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VISION STATEMENT

EMI is one of the smaller institutes of the ASCE and has been flexible to evolve and improve over the past years. Over the years, the EMI annual conference has grown in size, but it still has the feeling of a smaller and more intimate conference to many of the EMI members. The Journal of Engineering Mechanics, as the primary publication of EMI has also been a resource to many members and seen improvements in its impact factor. The institute has consistently explored improvements by being open-minded and accepting ideas proposed by its staff, members, committees, and the Board of Governors. I have enjoyed serving on the EMI Strategic Planning Committee to hear some of the institute's challenges and discuss ideas about how to address them. As a board member I would be very interested to see how we can systematically collect and help to realize good ideas from all constituents of EMI, from students to committee chairs. A few of the good ideas that I have heard over the years include but not limited to:

- Develop retention plans for student members after graduation.
- Develop initiatives to build a more diverse membership cohort (e.g., gender, race, age, …).
- Offer educational activities such as tutorials, short courses, and webinars.
- Encourage members to contribute to JEM and other institute publications.
- Promote EMI awards and EMI fellow distinction nationally and internationally.
- Develop an archive of best practices and lessons learned from annual conference local organizing committees.
- Encourage the transfer of the knowledge between committee chairs about ideas for committee activities (e.g., mentorship of junior faculty, retention plans, products, website, …).
- Balance the EMI conference size to be inclusive while keeping the size manageable in a university campus and not losing the community feeling of the conference.
- Develop budget models to maintain fiscal health of the institute and keep/grow the staff support.
- Promote involvement of industries at the EMI conferences and promote their membership.

Past Involvement with EMI

I have been involved with ASCE/EMI for more than a decade. The EMI annual conference is one of the core conferences that I have been involved with since 2008 and I have been a member of the Dynamics Committee and the Structural Health Monitoring and Control (SHMC) Committee. I served as the vice-chair and then chair of the SHMC committee from 2016-2019. As the chair of SHMC committee, I helped to increase the committee membership to become one of the largest EMI committees. With the help of other committee members, we made sure to be one of the first committees to organize the annual SHMC student paper competitions and develop guidelines for it. Reaching out to an industry contact, we secured monetary awards for the student competition winners for the last couple of years. At SHMC, we initiated an online archive of real-world applications for structural health monitoring and control which serves as one of the references on real-world applications of SHM. In addition, we created an archive of syllabi for courses taught on structural health monitoring and control or closely related topics with the help of committee members. At EMI, I have offered pre-conference short courses on Bayesian model

updating and uncertainty quantification and propagation. The latest offering of the course will be at the upcoming conference in Atlanta. In collaboration with a few colleagues, I regularly organize mini symposia at the EMI conference. In the past, I have served on the local organizing committee and have been part of the EMI Strategic Committee. Recently, I was elected to the grade of EMI Fellow membership.

SHORT BIO

Research Interests

Integration of mechanics-based models with measured data, verification and validation of computational models, structural dynamics, structural reliability and risk analysis, uncertainty quantification, probabilistic system identification, dynamic testing and test-analysis correlation.

Education

12/2007 Ph.D., Structural Engineering, University of California, San Diego

09/2001 M.S., Earthquake Engineering, Sharif University of Technology, Iran

02/1999 B.S., Civil Engineering, Sharif University of Technology, Iran

Appointments

09/2020 - present Professor, Dept. of Civil & Environmental Engineering, Tufts University

09/2014 - 8/2020 Associate Professor, Dept. of Civil & Environmental Engineering, Tufts University

09/2008 - 8/2014 Assistant Professor, Dept. of Civil & Environmental Engineering, Tufts University

Professional Affiliations/Services

Associate Editor for the ASCE Journal of Structural Engineering

Associate Editor for the Structural Health Monitoring

Associate Editor for the Frontiers in Built Environment

Member of American Society of Civil Engineers (ASCE)

- Selected as EMI Fellow (2023)

- Member of Task Committee for EMI strategic planning

- Member and past chair of ASCE EMI Structural Health Monitoring and Control Committee

- Member and past chair of ASCE SEI Methods of Monitoring Committee

- Member of ASCE EMI Dynamics Committee; and ASCE SEI Structural Identification Committee

Member of Society for Experimental Mechanics (SEM)

- Executive Board committee (2017-2019)

- Member of IMAC technical committee on Dynamics of Civil Structures; Model Validation and Uncertainty Quantification;

and Data Science

Selected Research Experience

Performed system and damage identification studies of more than 15 large-scale structural systems including buildings, bridges, wind turbines, and airplane models.

Developed the Hierarchical Bayesian model updating framework for structural identification under changing ambient and environmental conditions.

Designed and deployed a prototype continuous monitoring system on a footbridge at Tufts University campus to serve as a live laboratory for research and teaching.

Leading a multi-institution international project on digital twinning through NSF-PIRE program: Multi-domain, multi-scale, policy-aware digital twin for offshore wind energy infrastructure.

Publications

https://facultyprofiles.tufts.edu/babak-moaveni/publications

https://scholar.google.com/citations?user=PF6zTHgAAAAJ&hl=en

Teaching Experience

- Statistics & Dynamics

- Numerical Methods

- Structural Reliability

- Advanced Structural Analysis

- Structural Health Monitoring

- Introduction to Computing

- Random Vibrations