

Pouya Almasi

Curriculum Vitae

Civil Engineering Ph.D. Candidate (ABD)
Department of Civil Engineering
Hernandez Hall
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A. Education

New Mexico State University, Las Cruces, NM, USA Ph.D. in Civil Engineering (GPA: 4/4) Advisor: Dr. Qianyun (Gloria) Zhang	2023-Present
Iran University of Science and Technology, Tehran, Iran M.Sc. in Structural Engineering Advisor: Professor Ali Kaveh	2019-2022
Iran University of Science and Technology, Tehran, Iran B.Sc. in Civil Engineering	2015-2019

B. Professional Positions Held

Instructor of Record: Department of Civil Engineering, New Mexico State University, Las Cruces, NM, USA	Aug 2024-Present
Graduate Research Assistant: Department of Civil Engineering, New Mexico State University, Las Cruces, NM, USA	May 2023-Present
Graduate Research Assistant: School of Civil Engineering, Iran University of Science and Technology, Tehran, Iran	Aug 2019-Feb 2022

C. Research Interests

Smart Infrastructure & Structural Health Monitoring

- UAV-Based Automated Inspection and Damage Detection
- AI-Driven Structural Health Monitoring
- Embedded and Self-Powered Sensor Networks
- Data Fusion and Digital Twins for Infrastructure

Additive Manufacturing & Multifunctional Materials

- AI-Driven Material Design and Characterization
- Inverse Design with Neural Networks
- Architected and Cellular Metamaterials
- Multifunctional and Adaptive Materials

Computational Optimization & Design

- Topology and Shape Optimization
- Metaheuristic and Physics-Informed Methods
- Graph-Theoretical Models for Optimization
- Multi-Objective and Uncertainty-Aware Design

D. Publications

Link: [Google Scholar](#)

Under Review:

- **P. Almasi**, R. Premadasa, S. Ghimire, P. Jiao, Q. Zhang, "Plate Lattices Superior Weight-to-Strength Mechanical Metamaterials: Mechanics, Design, Manufacturing, and Applications," *Advanced Materials*, under review, 2025.
- **P. Almasi**, Q. Zhang, "End-to-End UAV-Enabled Bridge Deck Inspection: From Localization to High-Precision Crack Detection and Quantification," *Journal of Bridge Engineering*, under review, 2025
- **P. Almasi**, Y. Xiao, R. Premadasa, J. Boyle, D. Jauregui, A. Khodagholi, Z. Wan, Q. Zhang, "Meta-Heuristic-Driven Continuous Path Optimization for Area Coverage in UAV-based Infrastructure Inspection," *Automation in Construction*, under review, 2025.
- R. Premadasa, S. Rouhbakhsh, **P. Almasi**, Zhe. Wan, P. Jiao, Q. Zhang, "Emerging Mechanical Metamaterial Concepts in Civil Engineering: Advent, Applications and Future Trends," *Materials Today*, under review, 2025.

Published:

- [1] **P. Almasi**, Q. Zhang, "Automated Bridge Deck Health Evaluation Aligned with NBI Ratings via UAV Imaging and Label-Free Sparse Autoencoder-Based Anomaly Mapping," *Transportation Research Record*, Accepted, 2025. (IF = 2.1)
- [2] **P. Almasi**, Y. Xiao, R. Premadasa, J. Boyle, D. Jauregui, Z. Wan, Q. Zhang, "A General Method for Pre-flight Preparation in Data Collection for UAV-based Bridge Inspection," *Drones*, 2024. <https://doi.org/10.3390/drones8080386> (IF = 4.8)
- [3] R. Premadasa, **P. Almasi**, S. Ghimire, W. Dong, P. Jiao, Q. Zhang, "Tunable Plug-and-Play Meta-Nanogenerator Materials for Multi-range Force Measurements," *Advanced Materials*, Accepted, 2026. <https://doi.org/10.1002/advs.202600009> (IF = 14.1)
- [4] R. Premadasa, Z. Wan, **P. Almasi**, A. H. Alavi, Q. Zhang, "Digital Shape-Morphing Thermo-Mechanical Metamaterials," *Materials Horizons*, 2025. <https://doi.org/10.1039/D5MH02021B> (IF = 10.7)
- [5] R. Premadasa, Z. Wan, **P. Almasi**, K. Barri, H. Zhang, P. Jiao, Q. Zhang, "CFTrack: Advanced Diagnostic, Monitoring, and Tracking Device for Cystic Fibrosis Care," *ACS Sensors*, 2024. <https://doi.org/10.1021/acssensors.4c01669> (IF = 9.1)
- [6] **P. Almasi**, R. Premadasa, S. Rouhbakhsh, Y. Xiao, Z. Wan, Q. Zhang, "A Review of Developments and Challenges of Preflight Preparation for Data Collection of UAV-based Infrastructure Inspection," *Current Trends in Civil & Structural Engineering*, 2024. <https://doi.org/10.33552/CTCSE.2024.10.000734> (IF = 1.508)
- [7] A. Kaveh, **P. Almasi**, A. Khodagholi, "Optimum Design of Castellated Beams Using Four Recently Developed Meta-heuristic Algorithms," *Iranian Journal of Science and Technology, Transactions of Civil Engineering*, 2023. <https://doi.org/10.1007/s40996-022-00884-z> (IF = 1.7)
- [8] **P. Almasi**, Q. Zhang, S. Zhang, "Investigation of UAS Platform and Personnel Development and Preparation through Lab and Site Testing," *USDOT, Report Number: R923070*, 2024. <https://rosap.ntl.bts.gov/view/dot/85863>

