# YELDA TURKAN

Assistant Professor, Ph.D.
School of Civil and Construction Engineering, Oregon State University
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## EDUCATION

| | | | |
|---|---|---|---|
| **Ph.D.** | Civil Engineering | University of Waterloo, Canada | **2012** |
| **M.S.** | Engineering Informatics | Istanbul Technical University, Turkey | **2006** |
| **B.S.** | Civil Engineering | Istanbul Technical University, Turkey | **2005** |
| **B.S.** | Geomatics Engineering | Istanbul Technical University, Turkey | **2003** |

## EXPERIENCE

**Assistant Professor**                                                                            **2016 - Present**
School of Civil and Construction Engineering, Oregon State University

**Assistant Professor**                                                                            **2012 – 2016**
Department of Civil, Construction and Env. Engineering, Iowa State University

**Graduate Research Assistant**                                                              **2007 – 2012**
Department of Civil and Environmental Engineering, University of Waterloo

**Project Engineer**                                                                                 **2005 – 2007**
BOTEK Consultants, Istanbul, Turkey

**Research Scientist**                                                                               **2003 – 2005**
Center for Satellite Communications and Remote Sensing, Istanbul Technical University

## HONORS AND AWARDS

- NSF NHERI – E-Defense Earthquake Center Collaboration Travel Grant                **2019**
- NSF NHERI – EUCENTRE Collaboration Meeting Travel Grant                              **2019**
- NSF RAPID Facility Intensive Training Travel Grant                                          **2019**
- SWE Academic Leadership for Women Engineers Workshop Travel Grant              **2018**
- AGC Education and Research Foundation, Robert L. Bowen Industry Residency        **2018**
- Robert C. Wilson Faculty Scholar, *Oregon State University*                              **2017**
- American Society of Civil Engineers ExCEEd Teaching Fellowship                        **2015**
- Outstanding Reviewer for Elsevier Journal of Automation in Construction             **2015**
- National Science Foundation CMMI Construction Engineering Conference Travel Grant   **2014**
- Construction Industry Institute New Scholar                                                    **2013**
- FIATECH Student Scholar                                                                            **2011**
- Irene Marguerite McLeod Postgraduate Scholarship, *University of Waterloo*         **2010**
- Provost Doctoral Entrance Award for Women in Engineering, *University of Waterloo*   **2008**
- Civil Engineering Faculty Dean's Office Award, *Istanbul Technical University*       **2003**
- Ranked 3rd in department graduates, Geomatics Engineering, *Istanbul Technical University*   **2003**

## PUBLICATIONS

*Underline indicates a student that I directly advised.*

### Refereed Journal Publications

1. M. Namian, M. Khalid, G. Wang, **Y. Turkan**, Revealing Safety Risks of Unmanned Aerial Vehicles in Construction. *Transportation Research Record (TRR),* 2021. http://worldcat.org/issn/03611981

2.  F. Shalabi, **Y. Turkan**, BIM – Energy Simulation Approach for Detecting Building Spaces with Faults and Problematic Behavior, *Journal of Information Technology in Construction*, 2020, Vol. 25, pp. 342-360. (https://doi.org/10.36680/j.itcon.2020.020

3.  Q. Sun, **Y. Turkan**, A BIM-based Simulation Framework for Fire Safety Management and Investigation of the Critical Factors Affecting Human Evacuation Performance, *Advanced Engineering Informatics,* 2020, Vol. 44, pp. 101093. https://doi.org/10.1016/j.aei.2020.101093

4.  F. Guo, C.T. Jahren, **Y. Turkan**, Electronic Document Management Systems for the Transportation Construction Industry, *ASC International Journal of Construction Education and Research*, 2019. https://doi.org/10.1080/15578771.2019.1685612

5.  Y. Xu, **Y. Turkan**, BrIM and UAS for bridge inspections and management, *Engineering, Construction and Architectural Management*, 2019, Vol. 27(3), pp. 785-807. https://doi.org/10.1108/ECAM-12-2018-0556

6.  N. Puri, **Y. Turkan**, Bridge Construction Progress Monitoring using Lidar and 4D Design Models, *Automation in Construction*, 2019, Vol. 109, pp. 102961. https://doi.org/10.1016/j.autcon.2019.102961

7.  **Y. Turkan**, J. Hong, S. Laflamme, N. Puri, Adaptive Wavelet Neural Network for Terrestrial Laser Scanning Based Crack Detection, *Automation in Construction*, 2018, Vol. 94, pp. 191-202. https://doi.org/10.1016/j.autcon.2018.06.017

8.  N. Puri, E. Valero, **Y. Turkan**, F. Bosché, Assessment of Compliance of Dimensional Tolerances in Concrete Slabs using TLS data and the 2D Continuous Wavelet Transform, *Automation in Construction,* 2018, Vol. 94, pp. 62-72. https://doi.org/10.1016/j.autcon.2018.06.004

9.  **Y. Turkan**, R. Radkowski, A. Karabulut-Ilgu, A.H. Behzadan, A. Chen, Mobile Augmented Reality for Teaching Structural Analysis, *Advanced Engineering Informatics,* 2017, Vol. 34, pp. 90-100. https://doi.org/10.1016/j.aei.2017.09.005

10. V.S. Kalapusadi, P. Tang, **Y. Turkan**, Computationally Efficient Change Analysis of Piece-wise Cylindrical Building Elements for Proactive Project Control, *Automation in Construction*, 2017, Vol. 81, pp. 300-312. https://doi.org/10.1016/j.autcon.2017.04.001

11. F. Guo, C.T. Jahren, **Y. Turkan**, D. Jeong, Civil Integrated Management: An Emerging Paradigm for Civil Infrastructure Project Delivery and Management, *ASCE Journal of Management in Engineering*, 2016, pp. 04016044. https://doi.org/10.1061/(ASCE)ME.1943-5479.0000491

12. F. Shalabi, **Y. Turkan**, IFC-BIM Based Facility Management Approach to Optimize Data Collection for Corrective Maintenance, *ASCE Journal of Performance of Constructed Facilities*, 2016, pp. 04016081. https://doi.org/10.1061/(ASCE)CF.1943-5509.0000941

