NHERI GSC
May General Meeting

2024

Agenda

11:00-11:08 Welcome & Announcements

11:08-11:40 Dr. David Roueche -
Interdisciplinary Perspectives on the Current Landscape of Tornado Resilience

11:40-11:55 Q & A

11:55-12:10 Member Research Presentations

Welcome New Members

Samuel	**Silitonga**
Abul	**Hasnat**
Kevin	**Kuria**
Razieh	**Khayamim**
Temitope	**Akinboyewa**
Utkarsh	**Gangwal**
Christopher	**Alegbeleye**
Mengling	**Qiao**
Samuel	**Silitonga**
Abul	**Hasnat**

*Reach out to Daniel Yahya and Wesam Mohamed to learn how to get involved!

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Graduate Student Council

We Want You for Fall 2024!

Nominate RSRs by May 31st

- Earthquake
- Wind
- Coastal Engineering
- Geotechnical
- Sim/Comp Modeling
- Reconnaissance
- Social Science
- Suggested Groups?

https://bit.ly/2024NHERIGSC_RSRNominations

NHERI GSC: Mini-Conference Registration

Registration Deadline May 30

- **Listen** to keynote speaker, Dr. Yasemin Didem Aktaş.

- **Learn more** about interdisciplinary disaster research from research challenges, posters, and presentations!

- **Interact** with graduate students and research scholars.

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Congratulations

Congratulations to the NHERI GSC members selected to receive funding to attend the Natural Hazards Workshop & Researcher's Meeting

- **Hannah Friedrich**
- **Shriya Thakkar**
- **Harman Singh**
- **Anamika Malla**
- **Wesam Mohamed**
- **Shayan Razi**
- **Amber Spears**

Thank you to NSF, NHC, & the NHERI NCO.
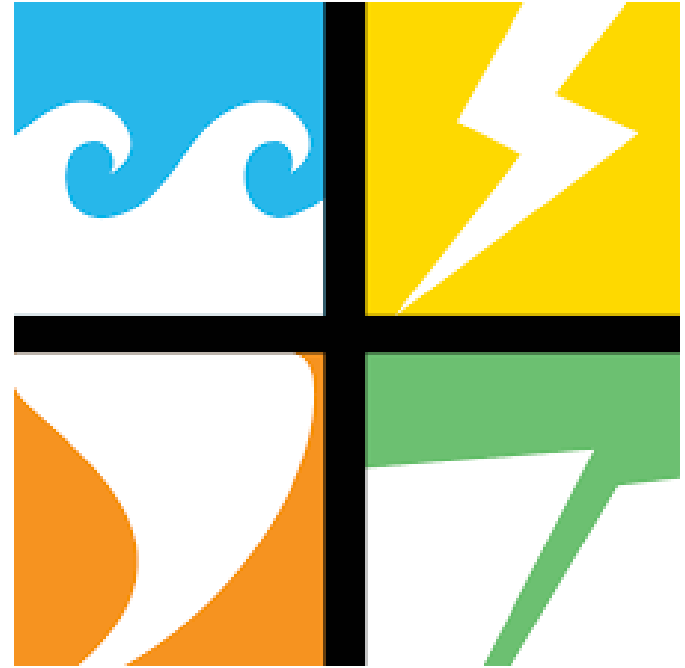
University of Colorado, Boulder, July 14-18, 2024

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NHERI GSC DEI Spring Event

Register to hear Dr. Elaina Sutley on June 7, 2024, at 12:00 pm speak with the
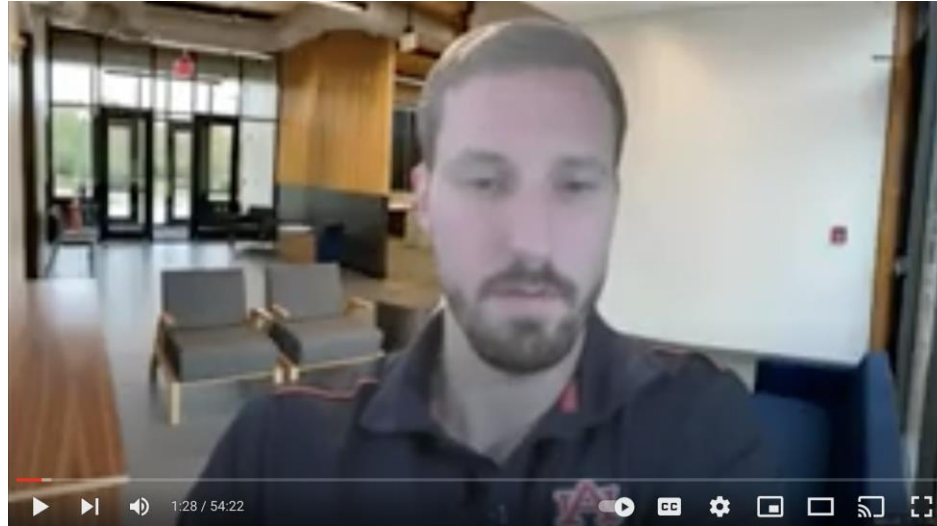
NHERI GSC DEI Standing Committee.

https://bit.ly/2024NHERI_GSCEvent

NSF

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Speaker Introduction

David Roueche

Assistant Professor

Auburn University

dbr0011@auburn.edu

Dr. Roueche's Presentation

Watch the Dr. Roueche's entire presentation online:
https://www.youtube.com/watch?v=P3-Kq3EKvJ4

Research Breakout Rooms

Please select a breakout room that interests you.

