

Professional Experience

- Assistant Professor, Bert S. Turner Department of Construction Management, Louisiana State University, 2020- Now.
 - Adjunct Assistant Professor, Division of Electrical and Computer Engineering, Louisiana State University, 2022- Now.
 - Senior Research and Development Engineer, Contour Crafting Corporation, California, 2017-2020.
 - Graduate Research Assistant, University of Southern California (USC), 2014-2018.
 - Graduate Teaching Assistant, Departments of Computer Science, University of Southern California (USC), 2017-2018.
 - Graduate Research Assistant, Pennsylvania State University (Penn State), 2014.
 - Researcher at Construction Materials Institute, University of Tehran, 2013.
 - Graduate researcher at Concrete Technology and Durability Research Center, Amirkabir Univ. of Tech., 2010-2012.
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Education

- Ph.D. in Civil Engineering, University of Southern California (USC), Los Angeles, United States.
Fall 2014- Fall 2018
 - [PhD thesis](#): *Developing techniques and test methods for mixture characterization and real-time quality monitoring for construction 3D printing (advisor: Professor Behrokh Khoshnevis)*
 - M.Sc. in Computer Science, University of Southern California (USC), Los Angeles, United States.
Spring 2015- Spring 2017
 - M.Sc. in Construction Engineering and Management, Amirkabir University of Technology, Iran.
Fall 2010 – Fall 2012 (Ranked 1st)
 - B.Sc. in Civil Engineering, Amirkabir University of Technology, Iran.
Fall 2006 – Summer 2010
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Publications and Presentation

Books and Chapters

- (Book Chapter) **Kazemian, A.**, Giwa, I., Ekenel, M., Chapter title: “Large-scale Additive Manufacturing for Automated Construction – An Overview”, Book: ASM Handbook, Volume 24A, *Additive Manufacturing Design and Applications*, Editors: Seifi, M., Bourell, D., Frazier, W., Kuhn, H., ASM International, 2022 ([Link](#)).
- (Book Chapter) **Kazemian, A.**, Seylabi, E., Ekenel, M., Chapter title: “Construction 3D printing: challenges and opportunities for the construction industry”, *Innovation in Construction - A practical guide to transforming the construction industry*, Editors: Ghaffar, S., Mullett, P., Pei, E., Springer Nature, 2022 ([Link](#)).
- (Book Chapter) **Kazemian, A.**, Yuan, X., Meier, R., Khoshnevis, B., Chapter title: “Performance-based laboratory testing of cementitious materials for construction-scale 3D printing”, *3D concrete printing for Construction and building Applications*, Editors: Nematollahi, B., Sanjayan, J., Nazari, A., ISBN: 978-0-12-815481-6, Elsevier, February 2019 ([Link](#)).
- (Book) Ramezaniapour, A. A., **Kazemian, A.**, *Self-compacting concrete: Technology and Application*, ISBN: 978-964-463-514-4, Amirkabir University Press, 2013.

Papers

* A full list of my publications and citations are available on [my Google scholar page](#) (Total citations to date: 1573)