13. H. Abdualla, H. Ceylan, S. Kim, K. Gopalakrishnan, P. Taylor, **Y. Turkan**, System Requirements for Electrically Conductive Concrete Heated Pavements, *Transportation Research Record (TRR)*, 2016, Issue 2569, pp. 70-79. https://doi.org/10.3141/2569-08

14. F. Bosché, M.A. Ahmed, **Y. Turkan**, C.T. Haas, R.G. Haas, The value of integrating Scan-to-BIM and Scan-vs-BIM techniques for construction monitoring using laser scanning and BIM: The case of cylindrical MEP components, *Automation in Construction*, 2015, Vol. 49, pp. 201-213. https://doi.org/10.1016/j.autcon.2014.05.014

15. G. P. Luth, A. Schorer, **Y. Turkan**, Lessons from using BIM to increase Design Construction Integration, *ASCE Practice Periodical on Structural Design and Construction*, 2014, Vol. 19 Special

Issue: Construction Engineering: Leveraging Project and Career Success, pp. 103-110. https://doi.org/10.1061/(ASCE)SC.1943-5576.0000200

16. **Y. Turkan**, F. Bosché., C.T. Haas, R.G. Haas, Tracking of secondary and temporary objects in structural concrete work, *Construction Innovation: Information, Process, Management*, 2014, Vol. 14 (2), pp. 145 – 167. https://doi.org/10.1108/CI-12-2012-0063

17. F. Bosché, A. Guillemet, **Y. Turkan**, C.T. Haas, R.G. Haas, Assessing the value of a Scan-vs-BIM framework for tracking the built status of MEP works, *ASCE Journal of Computing in Civil Engineering*, 2014, Vol. 28 (4), pp. 05014004. https://doi.org/10.1061/(ASCE)CP.1943-5487.0000343

18. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Toward Automated Earned Value Tracking using 3D Imaging Tools, *ASCE Journal of Construction Engineering and Management*, 2013, Vol. 139 (4), pp. 423-433. https://doi.org/10.1061/(ASCE)CO.1943-7862.0000629

19. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Automated Progress Tracking Using 4D Models and 3D Sensing Technologies, *Automation in Construction*, 2012, Vol. 22 (2), pp. 414-421. https://doi.org/10.1016/j.autcon.2011.10.003

## Peer-Reviewed Refereed Conference Proceedings

1. Q. Sun, **Y. Turkan**, ABM and GIS Integration for Investigating the Influential Factors Affecting Wildfire Evacuation Performance, *Proceedings of the International Symposium on Automation and Robotics in Construction, Kitakyushu, Japan, October 2020.* https://doi.org/10.22260/ISARC2020/0142

2. A. Karabulut Ilgu, E. Miller, A. Chen, R. Radkowski, C. Jahren, **Y. Turkan**, A. Behzadan, *Exploring the Potential of a Mobile Augmented Reality Application to Teach Structural Analysis. American Education Research Association (AERA) Annual Meeting San Francisco, CA, April 2020*. http://tinyurl.com/t8rsxec (Conference Canceled)

3. Y. Xu, **Y. Turkan**, A. Karakhan, D. Liu, Exploratory Study of Potential Negative Safety Outcomes Associated with UAV-assisted Construction Management, *Proceedings of Construction Research Congress 2020, Tempe, AZ, March 8-10, 2020*. https://doi.org/10.1061/9780784482865.129

4. N. Puri, **Y. Turkan**, A comparison of Terrestrial Laser Scanning-based and Unmanned Aerial Vehicle Laser scanning-based techniques for Concrete Floor Waviness Assessment, *Proceedings of the International Symposium on Automation and Robotics in Construction, Banff, AB, May 2019,* (8 pages). https://doi.org/10.22260/ISARC2019/0152

5. Z. Chen, E. Che, F. Li, M. J. Olsen, **Y. Turkan**, Web-based Deep Segmentation of Indoor Point Clouds, *Proceedings of the International Symposium on Automation and Robotics in Construction, Banff, AB, May 2019,* (8 pages). https://doi.org/10.22260/ISARC2019/0074

6. W. Ferron, **Y. Turkan**, Preliminary Results: A Roadmap for BIM Adoption and Implementation by Small-Sized Construction Companies, *Proceedings of 35th CIB W78 Conference, IT in Design, Construction, and Management Chicago, IL, October 2018,* pp. 873-879. (47% acceptance rate) https://doi.org/10.1007/978-3-030-00220-6_105

7. Y. Xu, **Y. Turkan**, Bridge Inspection using Bridge Information Modeling (BrIM) and Unmanned Aerial Vehicles (UAVs), *Proceedings of 35th CIB W78 Conference, IT in Design, Construction, and Management Chicago, IL, October 2018,* pp. 617-624. (47% acceptance rate) https://doi.org/10.1007/978-3-030-00220-6_74

8. Q. Sun, **Y. Turkan**, A BIM Based Simulation Framework for Fire Evacuation Planning, *Proceedings of*

*35th CIB W78 Conference, IT in Design, Construction, and Management Chicago, IL, October 2018*, pp. 431-438. (47% acceptance rate) https://doi.org/10.1007/978-3-030-00220-6_51

9. R. Radkowski, A. Karabulut-Ilgu, **Y. Turkan**, A.H. Behzadan, Guiding or Exploring? Finding the Right Way to Teach Students Structural Analysis with Augmented Reality, *Proceedings of International Conference on Virtual, Augmented and Mixed Reality, Las Vegas, NV, July 2018,* pp.452-461. https://doi.org/10.1007/978-3-319-91581-4_34

10. F. Shalabi, **Y. Turkan**, A Semi-Automated Approach for Detecting Building Spaces with Deteriorating Performance Using IFC-BIM and Energy Simulations, *Proceedings of the 6th CSCE/CRC International Construction Specialty Conference, Vancouver, BC, June 2017*.

11. N. Puri, **Y. Turkan**, Toward Automated Dimensional Quality Control of Precast Concrete Elements Using Design BIM, *Proceedings of the 2nd International Conference on Building Information Modelling (BIM) in Design, Construction and Operations, Alicante, Spain, May 2017, WIT Transactions on the Built Environment, Vol. 169,* pp. 203-210.