- **Breakout Room 1- Bijan Sayyaf Zadeh**- *OpenSRANE, a Flexible and Extensible Platform for Quantitative Risk Assessment of NaTech Events*

- **Breakout Room 2- Himradi Sen Gupta**- *Multi-objective optimization of mitigation strategies for buildings subject to multiple hazards*

NSF

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Research Committee

Nurullah Bektaş
Chair of Research

Soolmaz Khoshkalam
Vice-Chair of Research

Multi-objective optimization of mitigation strategies for buildings subject to multiple hazards

Natural hazards can devastate communities, especially in multi-hazard contexts like earthquakes and tsunamis. To enhance resilience, we propose a multi-objective optimization model to determine optimal retrofitting strategies. Applied to Seaside, Oregon, the model evaluates retrofitting effectiveness in reducing economic loss, population dislocation, and repair times. Our findings show that higher seismic codes significantly mitigate impacts and highlight the importance of geographic and mitigation considerations. By balancing budget constraints and resilience metrics, the model guides optimal investment decisions, providing valuable insights for enhancing community resilience in multi-hazard scenarios.

Himadri Sen Gupta, Ph.D. Candidate, School of Industrial and Systems Engineering, University of Oklahoma, Norman, OK, 73019, USA

OpenSRANE, a Flexible and Extensible Platform for Quantitative Risk Assessment of NaTech Events

OpenSRANE is a platform that is resulted from my Ph.D. thesis and is for NaTech (Natural Hazards triggered Technological accidents) risk assessment. It is inspired from OpenSees (I'm emphasizing that, please attention that I only inspired) but it is not related to FEM modeling and only its programming architecture is inspired from OpenSees. It is completely in Python programming environment (Both backend and frontend) and is an OOP platform. Its source code is on GitHub, and it is open source and researchers and contribute to develop, modify and extend it. Also, because it is in a programming environment so, it has high flexibility for modeling purposes.

Bijan Sayyaf Zadeh, Ph.D. Candidate, PHD Candidate at
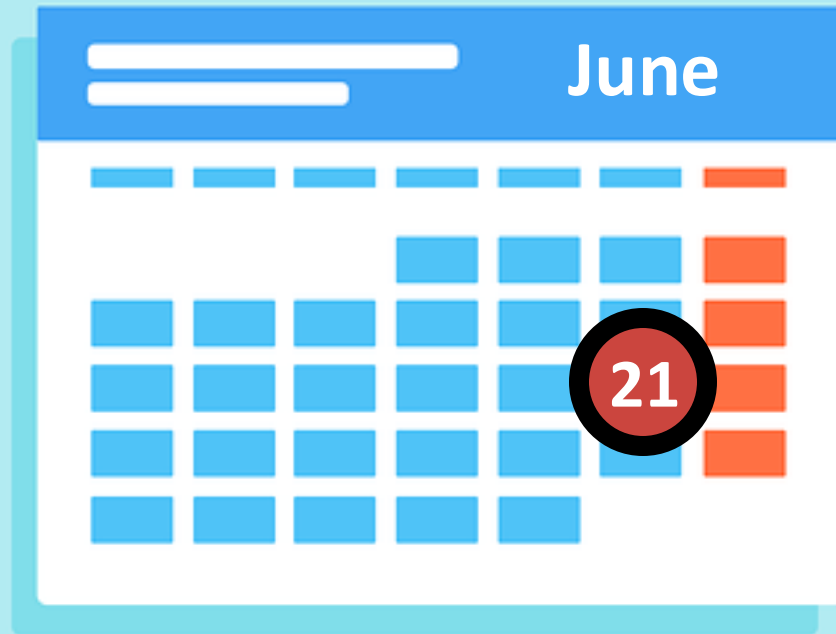University of Qom, Qom, Iran

Group Breakout Room Time!

- 10 Minutes Presentations
- 5 Minutes Q&A

1. OpenSRANE, a Flexible and Extensible Platform for Quantitative Risk Assessment of NaTech Events
2. Multi-objective optimization of mitigation strategies for buildings subject to multiple hazards

Future Meeting Date

June Social

3rd Friday of every month at 11:00am CST

June

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National Science Foundation

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