

Sarira Motaref, Ph.D., P.E.

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EDUCATION

- **University of Nevada, Reno, NV**
Ph.D. in Civil Engineering **01/2008-05/2011**
Dissertation: "Seismic Response of Precast Bridge Columns with Energy Dissipating Joints"
Advisor: Professor M. "Saiid" Saiidi, GPA of 3.88

- **International Institute of Earthquake Engineering and Seismology, Tehran, Iran**
M.Sc. Earthquake Engineering **09/2004-09/2006**
Thesis: "Effect of Beam-to-Column Strength Ratio on Seismic Performance of Concrete Frames"
Advisor: Dr. Massoud Mahmoudabadi, GPA of 3.6

- **K. N. Toosi University of Technology, Tehran, Iran**
B.Sc. Civil Engineering **09/2000-09/2004**
GPA of 3.4

HONORS AND REGISTRATION

- Distinguished Engineering Educator Award, 2019, School of Engineering Award
- Klewin Excellence in Teaching Award, 2016, 2017, and 2018, Departmental award
- Mentorship Excellence Award nominee- UConn office of undergraduates, 2016, University Award
- Recognition for Excellence in Teaching by University of Connecticut Office of Provost, 2013,2014, 2015, 2016, 2017, and 2018
- Faculty Excellence in Undergraduate Teaching Award Nominee-UConn Foundation, 2019
- Commencement Marshall, Selected by Graduating Civil Engineering Senior Students, 2016, 2017, and 2018
- University Teaching Innovation Award Nominee-UConn Center of Excellence in Teaching, 2017, University Award
- Certificates in teaching from American society of Engineering Education, NETI-1, summer 2015 and NETI-2, Summer 2014, National Teaching Effective Institute
- Certificates in teaching from Yale Summer institutes of scientific teaching, Summer 2018
- Best Paper Award in International Conference on Weigh-in-Motion, ICWIM6, Dallas, June 2012, National Award
- Winner of 2010 James D. Cooper Student Award at International Bridge Conference, Pittsburgh, Pennsylvania, June, 2010. National Award
- Licensed professional Engineer (PE) since 2013
- Licensed Fundamental Engineer (FE) since 2009

RESEARCH AND PROFESSIONAL EXPERIENCES

- **University of Connecticut, Storrs, CT** **08/2013-Now**
Associate Professor in Residence
 - Teaching
 - ENGR 1166, Engineering fundamentals, development and delivery, Freshman level, 350 enrollments, service course, Spring 2017, 2018

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- ENGR 1000, orientation to Engineering, Freshman, 160 enrolments, service course, Spring 2017
 - 4510/5543 Foundation Design/Advanced Foundation Design, Senior level, 65 enrollments, CE Professional requirement, Spring 2016, 2017, and 2018
 - CE 3110, Mechanics of Materials, Junior level, major requirement for CE, ME, BME, MSE, MEM majors, Average of 110 enrollments, taught 12 times
 - CE2110, Applied Mechanics I (Statics), sophomore level, major requirement for CE, ENVE, ME, MSE, MEM, and BME, Average of 110 enrollments, taught 5 times
 - Online course development for UCONN school of engineering, Mechanics of Materials, Applied Mechanics, Engineering fundamentals CE content
- Research
 - Implementation of Virtual laboratory in fundamental Engineering Courses, PI, funded by UConn office of Provost
 - Rethinking the Freshman Engineering Curriculum” (ENGR 1166), Co-PI, funded by UConn office of provost
 - Advancing the State of Bridge Weigh-In-Motion for the Connecticut Transportation Network, Co-PI, funded by ConnDOT
 - A Simplified Detail for the Acute Corner of Skewed Bridge Decks, Co-PI, funded by ConnDOT
 - REU site, Research Experience in Cyber and Civil Infrastructure Security for Students with ADHD: Fostering Innovation, Senior Personnel, funded by NSF