12. N. Puri, **Y. Turkan**, Fusing 3D point clouds and 4D Information Models for Progress Monitoring in Linear Construction Projects, *Proceedings of the Construction Research Congress (CRC), New Orleans, LA, April 2017,* pp. 512 - 521. https://doi.org/10.1061/9780784481264.050

13. N. Puri, **Y. Turkan**, Fusing 4D BIM and 3D Point Clouds for Dimensional Quality Control of Precast Concrete Slabs and Walls, *Proceedings of the 16th International Conference on Construction Applications of Virtual Reality (CONVR), Hong Kong, December 2016*.

*14.* **Y. Turkan**, A. Chen, A. Karabulut-Ilgu, R. Radkowski, A.H. Behzadan, C.T. Jahren, Mobile Augmented Reality Implementation for Structural Analysis, *Proceedings of the 23rd International Workshop of the European Group for Intelligent Computing in Engineering (EG-ICE), Krakow, Poland, June 2016* (25% acceptance rate).

15. F. Guo, C.T. Jahren, **Y. Turkan**, Electronic Document Management Systems for Transportation Construction Industry, *Proceedings of the CSCE International Construction Specialty Conference, Vancouver, BC, June 2015,* pp.132 (1-8).

16. **Y. Turkan**, L. Tan, S. Laflamme. Feature Extraction from 3D Point Clouds for Automatic Update of Bridge Inspection Database, *Proceedings of ASCE Engineering Mechanics Institute Conference, Stanford, CA, June 2015*.

17. F. Shalabi, **Y. Turkan**, S. Laflamme, BrIM Implementation for Documentation of Bridge Condition for Inspection, *Proceedings of the CSCE International Construction Specialty Conference, Vancouver, BC, June 2015*, pp.262 (1-8).

18. F. Shalabi, **Y. Turkan**, A Novel Framework for BIM Enabled Facility Energy Management, *Proceedings of the CSCE International Construction Specialty Conference, Vancouver, BC, June 2015*, pp. 258 (1-8).

19. H. Son, C. Kim, **Y. Turkan**, Scan-to-BIM – An Overview of Current State of the Art and a Look Ahead, *Proceedings of 32nd International Symposium on Automation and Robotics in Construction (ISARC), Oulu, Finland, June 2015*. https://doi.org/10.22260/ISARC2015/0050

20. V. S. Kalasapudi, **Y. Turkan**, P. Tang, Toward Automated Spatial Change Analysis of MEP Components using 3D Point Clouds and As-Designed BIM Models, *Proceedings of the International Conference on 3D Computer Vision, IEEE, Workshop on 3D Computer Vision in the Built Environment, Tokyo, Japan, December 2014,* (8 pages) (26% acceptance rate) 10.1109/3DV.2014.105.

21. F. Guo, **Y. Turkan**, C.T. Jahren, H.D. Jeong, Civil Information Modeling (CiM) Adoption by Departments of Transportation, *Proceedings of the 15th International Conference in Computing in Civil Engineering and Built Environment (ICCCBE), Orlando, FL, June 2014,* pp. 463-471. https://doi.org/10.1061/9780784413616.058

22. F. Guo, **Y. Turkan**, C.T. Jahren, Case Studies of BIM Practices within Mechanical Construction Industry, *Proceedings of the 2014 Construction Research Congress (CRC), Atlanta, GA, May 2014,* pp. 229-238. https://doi.org/10.1061/9780784413517.024

23. F. Bosché, **Y. Turkan**, C.T. Haas, T. Chiamone, G. Vassena, A. Ciribini, Tracking MEP Installation Works, *Proceedings of the 30th International Symposium on Automation and Robotics in Construction, Montreal, QC, August 2013,* pp. 229- 239. https://doi.org/10.22260/ISARC2013/0025

24. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Tracking Secondary and Temporary Concrete Construction Objects Using 3D Imaging Technologies, *Proceedings of the ASCE International Workshop on Computing in Civil Engineering, Los Angeles, CA, June 2013*, pp. 749-756. https://doi.org/10.1061/9780784413029.094

25. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Automated Progress Tracking of Erection of Concrete Structures Using 3D Imaging Technologies, *Proceedings of the Canadian Society for Civil Engineering (CSCE) Annual Conference, Ottawa, QC, June 2011*.

26. F. Bosché, **Y. Turkan**, C.T. Haas, R.G. Haas, Fusing 4D Modeling and Laser Scanning for Automated Construction Progress Control, *Proceedings of the Association of Researchers for Construction Management (ARCOM) Annual Conference, Leeds, U.K., September 2010*.

27. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Toward automated progress tracking of erection of construction of concrete structures, *Proceedings of the International Conference on Innovation in Architecture, Engineering and Construction, State College, PA, June 2010*.

## Other Conference Publications

1. M. Olsen, R.J. Schultz, C. Parrish, J. Park, J. Kiser, **Y. Turkan**, SaGES 2017: The XIV Surveying and Geomatics Educators Society Conference at Oregon State University, *Journal of Surveying and Land Information Science,* 2018, Vol. 77 (2), pp. 67-70.

2. A. Karabulut-Ilgu, A. Chen, R. Radkowski, **Y. Turkan**, A.H. Behzadan, A. Chen, Usability of a Mobile Augmented Reality Application to Teach Structural Analysis, *Proceedings of the ASEE Annual Conference and Exposition, Salt Lake City, UT, June 2018.*

3. N. Puri, **Y. Turkan**, Progress Monitoring of Horizontal Construction Projects Using Mobile LiDAR Point Clouds, *Proceedings of ASCE UESI Surveying and Geomatics Conference, Pomona, CA, April 2018*.

4. N. Puri, **Y. Turkan**, Dimensional Quality Control of Concrete Elements Using As-Designed BIM, *Proceedings of 53rd ASC Annual International Conference, Seattle, WA, April 2017.*

5. C. Parrish, **Y. Turkan**, K. Kellum, C. Simpson, Bridge and Power Equipment Inspections with Unmanned Aircraft Systems, *GIS in Action Conference, Portland, OR, April 2017.*

6. H. Abdualla, S. Kim, **Y. Turkan**, P. Taylor, H. Ceylan, K. Gopalakrishnan, Design and Construction Requirements for Electrically Heated Pavement Systems, *Proceedings of the Mid-Continent Transportation Research Symposium, Ames, IA, August 2015*.