** J: Journal paper, TP: Technical paper, R: Report

- (J-1) Kamel, E., **Kazemian, A.**, "BIM-integrated thermal analysis and building energy modeling in 3D-printed residential buildings", *Energy and Buildings*, Volume 279, 2023 ([Link](#))
- (J-2) Giwa, I., Game, D., Ahmed, H., Noorvand, H., Arce, G., Hassan, M., **Kazemian, A.**, "Performance and macrostructural characterization of 3D printed steel fiber reinforced cementitious materials, *Construction and Building Materials*, Volume 369, 2023 ([Link](#)).
- (J-3) Mechtcherine, V., van Tittelboom, K., **Kazemian, A.**, Kreiger, E., Nematollahi, B., Nerella, V.N., et al. "A roadmap for quality control of hardening and hardened printed concrete", *Cement and Concrete Research*, Volume 157, 2022 ([Link](#)).
- (J-4) **Kazemian A.**, Khoshnevis, B. "Real-time extrusion quality monitoring techniques for construction 3D printing", *Construction and Building Materials*, Volume 303, 2021 ([Link](#)).
- (J-5) Davtalab O., **Kazemian A.**, Yuan, X., Khoshnevis, B., "Automated inspection in robotic additive manufacturing using deep learning for layer deformation detection", *Journal of Intelligent Manufacturing*, Springer, 2020 ([Link](#)).
- (J-6) **Kazemian A.**, Yuan X., Davtalab O., Khoshnevis, B., "Computer Vision for Real-Time Extrusion Quality Monitoring and Control in Robotic Construction", *Automation in Construction*, Elsevier, Volume 101, Pages 92-98, 2019 ([Link](#)).
- (J-7) **Kazemian A.**, Yuan X., Cochran E., Khoshnevis, B., "Cementitious Materials for Construction-Scale 3D Printing: Laboratory Testing of Fresh Printing Mixture", *Construction and Building Materials*, Elsevier, Volume 145, Pages 639-647, 2017 ([Link](#)).
- (J-8) Davtalab O., **Kazemian A.**, Khoshnevis, B., "Perspectives on a BIM-integrated Software Platform for Robotic Construction Through Contour Crafting", *Automation in Construction*, Elsevier, Volume 89, Pages 13-23, 2018 ([Link](#)).
- (J-9) **Kazemian, A.**, Gholizadeh Vayghan, A., Rajabipour, F., "Quantitative Assessment of Parameters that Affect Strength Development in Alkali Activated Fly Ash Binders", *Construction and Building Materials Journal*, Elsevier, Volume 93, Pages 869-876, 2015 ([Link](#)).
- (J-10) Ramezaniapour, A.A., **Kazemian, A.**, Sarvari, M., Ahmadi, B., "Use of Natural Zeolite to Produce Self-consolidating Concrete with Low Portland Cement Content and High Durability", *Journal of Materials in Civil Engineering*, ASCE, Volume 25, Issue 5, Pages 589-596, 2013 ([Link](#)).
- (J-11) Ramezaniapour, A.A., **Kazemian, A.**, Radaei, E., AzariJafari, H., Moghaddam, M.A., "Influence of Iranian Low-reactivity GGBFS on the Properties of Mortars and Concretes by Taguchi Method", *Computers and Concrete*, Techno Press, Volume 13, Issue 4, Pages 423-436, 2014 ([Link](#)).
- (J-12) Ramezaniapour, A.A., **Kazemian, A.**, Moghaddam, M., Moodi, F., Ramezaniapour, A.M., "Studying effects of low-reactivity GGBFS on chloride resistance of conventional and high strength concretes", *Materials and Structures*, Springer (Co-published with RILEM), Volume 49, Issue 7, Pages 2597-2609, July 2015 ([Link](#)).
- (J-13) Ramezaniapour, A.A., Kamel, E., **Kazemian, A.**, Ghiasvand, E., Shokrani, H., Bakhshi, N., "An investigation on the mortars containing blended cement subjected to elevated temperatures using Artificial Neural Network (ANN) models", *Computers and concrete*, Techno press, Volume 10, Issue 6, Pages 649-662, 2012 ([Link](#)).
- (J-14) AzariJafari, H., **Kazemian, A.**, Ahmadi, B., Berenjian, J., Shekarchi, M. "Studying effects of chemical admixtures on the workability retention of zeolitic Portland cement mortar", *Construction and Building Materials*, Elsevier, Volume 72, Pages 262-269, 2014 ([Link](#)).
- (J-15) AzariJafari, H., **Kazemian, A.**, Rahimi, M., Yahia, A., "Effects of pre-soaked super absorbent polymers on fresh and hardened properties of self-consolidating lightweight concrete", *Construction and Building Materials*, Elsevier, Volume 113, Pages 215-220, 2016 ([Link](#)).
- (J-16) Tavakkol, S., Alapour, F., **Kazemian, A.**, Hasaninejad, A., Ghanbari, A., Ramezaniapour, A.A., "Prediction of lightweight concrete strength by categorized regression, MLR and ANN", *Computers and Concrete*, Techno Press, Volume 12, Issue 2, Pages 151-167, 2013 ([Link](#)).