Assistant Director of Faculty Development

08/2017-Now

- enhancing teaching and learning effectiveness of engineering courses
- Improving the quality and accessibility of graduate engineering courses in school of engineering professional education programs
- developing and arranging workshops for Engineering faculty related to flexible course design (online, flipped, Blended)
- Working one-on-one with faculty to discuss latest teaching technology to optimize courses

Assistant Head of Department

01/2015-08/2016

- Managing course schedules and teaching loads
- Advising transfer and exchange students
- Planning for Open house, Outreach programs
- Representing CEE department in Curriculum and courses committees
- Evaluating foreign courses

Post-Doctoral Fellow-Supervisor Professor Richard E. Christenson

2011-June 2013

- Conducting a dual purpose BWIM(bridge weigh in motion)/BHM(bridge health monitoring) project on Connecticut highway bridge funded by Connecticut Department of Transportation (ConnDOT). Tasks include:

- Design and implementation of a BHM/BWIM bridge monitoring system
- Evaluating health monitoring of the highway bridges using different sensor technologies.
- Providing a short term standard monitoring system for BHM/BWIM evaluation of highway bridges.
- Design and construction supervisor for supporting reaction wall for 6 degrees of freedom shake table at UConn structural laboratory.
- Lecturer for CE3110 (Mechanics of Materials) and substitute instructor for ENGR1166 (Foundations of engineering)

➤ **University of Nevada, Reno, NV**

2008-2011

Research Assistant – Advisor Professor M. "Saiid" Saiidi

- Conducted a comprehensive study on using innovative materials in the plastic hinges of precast columns, funded by California Department of Transportation (Caltrans). Tasks included:
 - Shake table experiments on five scaled single segmental columns and a precast pier.
 - Elaborated nonlinear dynamic analyses of the columns using OpenSees.
 - Extensive parametric studies to understand the influence of important factors on the capacity and performance of specimens.
 - Development of a design method for this type of column.
- Mentored NEES funded undergraduate interns (REUs).

➤ **Sub Station Company, Tehran, Iran**

2006

- Designed cable racks.

RESEARCH INTERESTS

- Innovation in teaching excellence
- Precast elements for accelerated bridge construction
- Earthquake engineering and seismic design
- Experimental study of large scale structures
- Computational structural modeling
- Application of Innovative materials and details in structures
- Bridge health monitoring
- Bridge weigh in motion

SERVICE

Committee member:

- UICC (University Interdisciplinary Courses and Curriculum) Fall 2015-Present
- Educational Technologies Steering Committee, Fall 2015-Present
- School of Engineering Professional Education committee, Fall 2017-Present
- Department Head selection committee, Spring 2018
- SET/Teaching Evaluation committee, Fall 2018-Present
- UConn Persistence of Women in STEM Committee, Fall 2016-Present
- First Year Engineering Education Program, Summer 2016-Present
- Community of Practice, University Large Courses Committee, Spring 2017-Present
- School of Engineering C&C (Curriculum and courses) Committee, Spring 2015-Spring 2016

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- Civil and Environmental Engineering Department C&C (Curriculum and courses) Committee, 2015, 2016,2018, 2019
 - Civil and Environmental Engineering Department Website Committee, Spring 2015-Spring 2016
 - Transportation Engineering Curriculum Committee, Spring 2015-Spring 2016

Advisor:

- Master's degree students (3 students)
- Honor students conducting mini research project for honor conversions (20 students)
- REU students, summer 2015 and summer 2016, (2 students)
- Mentor for an undergraduate research assistant, fall 2015
- Academic advisor for transfer students, study abroad, and others (48 students)
- Senior Design projects (8 students)

Speaker:

- Da Vinci Program/Speaker
- Kappa Alpha Tetta/Speaker
- GK-12 Program/ speaker
- SOE faculty meeting/speaker
- E2, explore engineering/Instructor
- Early college experience program summer program/instructor, coordinator
- CEE Open house instructor and coordinator

