

James Kaklamanos, Ph.D.

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EDUCATION

Ph.D., Tufts University, Civil and Environmental Engineering, November 2012

- Concentration: Geotechnical and Geoenvironmental Engineering
- Dissertation: *Quantifying Uncertainty in Earthquake Site Response Models Using the KiK-net Database*; advised by Prof. Laurie Baise

M.S., Tufts University, Civil and Environmental Engineering, February 2010

- Concentration: Geotechnical and Geoenvironmental Engineering
- Thesis: *Model Validations, Comparisons, and Issues of the Next Generation Attenuation (NGA) Relations for Predicting Earthquake Ground Motions*; advised by Prof. Laurie Baise

BSCE (*summa cum laude*), Tufts University, May 2008

- Major: Civil Engineering; Minor: Economics

PROFESSIONAL EXPERIENCE

Merrimack College, Department of Civil Engineering, North Andover, Mass.

- Associate Professor and Zampell Family Faculty Fellow, September 2018 – Present
- Assistant Professor, September 2012 – August 2018

Tufts University, Department of Civil and Environmental Engineering, Medford, Mass.

- Graduate Research Assistant / Graduate Teaching Assistant, September 2008 – August 2012

Haley and Aldrich, Inc., Manchester, N.H.

- Civil Engineering Intern, May–August 2007 and May–August 2008

Temporary or part-time positions:

University of Canterbury, Department of Civil and Natural Resources Engineering, Christchurch, New Zealand

- Visiting Scholar, July–August 2015
- Visiting Student Researcher, October–November 2011

Kaklamanos Consulting, LLC, Nashua, N.H.

- Manager, July 2018 – Present
- Perform scientific services related to the assessment of natural hazards on infrastructure

PUBLICATIONS

Refereed Journal Papers:

Kaklamanos, J., and B. A. Bradley (2018). Challenges in predicting seismic site response with 1D analyses: Conclusions from 114 KiK-net vertical seismometer arrays, *Bulletin of the Seismological Society of America*, Vol. 108, No. 5A, pp. 2816–2838.

Baise, L. G., **J. Kaklamanos**, B. M. Berry, and E. M. Thompson (2016). Soil amplification with a strong impedance contrast: Boston, Massachusetts, *Engineering Geology*, Vol. 202, pp. 1–13.

Kaklamanos, J., L. Dorfmann, and L. G. Baise (2015). A simple approach to site response modeling: the overlay concept, *Seismological Research Letters*, Vol. 86, No. 2A, pp. 413–423.

Kaklamanos, J., L. G. Baise, E. M. Thompson, and L. Dorfmann (2015). Comparison of 1D linear, equivalent-linear, and nonlinear site response models at six KiK-net validation sites, *Soil Dynamics and Earthquake Engineering*, Vol. 69, pp. 207–219.

Kaklamanos, J., B. A. Bradley, E. M. Thompson, and L. G. Baise (2013). Critical parameters affecting bias and variability in site response analyses using KiK-net downhole array data, *Bulletin of the Seismological Society of America*, Vol. 103, No. 3, pp. 1733–1749.

Kaklamanos, J., and L. G. Baise (2011). Model validations and comparisons of the Next Generation Attenuation of Ground Motions (NGA-West) project, *Bulletin of the Seismological Society of America*, Vol. 101, No. 1, pp. 160–175.

Kaklamanos, J., L. G. Baise, and D. M. Boore (2011). Estimating unknown input parameters when implementing the NGA ground-motion prediction equations in engineering practice, *Earthquake Spectra*, Vol. 27, No. 4, pp. 1219–1235.

Thompson, E. M., L. G. Baise, R. E. Kayen, E. C. Morgan, and **J. Kaklamanos** (2011). Multiscale site response mapping: a case study of Parkfield, California, *Bulletin of the Seismological Society of America*, Vol. 101, No. 3, pp. 1081–1100.

Journal Papers in Preparation:

Kaklamanos, J., B. A. Bradley, A. N. Moolacattu[†], and B. M. Picard* (in preparation). Physical hypotheses for improving 1D site response estimation assessed at 10 KiK-net vertical array sites: Soil profiles and constitutive model parameters, *Bulletin of the Seismological Society of America*.