- (TP-1) Martin, M., Banijamali, K., **Kazemian, A.**, “Reality capture technologies for automated quality control during construction 3D printing”, ASCE International Conference on Computing in Civil Engineering (i3ce), 2023 ([Link](#)).
- (TP-2) Banijamali, K., Vosoughi, P., Arce, G., Noorvand, H., Hassan, M., **Kazemian, A.**, “Early-age Strength Monitoring of Sensor-Embedded 3D Printed Structures”, ASCE Construction Research Congress 2024 (CRC), 2024.
- (TP-3) Giwa, I., Dempsey, M., Lamendola, J., **Kazemian, A.**, Fiske, M., “On the Development of Sulfur-Regolith Concrete as an ISRU-Based Construction Material for Lunar and Martian Infrastructure”, ASCE Earth & Space 2024, ASCE, 2024.
- (TP-4) **Kazemian, A.**, Gilbert, H., Zhu, Y., Fiske, M., Alexandrov, N., “TeleLayering: Teleoperated Construction 3D Printing Using Multimodal Feedback for Extraterrestrial and Terrestrial Construction”, IEEE ICRA 2022 ([Link](#)).
- (TP-5) Ata, S., **Kazemian, A.**, Jafari, A., “Application of Concrete 3D Printing for Bridge Construction: Current Challenges and Future Directions”, *Construction Research Congress 2022*, ASCE, 2022 ([Link](#)).
- (TP-6) Giwa, I., Moore, D., Fiske, M., **Kazemian, A.**, “Planetary Construction 3D Printing Using Lunar and Martian Indigenous Materials”, ASCE Earth and Space 2022, Colorado ([Link](#)).
- (TP-7) Game, D., Giwa, I., Ahmed, H., Noorvand, H., Arce, G., Hassan, M.M., **Kazemian, A.**, “Development of Ultra-High-Performance Engineered Cementitious Composites for 3D Printing Applications”, Tran-SET 222, ASCE publications ([Link](#)).
- (TP-8) Ahmed, H., Giwa, I., Game, D., Hebert M., Noorvand, H., Arce, G., Hassan, M.M., **Kazemian, A.**, “Studying Steel Fiber Reinforcement for 3D Printed Elements and Structures”, Tran-SET 222, ASCE publications ([Link](#)).
- (TP-9) Ekenel, M., Sanchez, M., **Kazemian, A.**, Khoshnevis, B., “Building Code Compliance of 3D Printed Walls”, STRUCTURE Magazine, September 2020 ([Link](#)).
- (TP-10) Khoshnevis B., **Kazemian A.**, “Contour Crafting: A Revolutionary Platform Technology”, Construction Printing Technology, Issue 2, 2020.
- (TP-11) **Kazemian, A.**, Yuan, X., Meier, R., Khoshnevis, B., Chapter title: “A Framework for Performance-Based Testing of Fresh Mixtures for Construction-Scale 3D Printing”, First RILEM International Conference on Concrete and Digital Fabrication- Digital Concrete 2018, Editors: Wangler T. and Flatt R., ISBN: 978-3-319-99519-9, Springer, 2018 ([Link](#)).
- (TP-12) **Kazemian, A.**, Yuan, X., Meier, R., Cochran, E., Khoshnevis, B., “Construction-scale 3D Printing: Shape Stability of Fresh Printing Concrete”, ASME 2017 12th International Manufacturing Science and Engineering Conference (MSEC 2017), Los Angeles, California, 2017 ([Link](#)).
- (TP-13) Ramezaniapour, A.A., **Kazemian, A.**, Nikravan, M., Moghaddam, M.A., “Influence of a low-activity slag and silica fume on the fresh properties and durability of high performance self-consolidating concrete”, International Conference on Sustainable Construction Materials & Technologies (SCMT3), Kyoto, Japan, 2013.
- (TP-14) Ramezaniapour A.A., **Kazemian A.**, Redaee E., Moghaddam M., “Studying effect of different parameters on slag cement mortar compressive strength using Taguchi method”, 10th International Congress on Advances in Civil Engineering, Ankara, Turkey, 2012.
- (R-1) **Kazemian, A.**, Hassan, M., Noorvand, H., Arce, G., “Rebar-Free 3D Printing of Transportation Infrastructure”, U.S. Department of Transportation (DOT- TranSET), 2022.
- (R-2) Jafari, A., **Kazemian, A.**, Ataei, S., “Comparative Analysis of 3D Printed Bridge Construction in Louisiana”, U.S. Department of Transportation (DOT- TranSET), 2021.
- (R-3) **Kazemian, A.**, Ahmed, H., “3D Printed Transportation Infrastructure: Structural Behavior of Steel Fiber Reinforced Circular Elements”, Louisiana Department of Transportation and Development (U.S. Department of Transportation, Federal Highway Administration), 2023.

