

Curriculum Vitae
Ebrahim P. Karan

EMPLOYMENT

- 2019-Present **Sam Houston State University** – Associate Professor of Construction Management
Department of Engineering Technology
- 2014-2019 **Millersville University** - Assistant Professor of Construction Management
Department of Applied Engineering, Safety & Technology
- 2011-2014 **Georgia Institute of Technology (Georgia Tech)**
Graduate Research Assistant - School of Building Construction
- 2009-2011 **Tablieh Constructions Inc.** Planning and Scheduling Engineer
- 2008-2009 **Radeen Design and Constructions Inc.** Cost Estimator and Civil Engineer

EDUCATION

- 2014 **Georgia Institute of Technology (Georgia Tech)** - PhD., Building Construction
Thesis Title: Extending Building Information Modeling (BIM) Interoperability to Geo-spatial Domain using Semantic Web Technology
- 2008 **Amirkabir University of Technology (Tehran Polytechnic)** - MSc., Construction Engineering and Management
- 2006 **Amirkabir University of Technology (Tehran Polytechnic)** - BSc., Civil Engineering

PUBLICATIONS

Refereed Journal Articles

- Karan, E. P.,** Asgari, S. & Rashidi, A. A Markov Decision Process Workflow for Automating Interior Design. *KSCE J Civ Eng* 25, 3199–3212 (2021). <https://doi.org/10.1007/s12205-021-1272-6>
- Karan, E. P.,** and Asgari, S. (2021) “Resilience of food, energy, and water systems to a sudden labor shortage”, *Environment Systems and Decision*, <https://doi.org/10.1007/s10669-020-09793-w>
- Ameli, A., **Karan, E. P.,** and Hashemi, A. (2020) “Development of Designs for RCC mixtures with Waste Material”, *International Journal of Pavement Engineering* (2020): 1-13.
- Karan, E. P.,** and Asadi, S. (2019) “Intelligent Designer: a computational approach to automate building design process”, *Automation in Construction*, 102, 160-169.
- Karan, E. P.,** and Asadi, S. (2018) “Quantitative Modeling of Interconnections associated with Sustainable Food, Energy and Water (FEW) Systems”, *Journal of Cleaner Production*, 200, 86-99.
- Rashidi, A., and **Karan, E. P.** (2018) “Video to BrIM (V2BrIM): Towards Automated 3D As-built Documentation of Bridges”, *ASCE Journal of Performance of Constructed Facilities*, 32(3), 04018026.
- Karan, E. P.,** Asadi, S., Mohtar, R., and Baawain, M. (2018) “Towards the optimization of sustainable food-energy-water systems: a stochastic approach”, *Journal of Cleaner Production*, 171, 662-674.

Asadi, S., **Karan, E. P.**, and Mohammadpour, A. (2017) “Advancing Safety by In-Depth Assessment of Workers Attention, Perception, and Decision Making”, *International Journal of Safety Science*, 1(3), 46-60.

Karan, E. P., Asadi, S., Ntamo, L. (2016) "A stochastic optimization approach to reduce greenhouse gas emissions from buildings and transportation", *Energy*, 106, 367-377

Karan, E. P., Mohammadpour, A., and Asadi, S. (2016) "Integrating building and transportation energy use to design a comprehensive greenhouse gas mitigation strategy", *Applied Energy*, 165, 234-243

Karan, E. P., Irizarry, J., and Haymaker, J. (2015) “BIM and GIS integration and interoperability based on semantic web technology”, *ASCE Journal of Computing in Civil Engineering*, 04015043.

Karan, E. P., Irizarry, J., and Haymaker, J. (2015) "Generating IFC models from heterogeneous data using semantic web", *Emerald Journal of Construction Innovation*, 15(2), 219 - 235

Karan, E. P., and Irizarry, J. (2015) “Extending BIM interoperability to pre-construction operations using semantic web services”, *Automation in Construction*, 53, 1-12.