7.  <u>F. Guo</u>, C.T. Jahren, **Y. Turkan**, Case Study on 3D Modeling and AMG Practices, *Proceedings of the Conference on Autonomous and Robotic Construction of Infrastructure, Ames, IA, June 2015*.

8.  S. Laflamme, **Y. Turkan**, <u>L. Tan</u>, Bridge Structural Condition Assessment using 3D Imaging, *Proceedings of the Conference on Autonomous and Robotic Construction of Infrastructure, Ames, IA, June 2015*.

9.  E. Marks, S. Siebert, **Y. Turkan**, J. Teizer, Mobile 3D Mapping of Large Infrastructure Projects Using Unmanned Aerial Vehicle (UAV) Systems, *Construction Industry Institute (CII) Conference, July 2013*. (Recipient of the Best Poster Award)

10. <u>D. Van</u>, **Y. Turkan**, Application of 3D Printing Technology in BIM and Virtual Design and Construction, *FIATECH Annual Technology Conference and Showcase, March 2013*.

11. M. Nahangi, M. Ahmed M., **Y. Turkan**, C.T. Haas, R.G. Haas, Automated Progress Tracking of Construction Projects using Sensing and 3D Imaging Technologies*, Proceedings of Modular and Off-Site Construction Summit, Edmonton, AB, October 2012*.

12. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Automated Earned Value tracking, *Proceedings of the Gerontechnology Conference, Eindhoven, The Netherlands, July 2012*. Vol. 11, no. 2, p.242.

13. **Y. Turkan**, Automated Construction Progress Tracking of structures using 3D imaging and a-priori 3D BIM models, *FIATECH Annual Technology Conference and Showcase, Chandler, AZ, April 2011*.

14. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Automated Progress Tracking Using 3D Imaging (LADAR & Photogrammetry*), Construction Industry Institute (CII) Annual Conference*, *July 2010*.

15. **Y. Turkan**, F. Bosché, C.T. Haas, R.G. Haas, Automated Construction Progress Tracking using LADAR, *CSCE Canadian Graduate Student Colloquium on Computer-Assisted Construction Technologies, June 2009*.

16. G. Dadi, **Y. Turkan**, Committee Showcase Features Today's Breakthrough Technologies, *Construction Industry Institute (CII) Newsletter, August 2011*.

## Presentations to Professional Groups

1.  Invited Talk, American Concrete Institute (ACI) Webinar, Use of laser scans and drones to measure concrete floor waviness / flatness automatically, June 1, 2020.

2.  Invited Talk, NHERI Lehigh Seminar Series, Webinar, "Post-event Reconnaissance using BIM, LiDAR and UASs", January 22, 2020.

3.  Invited Talk, Tsinghua University, "BIM, LiDAR and Unmanned Aircraft Systems (UAS)s for Infrastructure Assessment", October 31, 2019.

4.  Invited Talk, *2nd International Conference on Sustainable Buildings and Structures, Suzhou, China*, "Deep Semantic Segmentation for 3D as-is Bridge Model Generation", October 26, 2019.

5.  Conference Presentation, *the 2019 International Symposium on Automation and Robotics in Construction, Banff, AB,* "A comparison of Terrestrial Laser Scanning-based and Unmanned Aerial Vehicle Laser scanning-based techniques for Concrete Floor Waviness Assessment", May 22, 2019.

6.  Conference Presentation, *the 2019 International Symposium on Automation and Robotics in Construction, Banff, AB,* "Web-based Deep Segmentation of Indoor Point Clouds", May 24, 2019.

7.  Invited Talk, George Mason University, "BIM and 3D Imaging Technologies for Dimensional Quality Control of Precast Concrete Elements", February 5, 2019.

8. Conference Presentation, *35th CIB W78 Conference, IT in Design, Construction, and Management Chicago, IL,* "Bridge Inspection using Bridge Information Modeling (BrIM) and Unmanned Aerial Vehicles (UAVs)", October 3, 2018.

9. Invited Talk, North Carolina State University, "BrIM, LiDAR and Unmanned Aerial Vehicles for Infrastructure Assessment", March 2, 2018.

10. Invited Talk, City University of Hong Kong, "BrIM, LiDAR and Unmanned Aerial Vehicles for Infrastructure Assessment", December 29, 2017.

11. Conference Presentation, *6th CSCE/CRC International Construction Specialty Conference, Vancouver, BC*, "A Semi-Automated Approach for Detecting Building Spaces with Deteriorating Performance Using IFC-BIM and Energy Simulations", June 2017.

12. Conference Presentation, *2nd International Conference on Building Information Modelling (BIM) in Design, Construction and Operations, Alicante, Spain*, "Toward Automated Dimensional Quality Control of Precast Concrete Elements Using Design BIM", May 2017.

13. Conference Presentation, *16th International Conference on Construction Applications of Virtual Reality (CONVR), Hong Kong*, "Fusing 4D BIM and 3D Point Clouds for Dimensional Quality Control of Precast Concrete Slabs and Walls," December 2016.

14. Conference Presentation, *23rd International Workshop of the European Group for Intelligent Computing in Engineering (EG-ICE), Krakow, Poland*, "Mobile Augmented Reality Implementation for Structural Analysis," June 2016.

15. Invited Talk, Missouri State University, "Remote Sensing and Information Modeling Applications in the Construction Industry", March 2016.

16. Invited Talk, Oregon State University, "LiDAR and Information Modeling Applications in Construction and Facilities Management", March 2016.

17. Invited Guest Lecture, McMaster University, "Sensing and Information Technology Applications in the AEC-FM Industry", February 2016.

18. Invited Guest Lecture, Missouri State University, "New Technologies and Trends in the Construction Industry", November 2015.

19. Invited Guest Lecture, Iowa State University, "LiDAR Applications for Preserving Historic Built Environment", September 2015.

20. Keynote Speaker, University of Central Florida, "Remote Sensing and Information Technology Applications in Construction Engineering and Management", Women in Construction Workshop, July 2015.

21. Conference Presentation, *32nd International Symposium on Automation and Robotics in Construction (ISARC), Oulu, Finland*, "Scan-to-BIM – An Overview of Current State of the Art and a Look Ahead", June 2015.

