Test using EEG Signals”. *2020 ASCE Construction Research Congress (CRC 2020)*.
- [52] Shi, Y.**, and **Du, J.*** (2019). “Simulation of Spatial Memory for Human Navigation Based on Visual Attention in Floorplan Review.” *IEEE Winter Simulation Conference (WSC) 2019*. Accepted.
- [53] Shi, Y.**, **Du, J.***, Zhu, Q.**, and Liu, X.** (2019). “The Impact of Engineering Information Formats on Workers’ Cognitive Load in Working Memory Development.” *2020 Construction Research Congress (CRC)*. Accepted.
- [54] Shi, Y.**, Zheng, Y.**, **Du, J.***, Zhu, Q.**, and Liu, X.** (2019). “The Impact of Engineering Information Complexity on Working Memory Development of Construction Workers.” *2020 Construction Research Congress (CRC)*. Accepted.
- [55] Zhu, Q.**, Wei, P.**, Shi, Y.**, and **Du, J.*** (2019) “Cognitive Benefits of Human-Robot Collaboration in Complex Industrial Operations: A Virtual Reality Experiment.” *2020 Construction Research Congress (CRC)*. Accepted.
- [56] Wang, Y., Wang, Q.*, **Du, J.**, and Lin, Y. (2019). “Comparison and Quantification of Cognitive Load generated by Sternberg Test using EEG Signals.” *2020 Construction Research Congress (CRC)*. Accepted.
- [57] Shi, Y.,** **Du, J.***, Sargunam, S.**, Ragan, E., and Zhu, Q.** (2019). “First Responders’ Spatial Working Memory of Large-scale Buildings: Implications of Information Format”. *The 2019 ASCE International Conference on Computing in Civil Engineering (i3CE)*. Accepted.
- [58] Zhu, Q.**, **Du, J.***, Shi, Y., Wang, Q., and Lin, Y. (2019). “Participatory and Evolutionary Fire Simulation via a Sensitive Control of Key Scenery Parameters”. *The 2019 ASCE International Conference on Computing in Civil Engineering (i3CE)*. Accepted.
- [59] **Du, J.***, Li, Z.**, and Wang, C. (2019). “Automated Road Damage Recognition based on the Sparse Coding Analysis of Vehicle Vibrations”. *2019 Conference of The Transportation Consortium of South-Central States (Tran-SET)*. Accepted.
- [60] Yiu, Y.,** **Du, J.***, and Mahapatra, R. (2018). “Evolutionary Heuristic A* Search: Heuristic Function Optimization via Genetic Algorithm”. *2018 IEEE International Conference on Artificial Intelligence and Knowledge Engineering (AIKE)*.
- [61] Shi, Y.**, **Du, J.***, Tang, P. (2018). “Characterizing the Role of Communications in Teams Carrying Out Building Inspection”. *2018 Construction Research Congress (CRC)*.
- [62] Shi, Y.**, **Du, J.***, Ragan, E., Choi, K. (2018). “Social Influence on Construction Safety Behaviors: A Multi-user Virtual Reality Experiment”. *2018 Construction Research Congress (CRC)*.
- [63] Mo., Y., Zhao, D.*, and **Du, J.** (2018), “Data-driven Approach to Scenario Determination for VR-based Construction Safety Training”. *2018 Construction Research Congress (CRC)*.
- [64] **Du, J.***, Zou, Z.**, Shi, Y.**, and Zhao, D. (2017). “Simultaneous Data Exchange Between BIM and VR for Collaborative Decision-Making”. *2017 International Workshop on Computing in Civil Engineering (IWCCCE2017)*. Seattle, WA.