Presentations

- (Invited Talk) *How to permanently live on the Moon*, National Academy of Sciences (Kavli Frontiers of Science Symposium), Irvine, 2024 ([Link](#)).
- (Invited Talk) *Building on the Moon and Mars*, LSU Science Café, LSU Office of Research & Economic Development, Baton Rouge, 2024.

- (Guest lecturer) *Construction-scale 3D Printing: Introduction, Possibilities, and Challenges*, BC8813 course, Georgia Institute of Technology, S2023 & S2024.
- (Guest lecturer) *Construction 3D Printing: Toward Full Automation of Construction*, CE598, University of New Mexico, 2023.
- (Invited Talk – webinar) *Self-reinforced Printing Materials for Construction-scale 3D Printing*, TranSET webinar series, 2022 ([Video](#)).
- (Invited Talk – selected as Darrell Elliott Lecture) *Construction 3D Printing: Applications, Challenges, and Future Prospects*, 31st Annual Louisiana Civil Engineering Conference, New Orleans, Dec 2021.
- (Invited Talk) *Robotic Construction on the Moon and Mars using Large-scale 3D Printing*, Astronomy on Tap, Baton Rouge, 2022 ([Video](#)).
- (Oral presentation) *Planetary Construction 3D Printing Using Lunar and Martian Indigenous Materials*, ASCE Earth and Space 2022, Colorado.
- (Oral presentation) *Concrete 3D Printing for Accelerated Bridge Construction: Possibilities and Challenges*, ASTM ICAM conference, California, 2021.
- (Oral presentation) *Life Cycle Environmental Impacts of 3D Printing in the Construction Sector: Perspectives and Research Opportunities*, ASTM ICAM conference, California, 2021.
- (Invited Talk) *Testing fresh and hardened properties of mixtures for construction 3D printing*, ASTM Symposium on Standards Development for Cement and Concrete for Use in Additive Construction, December 2020.
- (Invited Talk) *Real-time extrusion quality monitoring techniques for construction 3D printing*, ACI Virtual Convention, October 2020.
- (Invited Talk) *Cementitious materials for construction 3D printing*, Pennsylvania State University, State College, August 2017.
- (Oral presentation) *Computer vision for real-time quality monitoring of construction-scale 3D printing*, Workshop on 3D printing of cement-based materials, The American Ceramic Society (cements division), Advances in Cement-based Materials., State College, June 2018.
- (Oral presentation) *Performance-based laboratory testing of cementitious materials for construction-scale 3D printing*, ACI Concrete Convention and Exposition, Concrete and Digital Fabrication workshop, Anaheim, 2017 ([Presentation video](#)).
- (Oral presentation) *Construction-scale 3D Printing: Shape Stability of Fresh Printing Concrete*, ASME 2017 12th International Manufacturing Science and Engineering Conference (MSEC 2017), Los Angeles, 2017.
- (Oral presentation) *Investigation of fresh properties and durability of natural zeolite incorporated Eco-SCC*, 10th International Congress on Advances in Civil Engineering, Ankara, Turkey, 2012.
- (Oral presentation) *Studying effect of different parameters on slag cement mortar compressive strength using Taguchi method*, 10th International Congress on Advances in Civil Engineering, Ankara, Turkey, 2012.