[†] Graduate student at Merrimack College; * Undergraduate student at Merrimack College.

Conference Papers and Abstracts:

Ghanat, S. T., **J. Kaklamanos**, C. Walton-Macaulay, S. I. Selvaraj, D. A. Saftner, C. Swan, and T. Kunberger (2018). Assessing the impact of educational factors on conceptual understanding of geotechnical engineering topics, *American Society for Engineering Education 2018 Annual Conference and Exposition*, Salt Lake City, Utah, 24–27 June 2018.

Kaklamanos, J., and B. A. Bradley (2018). Insights from KiK-net data: What input parameters should be addressed to improve site response predictions? *Geotechnical Earthquake Engineering and Soil Dynamics V: Seismic Hazard Analysis, Earthquake Ground Motions, and Regional-*

Scale Assessment, 10–13 June 2018, Austin, Texas, American Society of Civil Engineers (ASCE) Geotechnical Special Publication No. 291, S. J. Brandenberg and M. T. Manzari (eds.), pp. 454–464.

Ghanat, S. T., **J. Kaklamanos**, S. I. Selvaraj, C. Walton-Macaulay, and M. Sleep, (2017). Assessment of students' prior knowledge and learning in an undergraduate foundation engineering course, *American Society for Engineering Education 2017 Annual Conference*, Columbus, Ohio, 25–28 June 2017.

Kaklamanos, J., B. A. Bradley, A. N. Moolacattu[†], and B. M. Picard* (2017). Adjustments to small-strain damping and soil profile assumptions to improve site response predictions, *2017 Annual Meeting of the Seismological Society of America (SSA)*, Denver, Colo., 18–20 April 2017 (abstract printed in *Seismological Research Letters*, Vol. 88, No. 2, p. 537).

[†] Graduate student at Merrimack College; * Undergraduate student at Merrimack College.

Baise, L. G., **J. Kaklamanos**, and J. E. Ebel (2016). Site effects in strong-impedance environments and the importance of f_0 : Lessons learned in Boston, Massachusetts, *2016 Annual Meeting of the Eastern Section of the Seismological Society of America (ES-SSA)*, Reston, Virginia, 24–26 October 2016 (abstract printed in *Seismological Research Letters*, Vol. 88, No. 1, p. 239).

Ghanat, S. T., **J. Kaklamanos**, K. Ziotopoulou, S. I. Selvaraj, and D. J. Fallon (2016). A multi-institutional study of pre- and post-course knowledge surveys in undergraduate geotechnical engineering courses, *American Society for Engineering Education 2016 Annual Conference*, New Orleans, Louisiana, 26–29 June 2016.

Kaklamanos, J., and B. A. Bradley (2016). Improving our understanding of 1D site response model behavior: physical insights for statistical deviations from 114 KiK-net sites, *2016 Annual Meeting of the Seismological Society of America (SSA)*, Reno, Nevada, 20–22 April 2016 (abstract printed in *Seismological Research Letters*, Vol. 87, No. 2, p. 494).

Kaklamanos, J., and K. T. Elmy[†] (2016). Development of a geotechnical engineering software package in R and its implementation in the civil engineering curriculum, *Geotechnical and Structural Engineering Congress 2016*, Phoenix, Arizona, 14–17 February 2016, American Society of Civil Engineers (ASCE), C. Y. Chandran and M. I. Hoit (eds.), pp. 635–647.

[†] Graduate student at Merrimack College

Kaklamanos, J., and B. A. Bradley (2015). Evaluation of 1D nonlinear total-stress site response model performance at 114 KiK-net downhole array sites, *Sixth International Conference on Earthquake Geotechnical Engineering*, Christchurch, New Zealand, 2–4 November 2015.

Kaklamanos, J., and B. A. Bradley (2015). 1D nonlinear site response prediction: Analysis of residuals at a large number of KiK-net vertical seismometer arrays, *2015 Annual Meeting of the Earthquake Engineering Research Institute (EERI)*, Boston, Massachusetts, 31 March–3 April 2015.