- [65] Mo, Y., Zhao, D.*, McCoy, A., **Du, J.**, and Agee, P. (2017). “Latent Relationship between Construction Cost and Energy Efficiency in Multifamily Green Buildings.” *2017 International Workshop on Computing in Civil Engineering (IWCCE2017)*. Seattle, WA.
- [66] **Du, J.** *, Shi, Y.**, Mei, C., Quarles, J. and Yan, W. (2016). “Communication by Interaction: A Multiplayer VR Environment for Building Walkthrough”. *Proceedings of the 2016 ASCE Construction Research Congress (CRC2016)*. San Juan, Puerto Rico. May 31- June 2, 2016.
- [67] Zhou, Y.**, **Du, J.** *, Shi, Q., Horlen, J. (2016). “Directive versus empowering leadership in temporary project teams: An Agent Based Modeling Approach”. *Proceedings of the 2016 ASCE Construction Research Congress (CRC2016)*. San Juan, Puerto Rico. May 31- June 2, 2016.
- [68] Kalasapudi, V., Tang, P.*, **Du, J.** (2016). “Automatic Correlated Vibration Pattern Analysis for Rapid Remote Scour Assessment of Civil Infrastructures”. *Proceedings of the 2016 ASCE Construction Research Congress (CRC2016)*. San Juan, Puerto Rico. May 31- June 2, 2016.
- [69] **Du, J.** *, and Ligmann-Zielinska, A. (2015). “The Evolution of Three Simulation Paradigms: System Dynamics, Discrete Event Simulation and Agent Based Modeling”. *Poster of the 2015 Winter Simulation Conference*, Huntington Beach, CA
- [70] Wang, Q.*, and **Du, J.** (2015). “A Scenario Simulation Study of Decentralization of Architecture, Engineering and Construction Companies”. *Proceedings of the 2015 Winter Simulation Conference*. Huntington Beach, CA
- [71] **Du, J.** *, and El-Gafy, M. (2015). “Implications of Micro-Management in Construction Projects – An Agent Based Modeling Approach”. *ASCE 2015 International Workshop of Computing in Civil Engineering*. Austin, TX.
- [72] **Du, J.** *, and Liu, R. (2015). “A Statistical Analysis of the Influences of Educational and Attitudinal Factors on the Academic Performance in a Construction Materials and Testing Class”. *51st ASC Annual Conference*. College Station, TX.
- [73] **Du, J.** *, and El-Gafy, M. (2014). “Modeling Organizational Behaviors of Construction Enterprises: An Agent Based Modeling Approach”. *Proceedings of the 2014 Winter Simulation Conference*, 3341-3362.
- [74] **Du, J.** *, Liu, R. and Hatipkarasulu, Y (2014). “Cloud Based Interactive Probabilistic Simulation for the AEC Industry”. *ASCE ICCCB E 2014 conference*. Orlando, FL.
- [75] **Du, J.** *, and Liu, R. (2014). “On the Edge of Human Computation: Interactive Parametric Estimating Paradigm”. *ASCE ICCCB E 2014 conference*. Orlando, FL.
- [76] Liu, R.* , **Du, J.**, and Issa, R. (2014). “Human Library for Emergency Evaluation in BIM-based Serious Game Environment”. *ASCE ICCCB E 2014 conference*. Orlando, FL.
- [77] Liu, R.* , **Du, J.**, and Issa, R. (2014). “Cloud-based Deep Immersive Game for Human Egress Data Collection”. *2014 International Conference on Innovative Technologies in Construction (ITC 2014)*. Shenyang, China. **Best Paper Award**.
- [78] **Du, J.** *, Hatipkarasulu, Y and Liu, R. (2014). “Interactive Probability Simulation for Construction Engineering and Management”. *ASEE 2014 conference*. Indianapolis, IN.
- [79] **Du, J.** *, and Gunhan, S. (2014). “Developing a Statistical Model for Building Settlement Prediction”. *ASEE 2014 conference*. Indianapolis, IN.
- [80] Gunhan, S.* , Judie, Y. and **Du, J.** (2014). “Covering Advanced Construction Management Topics with Diverse Student Body”. *ASEE 2014 conference*. Indianapolis, IN.

