Sabarethinam Kameshwar

Assistant Professor
Department of Civil and Environmental Engineering
Louisiana State University, Baton Rouge, LA 70803
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EDUCATION

Ph.D. in Civil Engineering 2012 –2017
Rice University, Houston, Texas
Dissertation: Multi-hazard Fragility, Risk, and Resilience Assessment of Select Coastal Infrastructure

B.S. in Civil and Environmental Engineering 2008 –2012
Indian Institute of Technology Guwahati, India
Focus: Structural engineering

CURRENT & PAST POSITIONS

Assistant Professor 2019 –present
Department of Civil and Environmental Engineering
Louisiana State University, Baton Rouge, Louisiana

Post-doctoral Research Scholar 2017 –2019
School of Civil and Construction Engineering
Oregon State University, Corvallis, Oregon

Graduate Research Assistant 2012 –2017
Department of Civil and Environmental Engineering
Rice University, Houston, Texas

AWARDS & HONORS

- Outstanding Reviewer award: ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering 2018
- Outstanding reviewer award: Engineering Structures 2016 & 2018
- NHERI Summer Institute travel award 2018
- National Science Foundation (NSF) Partnerships for International Research and Education award for field research in the Netherlands 2016
- International Civil Engineering Risk and Reliability Association (CERRA) Student Recognition Award 2015
- Earthquake Engineering Research Institute (EERI) student travel fellowship 2015

- Robert P. and Eleanor Warden Shubinski Memorial Scholarship, Rice University 2014
- Institute Silver Medal for best academic performance among Civil Engineering students graduating in 2012 from Indian Institute of Technology Guwahati 2012

TEACHING

- Structural Reliability in Fall 2019 at Louisiana State University
- Structural Reliability and Risk analysis in Spring 2019 at Oregon State University
- Structural Analysis (teaching assistant) in Spring 2015 at Rice University

PUBLICATIONS

Peer Reviewed Journal Articles

Published

J1. **Kameshwar, S.**, Cox, D.T., Barbosa A.R., Farokhnia, K., Park, H., Alam, MS., and van de Lindt, J. (2019). "Probabilistic decision-support framework for community resilience: Incorporating multi-hazards, infrastructure interdependencies, and resilience goals in a Bayesian network." *Reliability Engineering and System Safety*, 191, 106568.

J2. Bernier, C., **Kameshwar, S**., Elliott, J.R., Padgett, J.E., and Bedient, P.B. (2018). "Mitigation strategies to protect oil infrastructure and nearby communities during storm surge." *Natural Hazards Review*, 19(4), 04018019.

J3. **Kameshwar, S.** and Padgett, J.E. (2018). "Parameterized fragility assessment of bridges subjected to pier scour and vehicular loads." *Journal of Bridge Engineering*, 23 (7), 04018044.

J4. **Kameshwar, S.** and Padgett, J.E. (2018). "Response and fragility assessment of portfolio of bridges subjected to barge bridge collision and scour." *Engineering Structures*, 168, 308-319.

J5. **Kameshwar, S.** and Padgett, J.E. (2018). "Assessment of fragility and resilience indicators for portfolio of oil storage tanks subjected to hurricanes." *Journal of Infrastructure Systems*, 24 (2), 04018003.

J6. **Kameshwar, S.** and Padgett, J.E. (2018). "Storm surge fragility assessment of above ground storage tanks." *Structural Safety*, 70, 48-58.

J7. Anarde, K.A., **Kameshwar, S.**, Irza, J.N., Lorenzo-Trueba, J., Nittrouer, J. A., Padgett, J.E., Sebastian, A., and Bedient, P. B. (2018). "Infrastructure vulnerability to hurricane storm surge evaluated for an evolving coastal landscape." *Natural Hazards Review*, 19(1), 04017020.

J8. **Kameshwar, S.** and Padgett, J.E. (2018). "Effect of vehicle bridge interaction on seismic response and fragility of bridges." *Earthquake Engineering and Structural Dynamics*, 47 (3), 697-713.

J9. **Kameshwar, S.** and Padgett, J.E. (2017). "Characterizing and predicting seismic repair costs for bridges." *Journal of Bridge Engineering*, 22 (11), 04017083.

J10. **Kameshwar, S.** and Padgett, J.E. (2015). "Stochastic modeling of geometric imperfections in above ground storage tanks for probabilistic buckling capacity estimation." *ASCE-ASME Journal*

of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering, 2(2), C4015005.

J11. **Kameshwar, S.** and Padgett, J.E (2014). "Multi-hazard risk assessment of highway bridges subjected to earthquake and hurricane hazards." *Engineering Structures*, 78, 154-166.