Kaklamanos, J., and T. C. Cross* (2014). Learning from catastrophes: Incorporating natural disasters into the undergraduate civil engineering curriculum, *2014 International Conference on Disaster Mitigation, Preparedness, Response, and Sustainable Reconstruction*, Boston, Massachusetts, 8–9 May 2014.

* Undergraduate student at Merrimack College

Kaklamanos, J., L. Dorfmann, and L. G. Baise (2014). Modeling dynamic site response using the overlay concept, *Geo-Congress 2014 Technical Papers: Geo-Characterization and Modeling for Sustainability*, Atlanta, Georgia, 23–26 February 2014, American Society of Civil Engineers (ASCE) Geotechnical Special Publication No. 234, M. Abu-Farsakh, X. Yu, and L. R. Hoyos (eds.), pp. 1167–1176.

Kaklamanos, J., L. G. Baise, and L. Dorfmann (2013). Quantification of uncertainty in nonlinear soil models at a representative seismic array, *Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures*, 11th International Conference on Structural Safety and Reliability (ICOSSAR 2013), New York City, New York, 16–20 June 2013, G. Deodatis, B. R. Ellingwood, and D. M. Frangopol (eds.), pp. 4189–4196.

Kaklamanos, J., L. G. Baise, E. M. Thompson, and L. Dorfmann (2013). Modeling nonlinear 1D site response at six KiK-net validation sites, *2013 Annual Meeting of the Seismological Society of America (SSA)*, Salt Lake City, Utah, 17–19 April 2013 (abstract printed in *Seismological Research Letters*, Vol. 84, No. 2, p. 317).

Kaklamanos, J., B. A. Bradley, E. M. Thompson, and L. G. Baise (2012). Bias and variability in site response: Analysis of residuals at 100 KiK-net stations, *15th World Conference on Earthquake Engineering*, Lisbon, Portugal, 24–28 September 2012.

Kaklamanos, J., B. A. Bradley, E. M. Thompson, and L. G. Baise (2012). Critical parameters affecting bias and variability in site response analyses using KiK-net downhole array data, *2012 Annual Meeting of the Seismological Society of America (SSA)*, San Diego, California, 17–19 April 2012 (abstract printed in *Seismological Research Letters*, Vol. 83, No. 2, p. 355).

Baise, L. G., E. M. Thompson, **J. Kaklamanos**, and L. Dorfmann (2011). Complex site response: Does one-dimensional site response work?, *4th IASPEI (International Association of Seismology and Physics of the Earth's Interior) / IAEE (International Association of Earthquake Engineering) International Symposium on the Effects of Surface Geology on Seismic Motion (ESG4)*, Santa Barbara, California, 23–26 August 2011.

Thompson, E. M., L. G. Baise, R. E. Kayen, E. C. Morgan, and **J. Kaklamanos** (2011). A case study of alternative site response explanatory variables in Parkfield, California, *GeoRisk: Risk Assessment and Management in Geoenvironmental Engineering*, Atlanta, Georgia, 26–28 June 2011, American Society of Civil Engineers (ASCE) Geotechnical Special Publication No. 224, C. H. Juang, K. K. Phoon, A. J. Puppala, R. A. Green, and G. A. Fenton (eds.), pp. 310–317.

Thompson, E. M., L. G. Baise, R. E. Kayen, E. C. Morgan, and **J. Kaklamanos** (2011). A variance-weighted approach to site response mapping, *2011 Annual Meeting of the Seismological Society of America (SSA)*, Memphis, Tennessee, 13–15 April 2011 (abstract printed in *Seismological Research Letters*, Vol. 82, No. 2, p. 313).

Kaklamanos, J., E. M. Thompson, L. G. Baise, and L. Dorfmann (2011). Identifying and modeling complex site response behavior: Objectives, preliminary results, and future directions, *Proceedings of the 2011 NSF Engineering Research and Innovation Conference*, Atlanta, Georgia, 4–7 January 2011.

Kaklamanos, J., and L. G. Baise (2010). Model validation of recent ground motion prediction relations for shallow crustal earthquakes in active tectonic regions, *Fifth International*

Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, California, 26–29 May 2010.