- [81] Becker, T. C., Jaselskis, E. J.*, El-Gafy, M. and **Du, J.**, (2012) "Industry Practices for Estimating, Controlling and Managing Key Indirect Construction Costs at the Project Level", *ASCE Construction Research Commission 2012 (CRC 2012)*. West Lafayette, Indiana.
- [82] **Du, J.** *, El-Gafy, M. and Ghanem, A., (2012) "Adding Value to Change Order Management Process Using Simulation Approach: A Case Study." *48th Associated Schools of Construction (ASC) Annual International Conference Proceedings*. Birmingham, UK
- [83] **Du, J.** and El-Gafy, M.*, (2010). "Towards an Agile Alignment: Exploring Implications of Social Aspects in Construction Organizations". *2010 Engineering Project Organizations Conference (EPOC)*. South Lake Tahoe, California.
- [84] **Du, J.** and El-Gafy, M.*, (2010). "Examining Complex Adaptive Systems and Agent-Based Modeling for Improving Decision Makings in Construction Organizations". *27th International Conference of CIB W078*. Cairo, Egypt.
- [85] **Du, J.** and El-Gafy, M.*, (2010). "Developing a Graph-based Bidding Decision Making Model using Information Visualization". *2nd International Conference on Construction in Developing Countries (ICCIDC-II)*. Cairo, Egypt.
- [86] **Du, J.** and El-Gafy, M.*, (2010). "Analyzing construction performance using Agent Based Modeling". *Second International Conference on Construction in Developing Countries (ICCIDC-II)*. Cairo, Egypt.
- [87] **Du, J.** and El-Gafy, M.*, (2010). "Virtual Organizational Imitation for Construction Enterprises (VOICE): Managing business complexity using Agent Based Modeling". *ASCE Construction Research Commission 2010 (CRC 2010)*. Banff, Canada.

Book Chapter

- [88] Ligmann-Zielinska A.*, **Du, J.**, Rivers III L, Liverpool-Tasie S, Denny R C H, Wood A L, Sanga U,Marquart-Pyatt S, Breeze V, Paudel R, and Schmitt Olabisi L, (2017). "Principles of Participatory Ensemble Modeling to Study Complex Socioecological Systems in Innovations in Collaborative Modeling (Porter W F, Zhao J, Schmitt Olabisi L, McNall M, Eds.)" *Transformations in Higher Education: The Scholarship of Engagement Series*, Michigan State University Press (in print).

Magazine Articles

- [89] **Du, J.** (2015). "Facebook Timeline Tracks Century of Construction Technology". *Engineering News-Record (ENR)*. <https://www.enr.com/articles/17215-facebook-timeline-tracks-century-of-construction-technology?v=preview>

Research Reports

- [90] Jaselskis, E., El-Gafy, M., Becker, T. and **Du, J.** (2012). Estimating, Controlling and Managing Indirect Construction Costs. RT282 Research Report to the Construction Industry Institute, Austin, TX.
- [91] Jaselskis, E., El-Gafy, M., Becker, T. and **Du, J.** (2012). The Playbook: Industry Practices of Estimating, Controlling and Managing Indirect Construction Costs. RT282 Implementation Resource to the Construction Industry Institute, Austin, TX.
- [92] Jaselskis, E., El-Gafy, M., Becker, T. and **Du, J.** (2012). Research Summary of RT282. RT282 Research Summary to the Construction Industry Institute, Austin, TX.

- [93] El-Gafy, M. and **Du, J.** (2011). Policy Directions and Public Opinion on Construction Sustainability as a Job Creator in Michigan’s Green Economy. Research Report to MAPPRP (Michigan Applied Public Policy Research Projects), East Lansing, MI.

Other Publications

- [94] **Du, J.** (2012). “Investigation of Interpersonal Cooperation in Construction Project Teams: An Agent-Based Modeling Approach”. Ph.D. Dissertation, Construction Management program at Michigan State University, East Lansing, MI.
- [95] **Du, J.** (2008). “A Study of Employee Performance Evaluation System”. Master’s Thesis, School of Management at Tianjin University, Tianjin, China.
- [96] **Du, J.** (2004). “A Mathematical Model of Enterprise Resource Management”. Bachelor Thesis, School of Management at Tianjin University, Tianjin, China.
- [97] **Du, J.** (2004). “Automatic FEA Based Structural Design Using Visual Basic and ANSYS (APDL)”. Bachelor Thesis, School of Civil Engineering at Tianjin University, Tianjin, China.