E. Conference Presentations

- [1] Presenter at the TRB (Transportation Research Board) annual conference, "Automated Bridge Deck Health Evaluation Aligned with NBI Ratings via UAV Imaging and Label-Free Sparse Autoencoder-Based Anomaly Mapping," Washington, D.C., U.S, January 2026.

- [2] Presenter at the TRB (Transportation Research Board) annual conference, “Meta-Heuristic-Driven Continuous Path Optimization for Area Coverage in UAV-based Infrastructure Inspection,” Washington, D.C., U.S, January 2025.
- [3] Presenter at the TRB (Transportation Research Board) annual conference, “A General Method for Pre-flight Preparation in Data Collection for UAV-based Bridge Inspection,” Washington, D.C., U.S, January 2024.
- [4] Presenter at the NM Transportation and Construction Conference, “High-Quality Data Collection and Meta-Heuristic-Driven Path Optimization for Unmanned Aerial Vehicle-based Infrastructure Inspection,” Las Cruces, U.S., 2024

F. Teaching Experiences (Instructor of Record)

New Mexico State University

CE 444/503: Steel Design (Fall, 2025) – 23 Students

CE 454/554: Wood Design (Spring, 2025) – 38 Students

CE 315: Structural Analysis (Fall, 2024) – 25 Students

G. Student Mentorship Experiences

Lane Porter , Undergraduate student, NM AMP Program, New Mexico State University, Las Cruces, USA	June 2025-Present
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Arina Kharazi , M.Eng. Student, Civil Engineering Department, New Mexico State University, Las Cruces, USA	May 2025-Present
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H. Teaching Assistantships

New Mexico State University

Numerical Methods (Spring, 2024)

Non-Destructive Evaluation (Fall, 2023)

Iran University of Science and Technology

Optimal Analysis of Structures (Fall, 2021)

Inelastic Analysis of Structures (Spring, 2021)

Structural Analysis II (Fall 2020)

Engineering Dynamics (6 semesters, 2017-2020)

Concrete Technology (8 semesters, 2017-2020)

Construction Materials (8 semesters, 2017-2020)

I. Honors and Awards

Preparing Future Faculty (PFF) Graduate Assistantship Award , New Mexico State University, Las Cruces, USA	2025
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Outstanding Graduate Teaching Scholarship Award , New Mexico State University, Las Cruces, USA	2025
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Dwight David Eisenhower Transportation Fellowship , USDOT Federal Highway Administration, USA	2024
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First Place Award, Bold Idea Challenge , New Mexico State University, Las Cruces, USA	2024
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Crowd Favorite Award, Aggie Shark Tank , New Mexico State University, Las Cruces, USA	2024
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Third Place Award, NM TransCon Poster Competition , New Mexico Transportation Conference, Las Cruces, USA	2024
First Place Award for Oral Presentation , Research and Creativity Week, New Mexico State University, Las Cruces, USA	2024
Engineering Dean's Award for Oral Presentation , Graduate Research & Arts Symposium, New Mexico State University, Las Cruces, USA	2023
Exceptional Talent Scholarship Award , Iran University of Science and Technology, Tehran, Iran	2019
Ranked Within Top 10% Civil Engineering Students , Iran University of Science and Technology, Tehran, Iran	2019
Ranked within the top 0.5% , Among 250,000 Participants in the National Entrance Exam for Iranian Universities, Iran, 2015	2015
World 3rd Rank , International Mathematics Tournaments of Towns, Russia	2015

J. Professional Service Activities

Journal Reviewer

- Measurement Journal/Elsevier
- Engineering Applications of Artificial Intelligence/Elsevier
- Journal of Building Engineering/Elsevier

Organizer

- AI in Civil Engineering Workshop Series, Department of Civil Engineering, New Mexico State University (Fall 2025)

K. Leadership and Memberships

- Member of the Chi Epsilon, the Civil Engineering Honor Society, 2025-Present
- Head of the Scientific Society of the Civil Engineering Department, Iran University of Science and Technology, Tehran, Iran, 2017-2018
- Head of the Permanent Construction Materials Developments Center of the Civil Engineering Department, Iran University of Science and Technology, Tehran, Iran, 2015-2017

L. Certificates and Licenses

- Part 107 UAS Remote Pilot License, Federal Aviation Administration, Aug 2023

M. Professional Training

- Open Science Grid (OSG) Summer School on High Throughput Computing, University of Wisconsin–Madison, Summer 2025 - Training in distributed and scalable computing for AI and data-intensive research