MIN DENG

Assistant Professor
Department of Civil, Environmental, and Construction Engineering
Texas Tech University, Lubbock, Texas 79409
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EDUCATION

University of Michigan, Ann Arbor
- Ph.D. in Civil Engineering — Sep 2019 – Apr 2023
- M.S. in Robotics — Sep 2021 – Apr 2023

Hong Kong University of Science and Technology, Hong Kong
- M.Phil. in Civil Engineering — Sep 2016 – Aug 2018
- M.Sc. in Intelligent Building Technology & Management — Sep 2015 – Jul 2016

University of Nottingham, Ningbo
- B.E. in Architectural Environment Engineering (First-class Honors) — Sep 2011 – Jul 2015

PROFESSIONAL APPOINTMENTS

Texas Tech University
- Assistant Professor, Department of Civil, Environmental, and Construction Engineering — Sep 2023 – Present

University of Michigan
- Graduate Student Research Assistant — Sep 2019 – Apr 2023
- Graduate Student Instructor — Jan 2022/2023 – Apr 2022/2023

New World Construction Company Limited
- BIM Technician in Research & Development — Feb 2019 – Jul 2019

Hong Kong University of Science and Technology
- Graduate Student Research Assistant — Sep 2016 – Jul 2018
- Teaching Assistant — Jan 2017 – May 2017

PUBLICATIONS

Journal Articles

1. Wang, X., Fu, B., Menassa, C.C., Kamat, V.R., **Deng, M.*** (2025). Task planning for collaborative construction using multi-functional robot teams. (manuscript in submission)
2. Li, L., Yu, R., Hu, Q., Li, B., **Deng, M.**, Zhou, Y., & Jia, X. (2025). From Pixels to Places: A Systematic Benchmark for Evaluating Image Geolocalization Ability in Large Language Models. Available online at: arxiv.org/abs/2508.01608
3. **Deng, M.,** Fu, B., Li, L., Wang, X. (2025). Leveraging LLMs and digital twins for optimizing multi-robot task allocation in dynamic construction environments. *IEEE Transactions on Automation Science and Engineering* (under review). Available online at: arxiv.org/abs/2506.18178
4. Li, L., Hu, S., Dai, Y., **Deng, M.,** Momeni, P., Laverghetta, G., Fan, L., Ma, Z., Wang, X., Ma, S. and Ligatti, J. (2025). Toward satisfactory public accessibility: A crowdsourcing approach through online reviews to inclusive urban design. *Computers, Environment and Urban Systems* (accepted).
5. Chen, K., Xie, M., **Deng, M.,** & Pan, Q. (2025). Investigating cognitive workload and task performance under indoor air pollutants exposure using electroencephalogram. *Journal of Building Engineering*, 112159.
6. **Deng, M.,** Gluck, A., Zhao, Yijin., Li, D., Menassa, C.C., Kamat, V.R., Li, D., and Brinkley, J. (2024). An analysis of physiological responses as indicators of driver takeover readiness in conditionally automated driving. *Accident Analysis & Prevention*, 195, 107372.
7. **Deng, M.,** Fu, B., Menassa, C.C., and Kamat, V.R. (2023). Learning-based personal models for joint optimization of thermal comfort and energy consumption in flexible workplaces. *Energy and Buildings*, 298, 113438.

8. **Deng, M.,** Wang, X., and Menassa, C.C. (2022). Investigating the effect of wearing masks on office work in indoor environments during the pandemic using physiological sensing. *Building and Environment*, 221, 109346.
9. **Deng, M.,** Wang, X., Li, D., and Menassa, C.C. (2022). Digital id framework for human-centric monitoring and control of smart buildings. *Building Simulation*, 15(10), p.1709-1728 (**Cover Article**).
10. **Deng, M.,** Wang, X., and Menassa, C.C. (2021). Measurement and prediction of work engagement under different indoor lighting conditions using physiological sensing. *Building and Environment*, 203, 108098.
11. Gan, V.J.L., Luo, H., Tan, Y., **Deng, M.,** and Kwok, H.L. (2021). BIM and data-driven predictive analysis of optimum thermal comfort for indoor environment. *Sensors*, 21(13), 4401.
12. **Deng, M.,** Menassa, C.C., and Kamat, V.R. (2021). From BIM to digital twins: A systematic review of the evolution of intelligent building representations in the AEC-FM industry. *Journal of Information Technology in Construction (ITcon)* 26(5), 58-83.
13. **Deng, M.,** Tan, Y., Singh, J., Joneja, A., and Cheng, J.C.P. (2021). A BIM-based Framework for automated generation of fabrication drawings for façade panels. *Computers in Industry*, 126, 103395.
14. **Deng, M.,** Gan, V.J.L., Tan, Y., Joneja, A., and Cheng, J.C.P. (2019). Automatic generation of fabrication drawings for façade mullions and transoms through BIM models. *Advanced Engineering Informatics*, 42, 100964.
15. Gan, V.J.L., **Deng, M.,** Tse, T.K.T. Chan, C.M., Lo, I.M.C., and Cheng, J.C.P. (2018). Holistic BIM-based framework for sustainable low-carbon design of high-rise buildings. *Journal of Cleaner Production*, 195, 1091-1104.