Sponsored Projects

- Planetary Robotic Construction on the Moon and Mars using 3D Printed Waterless Concrete, Role: PI, Funding Agency: National Science Foundation (NSF), 2024-2026 ([Link](#)).
- Towards Sustainable Robotic Construction: Concrete 3D Printing with Quarry By-products and Low Portland Cement Content", Role: PI, Funding Agency: Louisiana Board of Regents (BOR ITRS), 2023- 2026.
- ISRU-based Planetary Construction 3D Printing for Lunar and Martian Infrastructure Development: Process Optimization and Automated Quality Control, Role: PI, Funding Agency: Louisiana Board of Regents, 2022-2025.
- Remote Operation of Planetary Construction 3D Printing Robots, Funding Agency: Louisiana Space Grant (NASA EPSCoR), 2023.
- Construction 3D Printing for Extraterrestrial Infrastructure Development Using Indigenous Materials, Role: PI, Funding Agency: Louisiana Space Grant (funded by NASA and Louisiana BOR), 2021–2022.
- Automated Curing and Strength Monitoring of Sensor-Embedded 3D Printed Transportation Infrastructure, Role: PI, Funding Agency: TranSET (US Department of Transportation), 2022–2023.

- Rebar-Free 3D Printing of Transportation Infrastructure, Role: PI, Funding Agency: TranSET (US Department of Transportation), 2021–2023.
- Resilient 3D-Printed Civil Infrastructure with Ultra-High Performance Engineered Cementitious Composites (UHP-ECCs), Role: Co-PI, Funding Agency: TranSET (US Department of Transportation), 2021–2023.
- Comparative Analysis of 3D Printed Bridge Construction in Louisiana, Role: Co-PI, Funding Agency: TranSET (US Department of Transportation), 2021–2023.
- Robotic Construction on the Moon and Mars using 3D Printing and In-situ Resources: Mechanical Performance Evaluation, Role: PI, Funding Agency: Louisiana Space Grant (NASA EPSCoR), 2022–2023.
- Fostering Transferable Skills for Future-Ready Extraterrestrial Construction Workforce via an Intelligent-Immersive Training Environment, Role: Senior Personnel, Funding Agency: National Science Foundation (Future of Work at the Human-Technology Frontier), 2022-2023.
- The GANGOTRI mission for geologic, habitability, and resource insight of Mars, Funding Agency: Provost's Fund for Innovation in Research - Faculty Research Grants - Big Idea, 2023.

Research and Professional Activities (Service)

- Scientific organizing committee, Construction 3D Printing Symposium, ASTM International Conference on Additive Manufacturing (ICAM), 2021-2024.
- Associate editor, ASCE Journal of Architectural Engineering, Special Collection on Construction 3D Printing, ASCE, 2023- Now.
- Guest editor, Special issue “Industry 4.0: Additive Manufacturing Potentials in Providing Engineering Solution”, Results in Engineering Journal, Elsevier, 2021.
- Member, College Policy Committee (LSU College of Engineering), 2023-2024.
- Member, Faculty Search Committee (LSU Department of Construction Management), 2023-2024.
- College of Engineering Faculty Research Committee member (strategic planning – Built Infrastructure committee), LSU, 2023.
- Member, Lunar Surface Innovation Consortium (LSIC), Excavation and Construction focus group, 2021.
- Voting member of American Concrete Institute committee on “3D Printing with Cementitious Materials” (ACI 564).
- Key contributor to Advanced Technologies for Digitalization of Construction Industry Roadmap, ASTM/NIST, 2023 ([Link](#)).
- Reviewer, The National Aeronautics and Space Administration (NASA), 2024.
- Reviewer for Automation in Construction (Elsevier), Journal of Materials in Civil Engineering (ASCE), Journal of Construction Engineering and Management (ASCE), Cement and Concrete Composites (Elsevier), Rapid Prototyping Journal (Emerald), Advances in Civil Engineering Materials (ASTM), Materials and Design (Elsevier), Progress in Additive Manufacturing (Elsevier), Construction and Building Materials (Elsevier), and Additive Manufacturing (Elsevier) journals, 2014- Now.
- Graduate Student Committee Member:
 - PhD Committee: Omar K. Omar (LSU), Elise Mansour (LSU), Michele Anderson (External/UNM-2024), Hamid Bayat (External/UNSW-2024)
 - MSc Committee: Yahmaine Ford (LSU-2022), Damian Allen (LSU-2022), Omar K. Omar (LSU-2023), Elise Mansour (LSU-2023)

Teaching and Mentoring

- Instructor at Louisiana State University, “Advanced Construction Technologies- CM4440”, Department of Construction Management, S2021-S2022-S2023.
- Instructor at Louisiana State University, “Construction Methods and Materials II- CM2112”, Department of Construction Management, F2022-S2023-F2023-S2024.
- Instructor at Louisiana State University, “Emerging Concrete Technologies for Transportation – CM4563”, Department of Construction Management, F2023.