Karan, E. P., Sivakumar, R., Irizarry, J., and Guhathakurta, S. (2013) “Digital Modeling of Construction Site Terrain using Remote Sensing and Geographic Information Systems” *ASCE Journal of Construction Engineering and Management*, 140(3), 04013067.

Irizarry, J., **Karan, E. P.**, and Jalaei, F. (2013) “Integrating BIM and GIS to improve the visual monitoring of construction supply chain management”, *Automation in Construction*, 31, 241-254.

Irizarry, J., and **Karan, E. P.** (2012) “Optimizing Location of Tower Cranes on Construction Sites Through GIS and BIM Integration”, *Information Technology in Construction (ITcon)*, Vol. 17, pg. 351-366.

Sebt, M. H, **Karan, E. P.**, and Delavar, M. R. (2008). “Potential Application of GIS to Layout of Construction Temporary Facilities”, *International Journal of Civil Engineering*, 6(4), 235-245.

Conference Proceedings

Karan, E. P., Hooshmand, H, Mohammadpour, A., Khodabandelu, A., Asgari, S., and Mansoob, V. K. (2021) “Optimal Collaborative Energy Model among Vehicle-to-Home (V2H) and Solar Systems”, *CIB International Conference on Smart Built Environment*, Dubai, UAE, December 14-15, 2021.

Karan, E. P., Mansoob, V. K., Khodabandelu, A., Asgari, S., Mohammadpour, A., and Asadi, S. (2021) “Using Artificial Intelligence to Automate the Quantity Take-off Process”, *CIB International Conference on Smart Built Environment*, Dubai, UAE, December 14-15, 2021.

Karan, E. P., Safa, M., and Suh, M. (2020) “Use of Artificial Intelligence in a Regulated Design Environment – A Beam Design Example”, *International ICCCBE and CIB W78 Joint Conference on Computing in Civil and Building Engineering 2020*, Sao Paulo, Brazil, June 2-4, 2020. 16-25.

- Karan, E. P.**, Asgari, S., & Mohammadpour, A. (2020). Applying Artificial Intelligence within the AEC Industry: Collecting and Interpreting Data. Construction Research Congress 2020, Tempe, Arizona, March 8–10, 2020, pp. 792-801.
- Karan, E. P.**, Asgari, S., Mohammadpour, A., and Asadi, S. (2019) “The Relationship between Sustainability and Resilience of Food-Energy-Water Systems”, International Conference on Sustainable Infrastructure 2019, Los Angeles, California, 634-641.
- Picard, B, Asgari, S., and **Karan, E. P.** (2019) “Nelson Mandela Bay Metropolitan Municipality’s Bus Rapid Transit System: Case Study”, International Conference on Sustainable Infrastructure 2019, Los Angeles, California, 618-625.
- Suh, M., Sands II, S. K., Kim, K., Ahn, Y., Ma, J., and **Karan, E. P.** (2019). “Cyber Security Awareness in Construction-Related Courses at Higher Education Institutions”, Proceeding of Sustainable Building and Environment 19 Seoul (Dec., Seoul, South Korea).
- Mohammadpour, A., **Karan, E. P.**, and Asadi, S. (2019). “Artificial Intelligence Techniques to Support Design and Construction”, International Symposium on Automation and Robotics in Construction (ISARC) 2019, Banff, Canada, 1282-1289.
- Sherif, M., Asadi, S., and **Karan, E. P.** (2018). “Quantitative ways of measuring client’s preferences: a step toward creating an intelligent architectural design agent”, Creative Construction Conference, Ljubljana, Slovenia, 1059-1066.
- Mohammadpour, A, Khalighi, M., **Karan, E. P.**, Bendele, M., and Ann Marshall. (2018) "Measures of Mental Alertness of Construction Workers to Enhance Job Site Safety." Construction Research Congress 2018, New Orleans, LA, 262-271.
- Blackwood, J., **Karan, E. P.**, Asadi, S., Mohammadpour, A., and Asgari, S. (2017). “Stochastic Optimization Model for Sustainable Water Treatment with Minimal Energy Use”, 17th International Conference on Computing in Civil Engineering, Seattle, WA, 215-222.
- Amiri, S., Masoudi, M., Asadi, S., and **Karan, E. P.** (2016). “A Quantitative Way for Measuring the Building User Design Feedback and Evaluation”, 16th International Conference on Computing in Civil and Building Engineering, Osaka, Japan, 1813-1819.
- Mohammadpour, A., Asadi, S., and **Karan, E. P.** (2016). “Determining the Role of Attentional Control among Construction Workers in Improving Safety Performance”, Construction Research Congress 2016, San Juan, Puerto Rico, 2793-2800.
- Karan, E. P.**, Asadi, S., Mohammadpour, A., and Yousefi, M. V. (2015) “Using Building Energy Simulation and Geospatial Analysis to Determine the Building and Transportation Related Energy Use”, 2015 ASCE International Workshop on Computing in Civil Engineering, Austin, TX, 580-587.