Conference Articles

16. Li, L., Li, D., Ou, Z., Xu, X., Liu, J., Ma, Z., Yu, R. and **Deng, M.**, 2025. LLMs as world models: data-driven and human-centered pre-event simulation for disaster impact assessment. Available online at: arxiv.org/abs/2506.06355
17. He, L., Kanagaratnam, S., Zanandreis, L.A. and **Deng, M.**, LLM-driven robotic indoor air quality monitoring: advances in natural language interaction and decision-making. *2025 IEEE International Conference on Robotics & Automation (ICRA) Workshop*. Atlanta, GA.
18. **Deng, M. (presenting author),** Wang, X., Li, D., Fu, B., Menassa, C. C., Kamat, V.R. (2023). Leveraging artificial intelligence for enabling personalized activity-based workplaces. *2023 ASCE International Conference on Computing in Civil Engineering (i3CE 2023)*. Corvallis, OR.
19. Gluck, A., **Deng, M.**, Zhao, Y., Menassa, C., Li, D., Brinkley, J., Kamat, V.R. (2022). Exploring driver physiological response during level 3 conditional driving automation. *2022 IEEE 3rd International Conference on Human-Machine Systems (ICHMS), IEEE*. Orlando, FL.
20. **Deng, M. (presenting author),** Fu, B., and Menassa, C. C. (2021). Room match: Achieving thermal comfort through smart space allocation and environmental control in buildings. *Proceedings of the 2021 Winter Simulation Conference*. Phoenix, AZ.
21. Gan, V.J.L., **Deng, M. (presenting author),** Tan, Y., Chen, W.W., and Cheng, J.C.P. (2018). BIM-based framework to analyze the effect of natural ventilation on thermal comfort and energy performance in buildings. *Energy Procedia*.
22. Singh, J., **Deng, M.,** and Cheng, J.C.P. (2018). Implementation of mass customization for mep layout design to reduce manufacturing cost in one-off projects. *The 26th Annual Conference of the International Group for Lean Construction*.
23. Cheng, J.C.P., **Deng, M. (presenting author),** and Singh, J. (2018). Automated generation and layout design for building façade mullions using BIM. *The 17th International Conference on Computing in Civil and Building Engineering*. Tampere, Finland.
24. **Deng, M. (presenting author),** Singh, J., and Cheng, J.C.P. (2017). A BIM-based framework for automated generation of façade panel fabrication drawings. *The 30th KKHTCNN Symposium on Civil Engineering*. Taiwan.
25. **Deng, M.,** Xia, L., and Chan, Y. (2016). Modeling and simulation of the gas flow inside micro-channels for purification. *The 58th International Conference on Engineering and Natural Science*.
26. Chan, Y., and **Deng, M.** (2014). Stress distribution on a two-phase problem in micro-extrusion. *Advanced Materials Research*.

Book Chapter

27. **Deng,** M., Menassa, C. C., and Kamat, V. R. (2022). A holistic framework for human-centric smart management of the indoor environment. CRC Press Taylor & Francis Group. ISBN 9781032136264.

Data Set

28. **Deng, M.,** Gluck, A., Zhao, Y., Menassa, C., Kamat, V., Li, D., Brinkley, J. (2023). Data for predicting driver takeover performance in conditional automation (level 3) through physiological sensing [Data Set], University of Michigan - Deep Blue Data.

GRANT

Collaborative Research: Advancing Human-Robot Synergy in Dynamic Environmental Conditions Through Bidirectional Adaptive Feedback Systems

Funding agency: National Science Foundation (NSF): Mind, Machine and Motor Nexus (M3X)
Role: **Lead PI**
Project Dates: 2025 – 2028
Funded Amount: $596,727

Human-Centric Optimization of Indoor Well-Being and Energy Consumption of Flexible Workspaces

Funding Agency: Rackham Graduate Student Research Grant, University of Michigan
Role: **Lead PI**
Project Dates: 2022 – 2023
Funded Amount: $2,944.5

SCC-IRG Track 1: Advancing Human-Centered Sociotechnical Research for Enabling Independent Mobility in People with Physical Disabilities

Funding agency: National Science Foundation: SCC-IRG, University of Michigan
Role: Led the research team, supervised the students, prepared for IRB, and administered the project
Project Dates: 2022 – 2026
Funded Amount: $2,016,000

Predicting Driver Takeover Performance in Conditional Automation (Level 3) through Physiological Sensing

Funding agency: USDOT Center for Connected and Automated Transportation (CCAT)
Role: Assisted with proposal writing and budgeting, led the research team, acquired the resources, prepared for IRB, supervised the students, and administered the project
Project Dates: 2021 – 2022
Funded Amount: $149,278

HONORS AND AWARDS

Rackham Graduate Student Research Grant, University of Michigan 2022
John L. Tishman Predoctoral Fellowship, University of Michigan 2020 – 2022
Outstanding Project Award for Education Category, Autodesk Hong Kong Building Information Modeling Awards 2017
Full Postgraduate Studentship, Hong Kong University of Science and Technology 2016 – 2018
Dean's Scholarship, University of Nottingham Ningbo China 2014

INDUSTRY EXPERIENCE

BIM Technician in Research & Development Feb 2019 – Jul 2019
New World Construction Company Limited, Hong Kong

TEACHING EXPERIENCE

Texas Tech University
CONE 4322/5322: Construction Management Spring 2024 & 2025
Delivered lectures, held office hours, and led grading

Developed and administered projects, homework, and exams

CONE 3304/5304: Sustainable Building Design and Construction Fall 2023 & 2024 & 2025

Delivered lectures, held office hours, and led grading
Developed and administered projects, homework, and exams

University of Michigan

CEE 331: Construction Management Winter 2023

Delivered lectures in weekly lab sessions, instructed course projects, held office hours and led grading
Developed and administered lab projects and weekly quizzes materials

CEE 555: Sustainability of Civil Infrastructure Systems Fall 2022

Guest lecturer for two class sessions regarding the energy modeling

CEE 331: Construction Management Winter 2022

Delivered lectures in weekly lab sessions, instructed course projects, held office hours and led grading
Developed and administered lab projects and weekly quizzes materials

Hong Kong University of Science and Technology

CIVL 5220: Construction Information Technology Winter 2017

Led the tutorial sessions of the class, and led the grading