J12. Chakraborty, A., Mittal, P., and **Kameshwar, S.** (2013). "Time dependent gaussian equivalent linearization of duffing oscillator using continuous wavelet transform." *Journal of Civil Engineering and Architecture*, 7(8), 1006-1017.

J13. **Kameshwar, S.** and Padgett, J.E. (2019). "Stiffening ring design for prevention of storm surge buckling in above ground storage tanks." *Journal of Structural Engineering*, 145 (3), 04019002.

In press

J14. **Kameshwar, S.**, Misra, S., and Padgett, J.E. (in review). "Decision tree based bridge restoration models for extreme event performance assessment of regional road networks." *Structure and Infrastructure Engineering*.

Under review

J15. **Kameshwar, S.**, Ribeiro, F., Barbosa A.R., and Cox, D.T (in review). "Surrogate modeling based methodology for developing limit state free tsunami building fragility models and performing sensitivity analysis." *Structural Safety*.

J16. Balomenos, G.B., **Kameshwar, S.**, and Padgett, J.E. (in review) "Parameterized fragility models for multi-bridge classes subjected to hurricane loads". *Engineering Structures*.

Manuscripts in preparation

J17. **Kameshwar, S.**, Vishnu, N., and Padgett, J.E. "[Working title] Understanding sustainability and resilience of a regional road network in presence of seismic and aging threats". Manuscript in preparation for *Structure and Infrastructure Engineering*.

J18. **Kameshwar, S.**, Vishnu, N., and Padgett, J.E. "[Working title] Leveraging cyberinfrastructure to enable multi-threat vulnerability modeling of bridges". Manuscript in preparation for *Computer Aided Civil and Infrastructure Engineering*.

Book Chapters

B1. Vishnu, N., **Kameshwar, S.**, and Padgett, J.E. (2019). "Towards resilience of highway transportation network systems." In *Routledge Handbook on Sustainable and Resilient Infrastructure* (pp. 216-238). Routledge, London.

B2. Padgett, J.E., and **Kameshwar, S.** (2016). "Supporting life cycle management of bridges through multi-hazard reliability and risk assessment." In *Multi-hazard Approaches to Civil Infrastructure Engineering* (pp. 41-58). Springer International Publishing, Cham.

Papers in Conference Proceedings

C1. Balomenos, G.B., **Kameshwar, S.** and Padgett, J.E. "Vulnerability of bridges exposed to coastal hazard & climate change." 9th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2018), Melbourne, Australia, July 9-13, 2018.

C2. **Kameshwar, S.** and Padgett, J.E. (2016). "Effect of vehicle bridge interaction on bridge seismic response." 8th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2016), Foz du Iguacu, Brazil, June 26-30, 2016.

C3. **Kameshwar, S.** and Padgett, J.E. (2015). "Assessing the effectiveness of stiffener rings in mitigating surge buckling fragility of above ground storage tanks." Coastal Structures & Solutions to Coastal Disasters Joint Conference, Boston, Massachusetts, September 9-11, 2015.

C4. **Kameshwar, S.** and Padgett, J.E. (2015). "Fragility Assessment of Above Ground Petroleum Storage Tanks under Storm Surge." 12th International Conference on Applications of Statistics and Probability in Civil Engineering, Vancouver, Canada, July 12-15, 2015.

C5. **Kameshwar, S.** and Padgett, J.E. (2014). "Multi-hazard reliability analysis of bridges based upon damage indices." 7th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2014), Shanghai, China, July 7-11, 2014.

C6. **Kameshwar, S.** and Padgett, J.E. (2014). "Towards risk based multi-hazard resistant design of bridges." Structures Congress 2014, Boston, Massachusetts, April 3-5, 2014.

C7. **Kameshwar, S.**, Rathi, A. K., and Chakraborty, A. (2012). "A modified gradient based reliability analysis for non–linear non-algebraic limit states using polynomial chaos expansion", 4th International Congress on Computational Mechanics and Simulation 2012, IIT Hyderabad, India, December 9-12, 2012.

C8. **Kameshwar, S.** and Charkraborty, A. (2012) "Statistical linearization of duffing oscillator using constrained optimization technique", International Symposium on Engineering under Uncertainty: Safety Assessment and Management, Kolkata, India, January 4-6, 2012.

C9. **Kameshwar, S.** and Charkraborty, A. (2012) "On reliability evaluation of structures using hermite polynomial chaos", International Symposium on Engineering under Uncertainty: Safety Assessment and Management, Kolkata, India, January 4-6, 2012.