- Instructor at Louisiana State University, “Life Cycle Assessment- CM 7303”, Dept. of Construction Management, Fall 2021.
 - Advisor and Mentor- PhD students: Ilerioluwa Giwa, Kasra Banijamali, Aranya Paul, and Aras Maqsoodi (Construction Management); MSc students: Michael Martin (Electrical Eng.-2024), Hassan Ahmed (Construction Management-2023); Undergraduate students: Marc Hebert, Victoria Irondi (Electrical Eng.), Mary Dempsey, Vina Nguyen (Mechanical Eng.), Joseph Lamendola (Civil Eng.); Dharla Moore (Aerospace Eng.), Eli Shaw (Computer Science).
 - Teaching Assistant at University of Southern California, “Artificial Intelligence- CSCI 561”, Computer Science Department, Fall 2017 and Spring 2018.
 - Teaching Assistant at University of Southern California, “Introduction to Civil Engineering Graphics- CE107”, Civil and Environmental Engineering Department, Spring 2014.
 - Teaching Assistant at University of Southern California, “Theory of Structures- CE358”, Civil and Environmental Engineering Department, Fall 2015 and Fall 2016.
 - Instructor at Azad University- Parand branch, Civil Engineering department, “Concrete Technology”, “Concrete Technology Laboratory”, and “Strength of Materials Laboratory” courses, Spring and Fall 2013.
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Awards and Certificates

- Kavli fellow, National Academy of Sciences (Kavli Frontiers of Science), 2024 ([Link](#)).
 - “Young Professional in Additive Manufacturing” Award, ASTM International, Washington D.C., 2023.
 - OLC Online teaching certificate, Completed a 10-week training program and 4 elective courses on effective teaching, Online Learning Consortium, 2020.
 - Featured Research Assistant of Civil and Environmental Engineering Department, University of Southern California, May 2016.
 - Ranked **1st** in the Construction Engineering and Management M.Sc. program (Grade: 18.51/20), Amirkabir University of Technology, Tehran, Iran, 2012.
 - Ranked **1st** in the National Concrete Competition, Structural Lightweight Concrete, Tehran, Iran, 2008.
 - Won the **Best Graduate Thesis** national award, Iranian Concrete Institute (ICI), 2013.
 - Won **Best M.Sc. Thesis** award, Amirkabir University of Technology, 2013.
 - Engineer-In-Training (EIT), California Board for Professional Engineers, Land Surveyors and Geologists, September 2016.
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Media Mentions

- The New York Times article ([Link](#))
 - NBC33/Fox44 TV Channel: ([Link](#)) | WAFB TV Channel: ([Link](#))
 - Live interview on robotic planetary construction, Brian Haldane’s morning radio show on Talk 107.3 FM ([Link](#))
 - U.S. Department of Transportation Newsletter, An Innovative Reinforcement Approach for Rebar-Free 3D Printing of Transportation Infrastructure, 2023 ([Link](#)).
 - LSU Gumbo Yearbook 2022, P175 ([Link](#)) | LSU Reveille ([Link](#)) | LSU College of Engineering ([Link](#)) | LSU News ([Link](#))
 - 60-minute interview on construction-scale 3D printing (Contour Crafting), Declare Your Independence with Ernest Hancock radio program, LibertyTalk FM, January 2018 ([Link](#)) ([Link 2](#)).
 - 10-minute Interview on construction-scale 3D printing, House Smarts Radio with Lou Manfredini, 790 KABC, April 2019 ([Link](#)).
 - 60-minute interview on current status and challenges of construction-scale 3D printing, Association of Professors & Scholars of Iranian Heritage (APSIH) radio program, KIRN 670 AM, May 2019 ([Link](#)).
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