22. Invited Talk, Iowa State University, "Bridge Structural Condition Assessment using 3D Modeling and 3D Imaging Technologies," Workshop on 3D Design and Modeling for Highway Structures, Bridge Engineering Center, April 2015.

23. Invited Talk, University of Alberta, "Automated Volumetric Project Progress Tracking using 3D Imaging Technologies," March 2015.

24. Invited Talk, University of Washington, "Sensing and Information Technology Applications for Construction Management," February 2015.

25. Conference Presentation, *IEEE International Conference on 3D Computer Vision, Tokyo, Japan*, "Toward Automated Spatial Change Analysis of MEP Components using 3D Point Clouds and As-Designed BIM Models," December 2014.
26. Invited Talk, University of Twente, "3D Imaging Technology Applications for Project Progress Control," November 2014.
27. Conference Presentation, *Construction Research Congress, Atlanta, GA*, "Case Studies of BIM Practices within Mechanical Construction Industry," May 2014.
28. Invited Talk, McMaster University, "Creating As-built BIMs for MEP Systems by fusing Construction BIM Models and 3D Laser Scan Point Clouds," October 2013.
29. Invited Talk, *Construction Industry Institute (CII) Annual Conference*, *Orlando, FL*, "Tracking Secondary and Temporary Concrete Construction Objects using 3D Imaging Technologies," July 2013.
30. Conference Presentation, *ASCE International Workshop on Computing in Civil Engineering, Los Angeles, CA*, "Tracking Secondary and Temporary Concrete Construction Objects Using 3D Imaging Technologies," June 2013.
31. Invited Talk, Georgia Institute of Technology, "Four-Dimensional (4D) Modeling for Building Progress Monitoring," April 2012.
32. Invited Talk, Iowa State University, "Automated Progress Tracking by fusing 4D Modeling and 3D Imaging Tools," April 2012.
33. Conference Presentation, *Canadian Society for Civil Engineering (CSCE) Annual Conference*, *Ottowa, ON*, "Automated Progress Tracking of Erection of Concrete Structures Using 3D Imaging Technologies," June 2011.
34. Conference Presentation, *International Conference on Innovation in Architecture, Engineering and Construction, State College, PA*, "Toward automated progress tracking of erection of construction of concrete structures," June 2010.

### *Participation at Invitational Workshops*
1. The Eastman Symposium, BIM in Construction Engineering, May 13, 2021.
2. 3D Printing for Civil Infrastructure Design and Construction Workshop, National Science Foundation, July 13-14, 2017.
**3.** 3D Computer Vision in the Built Environment Workshop, IEEE International Conference on 3D Computer Vision, Tokyo, Japan, December 2014.


## FUNDED RESEARCH

| Agency & Dates | PI (and coPIs) | Title | Total Budget |
|---|---|---|---|
| ODOT 9/1/2021 – 6/30/2024 | M. Olsen (PI), J. Jung (Co-PI), E. Che (Co-PI), Y. Turkan (Co-PI), C. Parrish (Co-PI) | Automating lidar data to develop and manage active transportation asset inventories | $250,000 |
| PacTrans 6/1/2021 – 5/31/2022 | J. Louis (PI), Y. Turkan (Co-PI) | Mitigating wildfire impacts on mobility using GIS, fire | $40,000 |

| | | simulation, and operations modeling | |
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| PacTrans 3/16/2021- 3/15/2022 | Y. Turkan (PI); P. Calvi (co-PI) | LiDAR, Drones and BrIM for Rapid Bridge Inspection and Management | $300,000 |
| NCHRP 1/15/2021- 1/14/2022 | Y. Turkan (PI); Kevin Han (co-PI) | NCHRP Synthesis 20-05/Topic 52-04: Use of Unmanned Aircraft Systems for Departments of Transportation | $45,000 |
| NSF 09/15/2020- 05/31/2021 | Y.Turkan (PI), M. Olsen (Co-PI), F. Li (Co-PI), R. Chen (Co-PI), Y. Cho (Co-PI) | NSF Convergence Accelerator – Track D – Rapid Development of Intelligent, Built Environment Geo-Databases Using AI and Data-Driven Models | $920,000 |
| CPWR 08/16/2020- 08/15/2021 | Y. Turkan (PI) | Practical Effectiveness Model for Mitigating Safety Hazards Generated by using UAVs in Construction | $30,000 |
| FHWA 01/15/20 – 12/31/21 | Y. Turkan (PI), C. Parrish (Co-PI), M. Olsen (Co-PI), C. Simpson (Co-PI) | Every-Day Counts Initiative 5: Unmanned Aerial Systems (UAS)s | $147,500 |
| PacTrans 08/16/20 – 09/15/21 | Y. Turkan (PI), E. Che (Co-PI), M. Olsen (Co-PI) | Automated Localization and ADA Functional Condition Assessment of Curb Ramps using Mobile Lidar | $80,000 |
| ARS/TDI 07/01/2020- 06/30/2021 | Y. Turkan (PI), E. Fischer (Co-PI) | Fire protection construction sequencing in mass timber buildings for fire safety | $30,000 |
| NSF 09/01/19- 08/31/20 | M. Olsen (PI), M. Bailey (co-PI), Y. Turkan (co-PI), J. Park, C. Parrish | Planning Grant: Engineering Research Center for Built Infrastructure Geospatial Data Acquisition, Visualization, and Analysis (BIGDAVA) | $99,999 |
| PacTrans 08/16/19 – 09/15/21 | Y. Turkan (PI) | UAS Image-Based Point Clouds to 3D BrIM: Deep Semantic Segmentation for 3D as-is Bridge Model Generation | $80,000 |
| OSU CTL 10/08/19- 12/04/19 | Y. Turkan (PI) | Hybrid Course Development: CEM 442 - Building Construction Management | $1,500 |