C10. Charkraborty A, Mittal, P., and **Kameshwar, S.** (2011). "Wavelet based linearization of duffing oscillator under non stationary excitation", Engineering Mechanics Institute, Boston, Massachusetts, June 2-4, 2011.

Data sets

D1. Padgett, J.E., Ebad S.M., Vishnu, N., Misra, S., **Kameshwar, S.**, Panakkal, P., Gidaris, I., Bernier, C., Du, A., Balomenos, G. (2017), "Post-Harvey Houston-Galveston Roadway Bridge Reconnaissance." DesignSafe-CI, Dataset, doi:10.17603/DS2HM4H

D2. Padgett, J.E., Ebad S. M., Gidaris, I., **Kameshwar, S.**, and Misra, S. (2019), "Houston-Galveston Transportation Infrastructure During and After Hurricane Harvey." Rice University-Kinder Institute: UDP, doi: https://doi.org/10.25612/837.L66N8QA5NEDL

PRESENTATIONS

Conference Presentations

P1. **Kameshwar, S.**, Barbosa, A.R., Cox, D.T. (2018). "Surrogate model based tsunami fragility and sensitivity analysis of a three story steel building." Engineering Mechanics Institute Conference, Cambridge, Massachusetts, May 29 – June 1.

P2. **Kameshwar, S.** and Padgett, J.E. (2016). "Effect of vehicle bridge interaction on bridge seismic

response." 8th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2016), Foz du Iguacu, Brazil, June 26-30, 2016.

P3. **Kameshwar, S.** and Padgett, J.E. (2015). "Assessing the effectiveness of stiffener rings in mitigating surge buckling fragility of above ground storage tanks." Coastal Structures & Solutions to Coastal Disasters Joint Conference, Boston, Massachusetts, September 9-11, 2015.

P4. **Kameshwar, S.** and Padgett, J.E. (2015). "Fragility Assessment of Above Ground Petroleum Storage Tanks under Storm Surge." 12th International Conference on Applications of Statistics and Probability in Civil Engineering, Vancouver, Canada, July 12-15, 2015.

P5. **Kameshwar, S.** and Padgett, J.E. (2014). "Multi-hazard reliability analysis of bridges based upon damage indices." 7th International Conference on Bridge Maintenance, Safety and Management (IABMAS 2014), Shanghai, China, July 7-11, 2014.

P6. **Kameshwar, S.** and Padgett, J.E. (2014). "Towards risk based multi-hazard resistant design of bridges." Structures Congress 2014, Boston, Massachusetts, April 3-5, 2014.

P7. **Kameshwar, S.** and Charkraborty, A. (2012) "Statistical linearization of duffing oscillator using constrained optimization technique", International Symposium on Engineering under Uncertainty: Safety Assessment and Management, Kolkata, India, January 4-6, 2012.

P8. **Kameshwar, S.** and Charkraborty, A. (2012) "On reliability evaluation of structures using hermite polynomial chaos", International Symposium on Engineering under Uncertainty: Safety Assessment and Management, Kolkata, India, January 4-6, 2012.

Seminars

S1. **Kameshwar, S.** (2018). "Probabilistic decision-support framework for community resilience: Incorporating multi-hazards, infrastructure interdependencies, and target objectives in a Bayesian network." Coastal and Ocean Engineering, Oregon State University, Corvallis, Oregon, November 8, 2018.

S2. **Kameshwar, S.** (2018). "Hurricane Risk Assessment of a Key Component of Energy and Industrial Infrastructure: Above Ground Storage Tanks." Department of Civil and Environmental Engineering, University of Hawaii, Manoa, Hawaii, March 20, 2018.

PROFESSIONAL ACTIVITIES

- Young Professional Member, Earthquake Engineering Research Institute
- Associate Member, American Society of Civil Engineers
- Beta user for the NSF NHERI DesignSafe Cyberinfrastructure
- Served as reviewer for:
  - Engineering Structures
  - Earthquake Spectra
  - Journal of Bridge Engineering
  - Journal of Structural Engineering
  - Structure and Infrastructure Engineering
  - Natural Hazards
  - Earthquake Engineering and Engineering Vibrations

  - ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering
  - ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part B: Mechanical Engineering
  - Journal of Pressure Vessel Technology
  - International Journal of Disaster Risk Reduction
  - Journal of Applied Statistics
  - Structures
  - Computers and Concrete
  - Journal of Modern Transportation
  - Multidiscipline Modeling in Materials and Structures
- Faculty advisor to AISC SBCC team at Louisiana State University
- Graduate student advisor to EERI SDC team at Rice University