RESEARCH GRANTS

Funded (TOTAL: \$8.59 MILLION; MY PORTION: \$2.14 MILLION)

- “Collaborative Research: NRI: INT: ForceBot: Customizable Robotic Platform for Body-Scale Physical Interaction Simulation in Virtual Reality”. Sep 2020 – Aug 2024, **PI. National Science Foundation (NSF)**. \$312,985; Amount Attributed to me: \$312,985.
- “RAPID: Collaborative Research: High-Frequency Decisional, Motivational and Sentimental Data Collection for Human Mobility Prediction during COVID-19”. May 2020 – May 2021, **PI. National Science Foundation (NSF)**. \$66,515; Amount Attributed to me: \$66,515.
- “Convergence Accelerator Phase I (RAISE): Learning Environments with Advanced Robotics for Next-Generation Emergency Responders (LEARNER)”. September 2019 – May 2020, **Co-PI. National Science Foundation (NSF)**. \$999,327; Amount Attributed to me: \$127,129.
- “B2: Learning Environments with Augmentation and Robotics for Next-gen Emergency Responders (LEARNER) “. September 2020 – August 2022, **Co-PI. National Science Foundation (NSF)**. \$4,998,274; Amount Attributed to me: \$649,988
- “Collaborative Research: Less is More: Personalized Spatial Information System Based on Real-Time Cognitive Load for First Responders in Emergency Indoor Wayfinding”. June 2018 – May 2021, **PI. National Science Foundation (NSF)**. \$416,677; Amount Attributed to me: \$235,339.
- “Cognition-driven Display for Navigation Activities (Cog-DNA): Personalized Spatial Information System Based on Information Personality of Firefighters”. June 2018 – May 2021, **PI. National Institute of Standards and Technology (NIST)**. \$463,413; Amount Attributed to me: \$265,576.
- “Intelligent Building Inspection System based on Augmented Reality”. March 2020 – March 2021, **PI. C.A.P. Government, Inc.** \$70,681; Amount Attributed to me: \$70,681.

- “Hostile Intent Prediction based on Gaze Movement Trajectory in Indoor Navigation”. May 2018 – April 2019, **PI**
TAMU T3 Seed Grant. \$35,000; Amount Attributed to me: \$25,000.
- “Enhancing Flood Resiliency in an Underserved Neighborhood”. Oct 2017 – Sep 2018, **Co-PI**
TAMU Interdisciplinary Research Seed Grant. \$25,000; Amount Attributed to me: \$5,000.
- “IBSS: Participatory Ensemble Modeling to Study the Multiscale Social and Behavioral Dynamics”. August 2014 – July 2018, **Co-PI**
National Science Foundation (NSF). \$999,793; Amount Attributed to me: \$187,695.
- “Optimize Road Preventive Maintenance Decisions based on Running Vehicles’ Vibration Data”. May 2018 – October 2019, **PI**
US DOT - TranSET. \$100,000; Amount Attributed to me: \$50,000.
- “Building Information Modeling Supported Building Life Cycle Management: On the Edge of Total Information Management”. Sep 2014 – Aug 2015, **Co-PI**
Fiotech. \$68,220; Amount Attributed to me: \$20,000.
- “Enhance Project Controls by Quantitative Approaches”. April 2014 – August 2017, **PI**
Zachry Holdings, Inc. \$116,264 (sole PI).
- “A Cloud-Based Benchmarking Tool for Building Information Modeling (BIM)”. September 2014 – August 2015, **PI**
UTSA INTRA Grant. \$5,000. (sole PI).

GRADUATE STUDENT SUPERVISION

Name	Degree	Graduation (or estimate)	Topic	Role
Yangming Shi	PhD (UF)	Aug 2020	VR-based Intelligent Information Systems for pipefitting operations	Chair
Qi Zhu	PhD (UF)	Aug 2021	VR-based robotic teleoperation system for power plant maintenance and operations	Chair
Tianyu Zhou	PhD (UF)	May 2022	Situational awareness enhancement in civil engineering operations via deep learning and game engine development	Chair
William Vann	PhD (UF)	May 2022	Robot-assisted training for future construction workers	Chair
Pengxiang Xia	PhD (UF)	May 2022	Human-in-the-loop architecture and methods in civil engineering human robot collaboration	Chair
Ye Yang	PhD (UF)	May 2022	Construction Exoskeleton	Chair
Quan Miao	PhD (UF)	May 2023	Ground robot for augmented reality	Chair
Ebraheem Dera	PhD (UF)	May 2023	BIM	Chair
Jingjie Zhang	PhD (TAMU)	Aug 2020	Improved Copula method for independent high-dimensional data analysis	Co-Chair