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| FHWA 08/15/18 – 05/31/19 | Y. Turkan (PI) | Advancing the Development and Deployment of BIM-Infrastructure | $10,792 |
| PacTrans 09/16/17 – 09/15/19 | Y. Turkan (PI) | Bridge Structural Inspections using Bridge Information Models (BrIM) and Unmanned Aerial Vehicles (UAVs) | $70,000 |
| NSF 08/15/17- 08/14/19 | Y. Turkan (PI) | Collaborative Research: Transforming the Teaching of Structural Analysis Skills through Mobile Augmented Reality | $30,000 |
| ODOT 08/01/17- 10/31/18 | Y. Turkan (PI), M. Olsen (co-PI), J. Gambatese (co-PI) | Project Progress Tracking Using LiDAR and 4D Information Models | $96,000 |
| NCHRP 12/15-08/17 | O. Smadi (PI), J. Tsai (co-PI), H. Ceylan (co-PI), Y. Turkan (co-PI) | Standard Definitions for Comparable Pavement Cracking Data | $300,000 |
| FAA 8/14-08/16 | H. Ceylan (PI), P. Taylor (co-PI), K. Gopalakrishnan (co-PI), S. Kim (co-PI), Y. Turkan (co-PI), K. Gkritza (co-PI) | Advanced Construction Techniques for Heated Airport Pavements | $278,470 |
| MTC 7/14-6/15 | Y. Turkan (PI) and S. Laflamme (co-PI) | Terrestrial Laser Scanning Based Bridge Condition Assessment | $64,115 |
| Minnesota DOT 7/14-6/16 | Y. Turkan (PI) and J. Shane (co-PI) | Modernizing Road Construction Plans and Documentation | $146,022 |
| MATC 7/13-12/14 | Y. Turkan (PI) and S. Laflamme (co-PI) | Digital Documentation of Element Condition for Bridge Evaluation | $59,780 |
| | | *Totals* | $2,829,178 |

## TEACHING EXPERIENCE

| At Oregon State University (OSU) | | | | |
|---|---|---|---|---|
| **Number** | **Course Title** | **Term/Year** | **Credits** | **Enrollment** |
| CE 424/524 | Contracts and Specifications | Winter 2017 | 4 | 84 |
| CE 560 | Special Topics in Geomatics: Advanced Virtual Design & Construction | Spring 2017 | 3 | 3 |

| CE 560 | Special Topics in Geomatics: Advanced Virtual Design & Construction | Fall 2017 | 3 | 9 |
|---|---|---|---|---|
| CE 420/520 | Engineering Planning | Winter 2018 | 4 | 73 |
| CE 424/524 | Contracts and Specifications | Spring 2018 | 4 | 58 |
| CE 420/520 | Engineering Planning | Winter 2019 | 4 | 64 |
| CEM 442 | Building Construction Management | Spring 2019 | 4 | 27 |
| CE 560 | Special Topics in Geomatics: Advanced Virtual Design & Construction | Spring 2019 | 3 | 19 |
| CE 420/520 | Engineering Planning | Winter 2020 | 4 | 66 |
| CEM 442 | Building Construction Management | Spring 2020 | 4 | 69 |
| CCE 528 | Advanced Virtual Design & Construction | Spring 2020 | 4 | 17 |
| CEM 442 | Building Construction Management | Spring 2021 | 4 | 56 |
| CCE 528 | Advanced Virtual Design & Construction | Spring 2021 | 4 | 11 |
| **At Iowa State University (ISU)** | | | | |
| **Number** | **Course Title** | **Term/Year** | **Credits** | **Enrollment** |
| CE 594S | Building Information Modeling | Spring 2013 | 3 | 7 |
| ConE 222 | Contractor Organization & Management of Construction | Fall 2013 | 3 | 50 |
| ConE 222 | Contractor Organization & Management of Construction | Spring 2014 | 3 | 34 |
| CE 594S | Building Information Modeling | Spring 2014 | 3 | 7 |
| ConE 222 | Contractor Organization & Management of Construction | Fall 2014 | 3 | 51 |
| ConE 222 | Contractor Organization & Management of Construction | Spring 2015 | 3 | 34 |
| CE 594S | Building Information Modeling | Spring 2015 | 3 | 10 |
| ConE 222 | Contractor Organization & Management of Construction | Fall 2015 | 3 | 46 |
| CE 595A | Research Methods in CEM | Fall 2015 | 1 | 6 |
| CE 595C | Research Methods in CEM | Fall 2015 | 1 | 5 |
| ConE 222 | Contractor Organization & Management of Construction | Spring 2016 | 3 | 39 |
| CE 594S | Building Information Modeling | Spring 2016 | 3 | 18 |
| CE 595B | Research Methods in CEM | Spring 2016 | 1 | 6 |

*Course and Curriculum Development*
- CCE 528, Advanced Virtual Design and Construction Category II proposal was approved for AY 19 – 20; course was taught as CCE 528 in Spring 2020. It used to be offered under CE 560 Special Topics in

Geomatics Engineering). This newly developed course on Advanced Virtual Design Construction introduces Building Information Modeling (BIM) concepts, BIM Applications, BIM for Facility Management, and Integrated Project Delivery.

- Completed the Center for Teaching and Learning Hybrid Learning program at OSU to redesign and offer CEM 442 Building Construction Management as a hybrid course starting in Spring 2020. This class is an introduction to building construction for juniors in the Construction Engineering and Management program and covers materials, methods, assemblies and equipment used in building construction projects.

### *International Teaching*

- Construction Drafting Reading, Guangxi Poly Construction College, Nanning, Guangxi Province, China, December 11-22, 2017.

## ADVISING

### *Graduate Advisees - Completed*

| Student | Degree | Thesis | Graduated |
|---|---|---|---|
| 1.  Nisha Puri | PhD | *Progress Monitoring and Quality Assessment / Quality Control of Construction Projects using Lidar and BIM* | Spring 2019 |
| 2.  Wylie Ferron | MS | *Roadmap for BIM Adoption and Implementation by Small Sized Construction Companies* | Fall 2018 |
| 3.  Qi Sun | MS | *A BIM Based Simulation Framework for Fire Evacuation Planning* | Spring 2018 |
| 4.  Yiye Xu | MS | *Bridge Inspection Using Bridge Information Modeling (BrIM) and Unmanned Aerial Systems (UASs)* | Spring 2018 |
| 5.  Fangyu Guo *co-advised with Prof. Charles Jahren | PhD (ISU) | *Civil Integrated Management and the implementation of CIM-related technologies in the transportation industry* | Fall 2016 |
| 6.  Firas Shalabi | PhD (ISU) | *BIM framework for energy and maintenance performance assessment for facility management* | Summer 2016 |
| 7.  Abhimanu Goyal | MS (ISU) | *A Novel Bridge Information Modeling (BrIM) Based Framework for Bridge Inspections* | Spring 2016 |