- Mohammadpour, A., **Karan, E. P.**, Asadi, S., and Rothrock, L. (2015) "Measuring End-User Satisfaction in the Design of Building Projects Using Eye-Tracking Technology", 2015 ASCE International Workshop on Computing in Civil Engineering, Austin, TX, 564-571.
- Yousefi, M. V., Mohammadpour, A., **Karan, E. P.**, and Asadi, S. (2015) "Implementing Eye Tracking Technology in the Construction Process", Proc. of ASC 51th International Conference 2015, College Station, TX.
- Karan, E. P.**, Christmann, C., Gheisari, M., Irizarry, J., and Johnson, J. (2014) "A process to develop a comprehensive matrix of Unmanned Aerial Systems requirements for Potential applications within a Department of Transportation", Construction Research Congress 2014: Construction in a Global Network, 964-973.
- Karan, E. P.**, and Irizarry, J. (2014) "Developing a spatial data framework for facility management supply chain", Construction Research Congress 2014: Construction in a Global Network, 2355-2364.
- Karan, E. P.**, and Irizarry, J. (2014) "Effects of meta-cognitive strategies on problem solving ability in construction education", Proc. of ASC 50th International Conference 2014, Washington DC.
- Eskrootchi, R., **Karan, E. P.**, and Sebt, M. H. (2008). "Optimal Location of Concrete Batch Plant by GIS." Published in CSCE 2008 annual conference (Canadian Society for Civil Engineering), June 10-13, 2008. Quebec, Canada.
- Sebt, M. H., **Karan, E. P.**, and Eskrootchi, R. (2008). "Layout of Construction Temporary Facilities Using GIS." Published in CSCE 2008 annual conference (Canadian Society for Civil Engineering), June 10-13, 2008. Quebec, Canada.
- Thorpe, D. and **Karan, E. P.** (2008). "Method for Calculating Schedule Delay Considering Weather Condition." Published in ARCOM 24th annual conference, September 1-3, 2008. Cardiff, Wales.
- Karan, E. P.** and Ardeshir, A. (2008). "Safety Assessment of Construction Site Layout Using GIS." Published in Architectural Engineering Institute (AEI) 2008 Conference, 25-27 September 2008, Denver, Colorado.

TEACHING EXPERIENCE

Sam Houston State University

- Architectural Design
- Building Materials
- Civil Drafting
- Concrete and Masonry Construction
- Construction Plans and Documents
- Wood Frame Construction

Millersville University

- Architectural Drawing and Design
- Construction Project Management
- Construction Technology
- Descriptive Geometry
- Drafting Communication
- Engineering Visualization
- Green Buildings and Sustainable Systems

Georgia Institute of Technology (Georgia Tech)

- Construction Supply Chain Management
- Project Management

Online Courses

- Management Information Systems
- Advanced Construction Methods
- Project Management

Curriculum (New Course) Development:

- Green Buildings and Sustainable Systems
- Engineering Visualization
- Construction Supply Chain Management
- Construction Scheduling
- Construction Estimating