Reviewer/Judge:

- CETL University Teaching Award-Teaching innovation, Ad-Hoc Reviewer/Referee
- Annual UConn School of Engineering Poster Competition, Ad-Hoc Reviewer/Referee
- Early College Experience Research Grant, Ad-Hoc Reviewer/Referee
- ASCE Journal of Bridge Engineering, Reviewer
- European Journal of Environmental and Civil Engineering, Reviewer
- Journal of reinforced plastic and Composite, Reviewer
- Nevada Medal Competition, Ad-Hoc Reviewer/Referee
- MATS UTC Proposals Competition, Ad-Hoc Reviewer/Referee
- Gk-12 Engineering Design Challenge Competition, Ad-Hoc Reviewer/Referee

COMPUTER PROGRAM SKILL

- MATLAB (Data Acquisition Toolbox, Image Acquisition Toolbox)
- OpenSees
- SAP
- Xtract
- Seismosignal
- AutoCAD
- Mathcad

SCHOLARLY CONTRIBUTION

➤ **Refereed Journal Publication**

- Motaref, S., M. Saiidi, D. Sanders, A. Mirmiran "Shake Table Studies of A Bridge Pier with Advanced Materials for Accelerated Bridge Construction." *International Journal of Bridge Engineering*, Special Issue 2016: pp. 135-162.
- Motaref, S., M. Saiidi, and D. Sanders, "Experimental Study of Precast Bridge Columns with Built-In Elastomer." *Transportation Research Record: Journal of the Transportation Research Board*, Bridge Engineering 2010, Volume 3, pp 109-116.
- Motaref, S., M. Saiidi, and D. Sanders, "Shake Table Studies of Energy Dissipating Segmental Bridge Columns." *J. Bridge Eng.*, 10.1061/(ASCE)BE, Volume 19, Issue 2 (February 2014), 186-199.

➤ **Presentations and Conference Proceedings**

- Green, J., Mehr, M., Zaghi, A., Motaref, S., Culmo, M., "Simplified Reinforcement Detail for the Deck Acute Corner in Skewed Bridges", International Bridge Conference, National Harbor, MD, June 2018.
- Wu, Z. Y., Mo, D., Pan S., Christenson, R., Motaref, S., "Applying Phased-based Vision Sensing Method to Modal Feature Identification of Highway Bridge", The 8th International Conference on Structural Health monitoring of Intelligent Infrastructure, Brisbane, Australia | 5-8 December 2017
- Prete, N., Motaref, S., Christenson, R., " Bridge Weigh-in-Motion (BWIM): An Analysis of BWIM Methods Accuracy, International Conference on Weigh-in-Motion, ICWIM7, Brazil, November 2016
- Prete, N., Motaref, S., Christenson, R., " Bridge Weigh-in-Motion (BWIM):, International Bridge Conference, Pennsylvania, June 2016
- Motaref, S., Christenson, R., Jang, S., McDonnell, A., "Multi-Purpose Sensing System for Highway Bridge Structural Health Monitoring", International Workshop on Structural Health Monitoring 2013 "A Roadmap to Intelligent Structures" Stanford University, Stanford, CA September 10-12, 2013.
- Christenson, R., McDonnell, A., Motaref, S., "A Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for A Steel Girder Bridge", International Conference on Weigh-in-Motion, ICWIM6, Dallas, June 2012.
- Development of a Dual-Purpose Bridge Weigh-In-Motion (BWIM) and Bridge Health Monitoring BHM) System, Transportation Research Board (TRB) 91st annual Meeting, Washington, DC, January 2012.
- A Dual Purpose Bridge Health Monitoring and Weigh-in-Motion System for A Steel Girder Bridge International Conference on Weigh-in-Motion, ICWIM6, Dallas, June 2012.
- Saiidi, M., A. Vosooghi, Z. Haber, S. Motaref, and C. Cruz, and D. Sanders, "Next Generation of Earthquake-Resistant Bridges," Keynote Paper, International Conference EQADS 2011, Earthquake Analysis and Design of Structures, Coimbatore, India, December 2011, pp. 125-134.
- Motaref, S., M. Saiidi, and D. Sanders, "Shake Table Response of Precast Bridge Columns with Advanced Materials," Caltrans Earthquake Engineering Committee Seminar, California Department of Transportation, Sacramento, California, January 2010.
- Motaref, S., M. Saiidi, and D. Sanders, "Shake Table Response of Multi-Segment Reinforced Concrete Columns," Caltrans Earthquake Engineering Committee Seminar, California Department of Transportation, Sacramento, California, January 2010.
- Motaref, S., Saiidi, M, and Sanders, D., "Shake Table Response of Precast Bridge Columns with Advanced Materials," Seismic ABC Collaboration, Session Sponsored by TRB Committee AFF50, Transportation Research Board 89th Annual Meeting, Washington, DC, January 2010.
- Motaref, S., Saiidi, M, and Sanders, D., "Shake Table Response of Multi-Segment Reinforced Concrete Columns," Development of Precast Connection Details for Bridges in Moderate to High Seismic Regions, Session Sponsored by TRB Committee AFF30 and AFF50, Transportation Research Board 89th Annual Meeting, Washington, DC, January 2010.
- Motaref, S., "Seismic Performance of Precast Bridge Columns with Energy Dissipating Joints" , Proceedings, International Bridge Conference, Engineers' Society of Western Pennsylvania, IBC 2010, Pittsburgh, Pennsylvania, June 2010.