### *Graduate Advisees – Current*

| Student | Degree | Expected Graduation |
|---|---|---|
| 1.  Yiye Xu | PhD | Summer 2022 |
| 2.  Qi Sun | PhD | Summer 2022 |
| 3.  Donghoon Ji | PhD | Spring 2025 |
| 4.  Ryan Patrick Holt Longman *co-advised with Dr. Mariapaola Riggio | MS | Spring 2021 |

| 5. Saifaldawlah Ahmed Mhaimeed Al-Hamadani | MS | Spring 2022 |
|---|---|---|
| 6. Yang Zhou<br>    *co-advised with Dr. Erzhuo Che | MS | Spring 2022 |

*Graduate Thesis or Project Committees*

**MEng Advisor:**

**Graduated**
1. Hongyu Lu, MEng., Summer 2020
2. Ange Yang, MEng., Spring 2020
3. Paul Hill, MEng., 2019
4. Liangyu Tan (ISU), MEng, 2016

*Current*
1. Xiao Liu, MEng., Expected Spring 2021
2. Reece Randle Roberts, Expected Spring 2022

**Minor Professor or Committee Member:**

*Graduated*
1. Linkai Guan, MEng, 2021
2. Tianzhuo Zhang, MEng, 2020.
3. Ola Al-saffar, MS, 2020.
4. Shubham Nitin Surana, MEng, 2020.
5. Songyang Wu, MEng, 2020.
6. Manoj Kumar Basava Sharana, MEng, 2019.
7. Erzhuo Che, PhD, 2018.
8. Kelsey Chan, MS, 2018.
9. Yimeng Song, MEng, 2017.
10. Xu Wei, MEng, 2017.
11. Yue Feng, MEng, 2017.
12. Shiyu Wen, MEng, 2017.
13. Tuyen Thanh Le (ISU), PhD, 2017.
14. Ahmed Fathy Abdelat, (ISU), Ph.D., 2017.
15. Jorge A. Rueda (ISU), Ph.D., 2016.
16. Ayush Sharma (ISU), MS, 2015.
17. Catalina Miller (ISU), Ph.D., 2015.

*Current*
1. Serey Raksa Moeung, MS., expected Spring 2021.
2. Ziyu Jin, Ph.D., expected Fall 2020.
3. Shafayet Ahmed, Ph.D., expected Spring 2021.
4. Khandakar Rashid, Ph.D., expected Spring 2021.

**Graduate Council Representative:**
1. Yunfan Li, PhD, 2021 (Computer Science)
2. Kimia Tajik, PhD, 2021 (Computer Science)
3. Enna Sachdeva, MS, 2020 (Robotics)
4. Nick Zerbel, PhD, 2020 (Robotics)

5. Kelsey Johnson, PhD, 2020 (Applied Economics)
6. Mihai Dan, MS, 2019 (Computer Science)
7. Vahid Ghadakchi, PhD, 2019 (Computer Science)
8. Shauharda Khadka, PhD, 2019 (Mechanical Engineering)
9. Cheng Gao, MS, 2019 (Electrical and Computer Engineering)
10. Zehuan Chen, MS, 2019 (Computer Science)
11. Sara Cantu, PhD, 2019 (Counseling)
12. Jeffrey Young, PhD, 2019 (Computer Science)
13. Muslum Ozgur Ozmen, MS, 2018 (Computer Science)
14. Karl J. Smeltzer, PhD, 2018 (Computer Science)
15. Jacob Beck, PhD, 2018 (Robotics)
16. Michael Polander, MS, 2018 (Mechanical Engineering)
17. Yunfan Li, MS, 2018 (Computer Science)
18. Stephen Wong, PhD, 2018 (Counseling)
19. Lauren Milliken, MS, 2017 (Mechanical Engineering)
20. Trevor Fiez, MS, 2017 (Computer Science)
21. Amirhosein Azarbakht, PhD, 2017 (Computer Science)
22. Samantha Hemleben, MS, 2017 (Robotics)
23. Sultana Z. Fouzia, MPP, 2016 (Public Policy)

### *Undergraduate Research Assistants*

1. Jaylen Carr, NSF funded Engineering for Bouncing Back REU (Summer 2019)
2. Miguel Gaspar Marquez (Winter 2017 – Fall 2017)
3. Lucas Tito (ISU) (Summer 2015)
4. Kyle Younkin (ISU) (Spring 2015)
5. Duong Van (ISU) (Spring 2013 - Fall 2013)

### *Other Advising*

- **External Examiner**, Jisoo Park, Ph.D., Georgia Institute of Technology, 2020.
- **Adviser** for CS 461 Senior Capstone Project, 2018 – 2019 AY.
  Mixed Reality application development for infrastructure maintenance.
- **Adviser** for Reno Virtual Design and Construction (VDC) Team, Fall 2017 & 2018.
- **Adviser** for CCEE Department Software Exploration Student Club (ISU), 2013 – 2016.
  During this period the group organized several professional development activities such as software training and hosting industry speakers.
- **Faculty Mentor** for Learning Community (ConE 122) Students (ISU), Fall 2013 – Spring 2016.

