Curriculum Vitae

Personal Information

First Name: Amirhossein
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Areas of Interest

- Lightweight ferrocement technology
- Digital image correlation (DIC)
- Sustainable development
- Finite element analysis (FEA)
- Fracture mechanics of concrete
- Structural optimization
- Chemistry of cement
- Construction materials
- Corrosion of reinforced concrete
- Engineering economics

Educational Qualification

2014-2017 M.Sc. in Structural Engineering, Hakim Sabzevari University, Sabzevar, Iran.

- **Total GPA:** 18.07/20.0
- **Thesis title:** Experimental study and modeling analysis of ferrocement roof elements
- **Supervisor:** Dr. Hamid Eskandari-Naddaf, Hakim Sabzevari University.
- **Advisors:** Dr. Rasoul Shadnia, Hakim Sabzevari University.
  Dr. Lianyang Zhang, University of Arizona.
- **Description:** Flexural behavior of lightweight ferrocement panels and channels under the influence of different variables such as percentages of expanded perlite and clay LWAs, number of expanded rib lath layers, and loading spans has been evaluated. To this end, a series of 72 ferrocement slab panels and 6 channels were constructed. The test specimens were monitored during loading in the elasto-plastic regime and with geometrical nonlinearity and local surface displacements and strains were determined by Digital Image Correlation (DIC). The characterization of various mixture designs and specimens was further conducted in terms of load-deflection behavior, crack pattern and propagation, compressive behavior, modulus of elasticity, ductility and SEM/EDS analysis. Comparisons between the test results and the theoretical results (based on theory of thin plates and yield line theory) and also between DIC and FEA results were made in these cases to better illustrate the observations.

2011-2014 B.Sc. in Civil Engineering, Hakim Sabzevari University, Sabzevar, Iran.

- **Total GPA:** 15.62/20.0
- **Thesis title:** Finite element evaluation of ferrocement channels
- **Supervisor:** Dr Hamid Eskandari-Naddaf, Hakim Sabzevari University.

Honors and Achievements

2017-Now	Awarded Member of National Elites Foundation, Iran's National Elite Foundation.
2016	Outstanding Researcher Award among master students, Hakim Sabzevari University.
2014-2017	Ranked top 4, Master's Program (Structural Engineering). Department of Civil Engineering, Hakim Sabzevari University

Publications

Journal Papers:

- **Madadi, A.**, Tasdighi, M., & Eskandari-Naddaf, H. (2019). Structural response of ferrocement panels incorporating lightweight expanded clay and perlite aggregates: experimental, theoretical and statistical analysis, Engineering Structures, 188, 382-393.
- **Madadi, A.**, Eskandari-Naddaf, H. Shadnia, R. & Zhang, L. (2018). Digital image correlation to characterize the flexural behavior of lightweight ferrocement slab panels, Construction & Building Materials, 189, 967-977.
- **Madadi, A.**, Eskandari-Naddaf, H. Shadnia, R. & Zhang, L. (2018). Characterization of ferrocement slab panels containing lightweight expanded clay aggregate using digital image correlation technique, Construction and Building Materials, 180, 464-476.
- Shariat, M., Shariati, M., **Madadi, A.**, & Wakil, K. (2018). Computational Lagrangian Multiplier Method for optimization and sensitivity analysis of rectangular reinforced concrete beams. Steel and Composite Structures, 29(2), 243-256.
- **Madadi, A.**, Eskandari-Naddaf, H., & Gharouni-Nik, M. (2017). Lightweight Ferrocement Matrix Compressive Behavior: Experiments Versus Finite Element Analysis. Arabian Journal for Science and Engineering, 42(9), 4001-4013.
- Eskandari, H., & **Madadi, A**. (2015). Investigation of ferrocement channels using experimental and finite element analysis. Engineering Science and Technology, an International Journal, 18(4), 769-775.
- **Madadi, A.**, Eskandari-Naddaf, H., & Nemati-Nejad, M. (2018). Evaluation of Bond Strength of Reinforcement in Concrete Containing Fibers, Micro- and Nano-silica. Journal of Stress Analysis, 3(1), 11-19.