OUTREACH ACTIVITIES & COMMUNITY SERVICES

Reviewer

- ASCE Journal of Construction Engineering and Management
- ASCE Journal of Computing in Civil Engineering
- ASME Journal of Dynamic Systems, Measurement and Control
- Elsevier Journal of Advanced Engineering Informatics
- Elsevier Journal of Applied Engineering
- Elsevier Journal of Automation in Construction
- Elsevier Journal of Building and Environment
- Elsevier Journal of Energy & Buildings
- Elsevier Journal of Energy Research & Social Science
- Elsevier Journal of Environmental Management
- Emerald Journal of Construction Innovation: Information, Process, Management
- International Journal of Digital Earth
- International Journal of Management Science and Engineering Management

Curriculum Vitae
Ebrahim P. Karan

- International Journal of Production Research
- Journal of Architectural Engineering and Design Management
- Journal of Civil Engineering and Construction Technology (JCECT)
- Journal of Computational Methods in Science and Engineering
- Journal of Construction Engineering
- Journal of Experimental & Theoretical Artificial Intelligence
- Journal of Public Health and Epidemiology
- Journal of Sustainability
- The Open Construction & Building Technology Journal
- Construction Research Congress (CRC) (2014 & 2016 & 2020)
- International Conference on Construction Applications of Virtual Reality (CONVR) (2015)
- International Conference on Sustainable Infrastructure (2017)
- International Conference on Computing in Civil Engineering (2017)

Student Mentor/Advisement

- Faculty advisor of Construction Management club
- Advisement of undergraduate students in Applied Engineering and Technology Management, Construction Management concentration
- Architecture, Construction, and Engineering (ACE) Mentor Program
- The Goizueta Foundation STEM Initiative program
- Construction Education Foundation of Georgia (CEFGA)

Judge

- State's Robotic Championship Challenge (FTC) (2015)
- Central Pennsylvania Science Olympiad (2016 & 2018)
- Science and Engineering Fair (2017)
- Made in Millersville (2017 & 2018)

Membership

ASCE	<p>American Society of Civil Engineers</p> <p>Founded in 1852 to represent members of the civil engineering profession worldwide, ASCE is the oldest national engineering society in the United States</p> <p>I am a member of the Visualization, Information Modeling, and Simulation, Education, and Data Sensing and Analysis Committees</p>
CRC	<p>Construction Research Congress</p> <p>The CRC is the prime international group in the area of construction eng. and management.</p>

Curriculum Vitae
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- Applied Engineering and Technology Management Committee, Department of Applied Engineering, Safety and Technology
- Assessment Committee, Department of Applied Engineering, Safety and Technology
- Curriculum Committee, Department of Applied Engineering, Safety and Technology
- Professional Development Committee, Department of Applied Engineering, Safety and Technology
- Search Committee for Assistant Professor in Advanced Manufacturing, Department of Applied Engineering, Safety and Technology (Millersville University)
- Search Committee for Assistant Professor in CADD, Department of Applied Engineering, Safety and Technology (Millersville University)
- Search Committee for Assistant Professor in Mechanical Engineering Technology, Department of Engineering Technology (Sam Houston State University)
- Search Committee for Assistant Professor in Fred Pirkle Endowed Faculty – Engineering Technology, Department of Engineering Technology (Sam Houston State University)
- Undergraduate Travel Fellowship Committee, College of Science and Technology
- Sustainability Committee, Millersville University
- Mentored Undergraduate Summer Experience (MUSE), Millersville University

Awards & Certifications

2020	STEM CENTER Teaching Enhancement Grant Sam Houston State University
2013	Tech to Teaching Certificate (advanced level) Georgia Tech Center for the Enhancement of Teaching and Learning (CETL)
2013	ASC Annual International Conference Award Associated School of Construction (ASC)
2011	GTRIC Travel Award Georgia Tech Research & Innovation Conference (GTRIC)