## SERVICE ACTIVITIES
### *Journal Editorships*
- Editorial Board Member, Advanced Engineering Informatics, Elsevier, since February 2020.
- Guest Editor, Special Issue on UAS Lidar for Precision Mapping, Remote Sensing Journal

### *Professional Membership and Leadership Roles*
- ASCE - American Society of Civil Engineers
  - Computing Division
    - Chair, Education Committee, 2018 – Present

- – Member, Data Sensing and Analytics Committee (DSA), 2014 - Present
  - – Member, Visualization, Information Modeling and Simulation Committee (VIMS), 2014 - Present
  - ▪ Construction Institute, Digital Project Delivery Committee, 2014 - Present

- CII – Construction Industry Institute
  - ▪ Academic Advisor for the Data Analytics Community for Business Advancement (DA CBA), 2020 - Present
  - ▪ Member, Academic Committee, 2012 - Present
  - ▪ Student Member, Breakthrough Strategy Committee, 2010 - 2012
- TRB – Transportation Research Board
  - ▪ Member, Information Systems and Technology Committee (AED30), 2016 - Present
  - ▪ Member, AFH10 (1) Information Systems in Construction Management Joint Subcommittee of AFH10 & ABJ50, 2014 – Present.
  - ▪ Friend, Visualization in Transportation Committee (ABJ95), 2013 – Present.
  - ▪ Member, Geospatial Data Acquisition in Design and Construction Committee (AKD70), 2012 – Present
- IAARC – International Association for Automation and Robotics in Construction
  - ▪ Vice President, Communications, 2019 - Present
  - ▪ Member, Board of Directors, 2018 – Present
- GLF-CEM – The Global Leadership Forum for Construction Engineering and Management Programs
  - ▪ Member, Future Leaders Committee
  - ▪ Member, Women in Architecture and Construction Group
- CIB – International Council for Research and Innovation in Building and Construction
  - ▪ TG90 Task Group on Information Integration in Construction
  - ▪ W078 Commission on Information Technology for Construction

### *Conference and Workshop Organization*

- Scientific Committee member for the ASCE i3CE 2021 – IT for Smart Infrastructure and Communities Conference, 12-14 September, Orlando, FL.
- Scientific Committee member for the 18th International Conference on Computing in Civil Engineering and 37th International CIB W78 Conference (ICCCBE/W78 Joint Conference), June 2-4, 2020, Sao Paulo, Brazil.
- Scientific Committee member for the 8th International Conference on Innovative Production and Construction (IPC 2019), December 4-7th, 2019, Hong Kong, China.
- Scientific Committee member for the 2nd International Conference on Sustainable Buildings and Structures (ICSBS 2019), October 25 - 27, 2019, Suzhou, China.
- Organizer of the Academic Showcase at the 2019 Construction Industry Institute (CII) Annual Conference, August 4 - 5, 2019, San Diego, CA.

- Scientific Committee member for the International Council for Research and Innovation in Building Construction (CIB) W78 35 Annual Conference, 2018.
- Organizer of the social/vacation day activities at the 2017 Surveying and Geomatics Educators Society (SaGES) Conference, July 30 – August 3, 2017, Corvallis, OR.
- Technical Committee Co-Chair, Construction Planning and Control Track, Construction Research Congress (CRC), 2018.
- Technical Program Co-Chair, TRB Webinar on Information Standardization Practices for Digital Project Delivery, 2015 (430 attendees across the U.S.).
- Technical Program Co-Chair, TRB Workshop on Information Standardization Practices for Digital Project Delivery, 2015.

### *Conference Program Committees*

- Session Chair, Data Sensing, Computing and Visualization, the International Symposium on Automation and Robotics in Construction, Banff, AB, 2019
- Session Chair, Education, Training and Learning with Technologies, CIB W78 35 Annual Conference, 2018
- ASCE International Workshop on Computing in Civil Engineering, 2015, 2017
- ASCE Construction Research Council Congress, 2014, 2016, 2018
- International Symposium on Automation and Robotics in Construction, 2013, 2015
- Session Chair, ASCE International Workshop on Computing in Civil Engineering, 2013
- Session Chair, ASCE Construction Research Council Congress, 2014
- Session Chair, International Symposium on Automation and Robotics in Construction, 2013
- Session Chair, Transportation Research Board Annual Meeting, 2014
- Panel Member for the Visualization, Information Modeling and Simulation (VIMS) and Data Sensing and Analytics (DSA) Tracks Best Paper and Best Ph.D. Student Demonstration Competition, 2015 ASCE International Workshop on Computing in Civil Engineering.
- Panel Member for the Data Sensing and Analytics (DSA) Track Best Paper, 2014 ASCE International Conference on Computing in Civil and Building Engineering.

### *Reviewing*

- NSF Grant Review Panels (CMMI CIS Program; EHR Division of Undergraduate Education)
- Estonian Research Council (ETAg) Research Grant Application Reviews
- German Research Foundation Grant Application Reviews
- ASCE Journal of Computing in Civil Engineering
- ASCE Journal of Construction Engineering and Management
- ASCE Journal of Surveying Engineering
- ASCE Journal of Management in Engineering
- ASCE Journal of Infrastructure Systems
- ASCE Journal of Professional Issues in Engineering Education and Practice
- ASCE Practice Periodical on Structural Design and Construction

- Automation in Construction, Elsevier
- Advanced Engineering Informatics, Elsevier
- Visualization in Engineering, Springer
- Computer-Aided Civil and Infrastructure, Wiley
- Journal of Spatial Science, Taylor and Francis
- Building Simulation, Springer
- International Journal of Disaster Risk Reduction

### *University Service*
- Faculty Marshal (Undergraduate) at the 2017 Commencement ceremony
- School Graduate Committee, AY 16/17, 17/18, 18/19

### At Iowa State University
- Promotion and Tenure Committee, AY 14/16
- Ad-hoc committee on faculty and staff mentoring, AY 13/14
- Search Committee for Clinician, 2013
- Search Committee for the CCEE Department Chair, 2012

### *Service to the Public*
**Outreach Activities**

- **BIM Demonstration, 2017 and 2019:** Presented and demonstrated several BIM applications used in the construction industry to high school teachers at the Associated General Contractors Oregon-Colombia Chapter and Willamette Promise High School CTE Teachers and Counselors Externship Day on the OSU campus, August 10, 2017 & June 27, 2019.
- **KNEX Design Competition, 2017:** Co-organized and served as one of the judges for the design competition tailored for 8th grade science students at Linus Pauling Middle School in Corvallis, OR, April 10, 2017.
- **Bridge Building Challenge, 2015:** Served as Truss and Innovation Judge for students' (Grades 1 -3) bridge designs at the Ready, Set, Build: Central Iowa's Bridge Building Challenge event organized by InTrans, Iowa DOT and Iowa Science Center, held at Iowa Science Center, November 7, 2015.
- **Lego Blocks Construction Competition for Children (Grades 1-5), 2015:** Served as one of the three judges at the lego blocks construction competition hosted by NAWIC (National Association of Women in Construction), January 2015.