Conference Papers:

- Eskandari, H. & **Madadi**, **A.** (2014). Ferrocement Technology and Its Application in Urban Development. Architecture, Civil Engineering and Urban Development Conference, Tabriz, Iran.
- **Madadi**, **A.** & Eskandari, H. (2014). Design and Construction of Ferrocement Lightweight Concrete Structures. 6th National Conference on Concrete, Tehran, Iran.
- Lezgy-Nazargah, M. & **Madadi**, **A.** (2015). Bearing capacity evaluation of footings on two-layer granular soil. 2th national conference on soil mechanics and foundation engineering, Qom, Iran.
- Sajjadi-Attar, S. M., Khoshtabkh, M., Taghdisi, M., & **Madadi, A.** (2018). Investigation of the Optimal Type and Amount of Super-Plasticizer Admixture in Precast Concrete (Segment) Construction in Line 3 of Mashhad Urban Railway Project, 10th National Conference on Concrete, Tehran, Iran.

Books:

- Eskandari, H. Tadayonfar, GR. **Madadi**, **A.** (2017). Economic Analysis for Engineering and Project Management, Hakim Sabzevari University, (in Persian).

Academic Teaching and Research Experiences

Sep 2014-
Sep 2017

Lab researcher and technical assistant, Modern Concrete Technology Labratory, Department of Civil Engineering, Hakim Sabzevari University.

- Administrated experimental studies in advanced concrete technology projects on lightweight reinforced concretes, high strength/high performance concretes, and precast concrete elements.
- Conducted surface characterization evaluations on concrete specimens using DIC technique.
- Operated Universal Testing Machine (Axial Fatigue Testing Machine - Servo Hydraulic 2000 kN) for performing different tests on the specimens.
- Studied the effect of different supplementary materials such as micro- and nano-silica, air-entraining admixtures, plasticizers, different types of fibers and various reinforcements on the behavior of concrete elements and structures.

Jan 2012-
Sep 2014

Research assistant, Modern Concrete Technology Labratory, Department of Civil Engineering, Hakim Sabzevari University.

- Conducted an experimental study on ferrocement channels for evaluating their sustainability as roofs of rural houses under bending tension.
- Developed a finite element model for investigating the flexural behavior of ferrocement channels.

Jan 2012-
May 2012

Teaching assistant, Economic Engineering under supervision of Dr. Eskandari-Naddaf, Hakim Sabzevari University.

- Proposed a Business Plan on the feasibility of ferrocement utilization in construction of roofs of rural houses (represented to Road, Housing and Urban Development Research Center)
- Performed economic analysis on some projects using COMFAR software (UNIDO).

Membership

2014-Now ICI-Iranian Concrete Institute

2017-Now Iran's National Elites Foundation

Language Proficiency

Persian: Native

English: TOEFL Score (Overal: 88): taken on November 17, 2018
Reading: 22, Listening: 21, Speaking: 22, Writing: 23

Arabic: Intermediate

Computer skills

Programming Languages: Matlab (Numerical computing software), Minitab (Statistical analysis software)

Engineering Software: Abaqus (Finite Element Analysis software), Comfar (Economical Engineering software), Microsoft Office

Civil Software:	Etabs (Structural design/analysis software), Safe (Foundation design/analysis software), Sap (Structural design/analysis software), AutoCAD (Architectural/Drawing software)
Project Management:	MS Project (Project Portfolio Management software)
Digital Image Correlation:	VIC-2D™, Ncorr (2D MATLAB-based program)

References

Dr. Hamid Eskandari-Naddaf, Associate Professor
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Dr. Rasoul Shadnia, Assistant Professor
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Dr. Lianyang Zhang, Associate Professor
Affiliation: Department of Civil and Architectural Engineering and Mechanics, University of Arizona, Tucson, AZ, USA.
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