Yanchao Wang	PhD (Northeastern)	Aug 2021	Personalized Information System for Wayfinding based on VR and EEG classification	Co-Chair
Robert Hernandez	M.S. (UF)	Aug 2020	BIM for facilities management – U.S. Airforce case study I	Co-Chair
Morgan Webber	M.S. (UF)	Aug 2020	BIM for facilities management – U.S. Airforce case study II	Co-Chair
Allison Pontal	M.S. (UF)	Aug 2020	BIM for facilities management – U.S. Airforce case study III	Co-Chair
Nishith Singh	M.S. (TAMU)	April 2017	Social Network Analysis for BIM-enabled project communication	Chair
Rolando Moreno	M.S. (TAMU)	April 2019	VR-based training for pipe fitting workers	Chair
Jorge Rincon	M.S. (TAMU)	April 2017	Stakeholder ‘Autonomous Agent’ Affecting Last Planner System Performance in Texas	Member
Min Ma	M.S. (TAMU)	Dec 2017	Last Planner Systems for project management	Member
Dustin Han	M.S. (TAMU)	Dec 2017	Hand Remapping method for Virtual Reality object interactions	Member

PATENTS

- 201310461382.3: “Method and Apparatus for Real-time Inter-locational Probabilistic Simulation” CHINA
- USPTO13929903: “Method and Apparatus for Real-time Inter-locational Probabilistic Simulation”

TEACHING

- CGN 6905 – Advanced Construction Info Tech – Fall 19 – Instructor Evaluation: 4.70/5.0
- CGN 4905 – Construction Modeling and Simulation – Fall 19 – Instructor Evaluation: 4.57/5.0
- COSC 461 – Building Information Modeling – Fall 18 – Instructor Evaluation: 4.89/5.0; 4.78/5.0
- COSC 461 – Building Information Modeling – Spring 18 – Instructor Evaluation: 4.64/5.0; 4.55/5.0
- COSC 461 – Building Information Modeling – Fall 17 – Instructor Evaluation: 4.54/5.0
- COSC 461 – Construction Company Operation – Fall 17 – Instructor Evaluation: 4.46/5.0
- COSC 461 – Building Information Modeling – Spring 17 – Instructor Evaluation: 4.49; 4.51/5.0
- COSC 461 – Construction Company Operation – Fall 16 – Instructor Evaluation: 4.58/5.0
- COSC 461 – Building Information Modeling – Fall 16 – Instructor Evaluation: 4.70/5.0
- COSC 353 – Construction Project Management - Summer 16 - Instructor Evaluation: 4.49/5.0
- COSC 461 – Building Information Modeling - Spring 16 – Instructor Evaluation: 4.73/5.0
- COSC 443 – Industrial Capstone - Spring 16 – Instructor Evaluation: 4.57/5.0
- COSC 620 – Construction Company Operation - Fall 15 – Instructor Evaluation: 4.67/5.0
- COSC 642 – Construction Information Technology - Fall 15– Instructor Evaluation: 4.57/5.0
- CSM 2113 – Construction Materials and Methods - Spring 15– Teaching Evaluation: 4.83/5.0
- CSM 2143 – Construction Materials and Testing – Fall 14. Teaching Evaluation:4.5/5.0; 4.6/5.0
- CSM 4713 - Construction Capstone – Spring 14. Teaching Evaluation: 4.71/5.0

- CSM 3011 – Construction Industry Contemporary Issues – Spring 14. Teaching Evaluation: 4.5/5.0

