

Pouya Almasi

Curriculum Vitae

Civil Engineering Ph.D. Candidate (ABD)
Department of Civil Engineering
Hernandez Hall
3035 S Espina St.
Las Cruces, NM 88003

Phone +1 (575)-373-7277
Email : almasi@nmsu.edu
Link : [Web](#)

A. Education

New Mexico State University, Las Cruces, NM, USA

2023-Present

Ph.D. in Civil Engineering (GPA: 4/4)

Advisor: Dr. Qianyun (Gloria) Zhang

Iran University of Science and Technology, Tehran, Iran

2019-2022

M.Sc. in Structural Engineering

Advisor: Professor Ali Kaveh

Iran University of Science and Technology, Tehran, Iran

2015-2019

B.Sc. in Civil Engineering

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 Preflight 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