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- Saiidi, M., Motaref, S., and Sanders, D., "Sustainable Future Bridges under Earthquake Loading, Part 2 – Accelerated Bridge Construction," Special 100th Seminar; University of Ljubljana, Slovenia; also presented at the Institute of Earthquake Engineering and Engineering Seismology, Skopje, Macedonia.
 - Saiidi, M., Motaref, S., and Sanders, D., "A Study of Precast Bridge Columns with Innovative Plastic Hinges with Built-In Elastomers," ACI Convention, Session Titled "Accelerated Bridge Design and Construction," St. Louis, Missouri, November 2008.

➤ **Reports**

- Christenson, R., Motaref, S., "Dual Purpose Bridge Health Monitoring and Weigh -in-motion (BWIM) Phase I", Connecticut Department of Transportation Bureau of Policy and Planning Roadway Information Systems Research Section, Report No. CT-2265-F-15-7, July 2016.
- Kolev, V., Christenson, R., Motaref, S., Jang, S., "Development and Evaluation of a Dual Purpose Bridge Health Monitoring and Weigh-In-Motion System for a Steel Girder Bridge – Phase II", Connecticut Department of Transportation Bureau of Policy and Planning Roadway Information Systems Research Section, Report No. CT-2271-F-15-10, June 2016.
- Motaref, S., Saiidi, M, and Sanders, D., "Seismic Response of Precast Bridge Columns with Energy Dissipating Joints", Center for Civil Engineering Earthquake Research, Department of Civil and Environmental Engineering, University of Nevada, Reno, Nevada, Report No. CCEER-11-01, May 2011.
- K. Nguyen, M. Saiidi, S. Motaref, C. Cruz, "Parametric Study of Glass Fiber Reinforced Polymer Concrete Filled Bridge Columns under Lateral Loads", Center for Civil Engineering Earthquake Research, Department of Civil and Environmental Engineering, University of Nevada, Reno, Nevada, 2010

PROFESSIONAL MEMBERSHIPS

- American Society of Engineering Education (ASEE)
- WIMSE (Women in math, science and engineering)
- American Society of Civil Engineers (ASCE), Associate Member
- Society of Women Engineers (SWE)
- American Concrete Institute (ACI), Member
- Earthquake Engineering Research Institute (EERI), Member