INVITED PRESENTATIONS AND LECTURES

- Du, J. (2020). “Personalized Wayfinding System for Firefighters”. CES 2020.
- Du, J. (2019). “Cog-DNA: Personalized Wayfinding System for Firefighters”. NIST PSCR 2019 Annual Conference. <https://youtu.be/bSyGr6sHQQw>
- Du, J. (2018). “Cognition-Driven Display For Navigation Activities: Cog-DNA”. National Public Safety Telecommunications Council (NPSTC). <https://youtu.be/Hf14xv2NLbQ>
- Du, J. (2018). “Cog-DNA: Personalized Wayfinding System for Firefighters”. NIST PSCR 2018 Annual Conference. https://cdnapisec.kaltura.com/index.php/extwidget/preview/partner_id/684682/uiconf_id/31013851/entry_id/1_1trod30r/embed/dynamic#t=28:40
- Du, J. (2018). “Vibrations, the Common Language of Internet of Things (IoT)”. TEDxTAMU. <https://youtu.be/NKLuHqw1gLQ>
- Du, J. (2018). “Human Carried Sensors to Study Navigational Behaviors”. Workshop on Wearable Sensors and Mobile Computing in Construction, IEEE Body Sensor Network (BSN)’18 Conference.
- Du, J. (2013). “Dr. Du Learning Moment – Series Seminars”. Zachry Holdings, Inc, San Antonio, TX, January 2013-August 2013.
- Du, J. (2012). “Project Management and Controls - Series Seminars”. Zachry Holdings, Inc, R.O.C.K.S. Lectures, San Antonio, TX, July 2012-August 2013.
- Du, J. (2011). “Data Mining and Statistical Methods in Construction Project Management and Controls”. Zachry Holdings, Inc, R.O.C.K.S. Speech, San Antonio, TX, July 2011.
- Du, J. and Wang, Q. (2010). “Agent Based Modeling and Its Integrated Development Environment”. Michigan State University, MSU-ABM group, East Lansing, MI, October 8, 2010.
- Du, J. (2010). “Towards an Agile Alignment: Exploring Implications of Social Aspects in Construction Organizations”. Engineering Project Organizations Conference, South Lake Tahoe, CA, November 4-7, 2010.
- Du, J. (2010). “Discrete Event Simulation and Its Applications in Construction Engineering and Management”. Michigan State University, Lecture Session of Complexity Based Simulation in Planning Design and Construction, East Lansing, MI, October, 2010.
- Du, J. (2009). “Risk Attitudes and US Construction Market: A Simulation Finding”. Michigan State University, MSU-ABM group, East Lansing, April 20, 2009.

HONORS AND ACHIEVEMENTS

- 2019 Outstanding Reviewer, *ASCE Journal of Construction Engineering and Management*.
- 2018 TAMU Montague CET Excellence Scholar for exemplary undergraduate teaching
- 2018 COSC Scholarly Work and Research Award
- 2017 Outstanding Reviewer, *ASCE Journal of Construction Engineering and Management*.
- 2015 Annual Best Paper Award. *ASCE Journal of Construction Engineering and Management*.
- 2014 Conference Best Paper Award. *2014 International Conference on Innovative Technologies in Construction (ITC 2014)*.
- Outstanding Research and Scholarship Award, 2014, CoA UTSA
- Phi-Kappa-Phi Honor Society Member, 2012
- Albert A. White Scholarship, Michigan State University, 2012
- Ed Gavin Memorial Scholarship, Michigan State University, 2011, 2012

- Douglass C. Campbell Scholarship, Michigan State University, 2010
- Travel Funding Fellowship, Graduate School at Michigan State University, 2009
- Klomprens Fellowship, Michigan State University, 2009
- College Special Fellowship, Michigan State University, 2009
- Graduate Opportunity Fellowship (GOF), Michigan State University, 2008, 2009
- Graduate School Summer Fellowship, Graduate School at Michigan State University, 2008
- School of Management Research Symposium, Session Chair, Tianjin University, 2006
- President of School of Management Graduate Student Association at Tianjin University, 2005
- Vice Chairman of Student Council at Tianjin University, 2003
- Student Leadership Scholarship, Tianjin University, 2002, 2003
- Three A's Student Scholarship, Tianjin University, 2001, 2002
- Chairman of Student League in the School of Civil Engineering at Tianjin University, 2000-2004

SERVICES (~100 REVIEWS: JOURNAL ~80 + CONFERENCE ~20)

- **Secretary**, ASCE Visualization, Information Modeling and Simulation (VIMS) Committee
- **Assistant Specialty Editor**, ASCE *Journal of Construction Engineering and Management*.
- **Committee Member**, ASCE Construction Research Congress (CRC) '18.
- **Technical Committee**, 2017 *International Workshop on Computing in Civil Engineering (IWCCE2017)*.
- **Committee Member**, TAMU COSC Technology committee, 2015-
- **Committee Member**, ASCE *ICSDEC 2016 conference*, 2015-2016
- **Committee Member**, UTSA Construction Science Scholarship Committee, 2013-2015
- **Reviewer**, *Automation in Construction*, 2014- present
- **Reviewer**, ASCE *Journal of Computing in Civil Engineering*, 2012-present
- **Reviewer**, ASCE *Journal of Urban Planning and Development*, 2011-present
- **Reviewer**, ASCE *Journal of Construction Engineering and Management*, 2014-present
- **Reviewer**, ASCE *Journal of Management in Engineering*, , 2014-present
- **Reviewer**, ASEE Conference 2014, 2013- present
- **Reviewer**, ASCE *CRC Conference*, 2013- present
- **Reviewer**, ASCE *ICCCBE Conference*, 2013- present
- **Reviewer**, *Associated Schools of Construction (ASC) Annual Conference*, 2012-present
- **Reviewer**, *Engineering Project Organization Conference (EPOC)*, 2010-2011

PROFESSIONAL AFFILIATIONS

- ASCE (American Society of Civil Engineers), Aff.Member, 2014- Present; Reviewer, 2011-Present
- ASCE Data Sensing and Analysis (DSA) Committee, Voting Member, 2016- Present
- ASCE Visualization, Information Modeling and Simulation (VIMS) Committee, Voting Member, 2016- Present; Secretary, 2020 – present.
- CII (Construction Industry Institute), Academic Committee; Research Team Member (RT282)
- LCI (Lean Construction Institute), Student Member, 2010-2011
- EPOS (Engineering Project Organization Society), Charter Member, 2010-2014.

MEDIA COVERAGE

- “Firefighters to Perform Search and Rescue Missions Using CoSci Prof’s VR Tech” – *Texas A&M University*, <https://today.tamu.edu/2018/06/05/firefighters-to-perform-search-and-rescue-missions-using-cosci-profs-vr-tech/>
- “CoSci prof’s proposed app would gauge effectiveness of 3-D models” – *Texas A&M University*, 2016. <https://one.arch.tamu.edu/news/2016/6/28/cosci-profs-app-gauge-effectiveness-3d-models/>
- “Facebook Timeline Tracks Century of Construction Technology” – *Engineering News-Record (ENR)* 2015. <http://www.enr.com/articles/17215-facebook-timeline-tracks-century-of-construction-technology?v=preview>
- “Aggies Post Timeline of Construction Tech Milestones” – *BuiltWorlds* 2015. <http://www.builtworlds.com/news/2015/10/7/facebook-timeline-tracks-century-of-construction-technology>
- “UTSA researcher working to end hunger in Africa through technology” – *San Antonio Business Journal* < <http://www.bizjournals.com/sanantonio/news/2014/08/07/utsa-researcher-working-to-end-hunger-in-africa.html> >
- “UTSA researcher awarded NSF grant to create computer models for food insecurity project” – *Phys.org* < <http://phys.org/wire-news/168800342/utsa-researcher-awarded-nsf-grant-to-create-computer-models-for.html> >
- “UTSA researcher awarded NSF grant to help increase Africa food security (UTSA - The University of Texas at San Antonio)” *World News Network* <http://article.wn.com/view/2014/08/06/UTSA_researcher_awarded_NSF_grant_to_help_increase_Africa_fo/>
- “UTSA researcher to create computer models to produce sustainable food security in the region” – *News-Medical.Net* < <http://www.news-medical.net/news/20140807/UTSA-researcher-to-create-computer-models-to-produce-sustainable-food-security-in-the-region.aspx> >