Baise, L. G., and **J. Kaklamanos** (2009). Lessons learned for ground motion prediction equation development from NGA West, *2009 Annual Meeting of the Eastern Section of the Seismological Society of America (ES-SSA)*, Palisades, New York, 4–6 October 2009 (abstract printed in *Seismological Research Letters*, Vol. 81, No. 1, p. 153).

Book Chapters:

Cross, T. C.*, and **J. Kaklamanos** (2016). Incorporating natural disasters into the undergraduate civil engineering curriculum: A case study using Hurricane Katrina and the Oso landslide, Chapter 7 in *Planning for Community-based Disaster Resilience Worldwide: Learning from Case Studies in Six Continents*, A. Awotona (ed.), Routledge, London, 490 p.

* Undergraduate student at Merrimack College

Peer-Reviewed Technical Reports:

Kaklamanos, J., D. M. Boore, E. M. Thompson, and K. W. Campbell (2010). Implementation of the Next Generation Attenuation (NGA) ground-motion prediction equations in Fortran and R, *U.S. Geological Survey Open-File Report 2010-1296*, 43 p.

Computer Software:

Kaklamanos, J., and K. T. Elmy[†] (2016). *geotech*: Geotechnical Engineering. R software package version 1.0. R: A language and environment for statistical computing, <<http://www.r-project.org/>>.

[†] Graduate student at Merrimack College

Blair, T. J.[†], T. C. Cross*, A. N. Moolacattu[†], B. M. Picard*, and **J. Kaklamanos** (2016). Implementation of the Next Generation Attenuation of Ground Motions (NGA-West 1) models and Enhancement of Next Generation Attenuation Relationships for Western U.S. (NGA-West 2) models in Mathcad.

[†] Graduate student at Merrimack College; * Undergraduate student at Merrimack College.

Kaklamanos, J., and E. M. Thompson (2010). *nga*: NGA Ground Motion Prediction Equations. R software package version 1.4-1. R: A language and environment for statistical computing, <<http://www.r-project.org/>>.

SELECTED HONORS, AWARDS, AND FELLOWSHIPS

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| 2018 | Inaugural Zampell Family Faculty Fellowship, Merrimack College |
| 2017 | American Society of Civil Engineers (ASCE) Excellence in Civil Engineering Education (ExCEED) New Faculty Excellence in Teaching Award |
| 2017 | Selected as one of the 2017 Top Ten New Faces of Civil Engineering by the American Society of Civil Engineers (ASCE) |

- 2017 Selected to attend the 2017 Educate-the-Educators (EtE) Geosynthetics Workshop, sponsored by the North American Chapter of the International Geosynthetics Society (IGS-NA)
- 2016 Selected to attend the 2016 ADSC Civil Engineering Faculty Workshop, sponsored by the International Association of Foundation Drilling (ADSC)
- 2015 Award of Excellence, Professors' Driven Pile Institute (PDPI), Pile Driving Contractors Association (PDCA)
- 2015 Selected to attend the Professors' Driven Pile Institute (PDPI), sponsored by the Pile Driving Contractors Association (PDCA)
- 2015 Earthquake Engineering Research Institute (EERI) Young Professional Travel Grant Recipient
- 2013 ASCE Excellence in Civil Engineering Education (ExCEEEd) Teaching Fellow
- 2012 Seismological Society of America (SSA) Student Travel Grant Recipient
- 2011–2012 Teaching Fellow, Graduate Institute for Teaching, Tufts University
- 2010 The Award for Outstanding Graduate Contributor to Engineering Education, Tufts University
- 2009 Leo Casagrande Memorial Scholarship, Geo-Institute of the Boston Society of Civil Engineers Section/ASCE
- 2008–2009 Tau Beta Pi Fellow
- 2008–2009 Earle F. Littleton Fellow, Tufts University, Dept. of Civil and Environmental Engineering
- 2008 BSCE awarded *summa cum laude* (GPA: 4.00/4.00), Tufts University
- 2008 William P. Morse Award, Boston Society of Civil Engineers Section/ASCE
- 2007–2008 Cataldo Fellow, Tufts University, Dept. of Civil and Environmental Engineering
- 2007–2008 Tau Beta Pi Scholar
- 2006 Howard Sample Prize Scholarship in Physics Award, Tufts University, Dept. of Physics
- 2004–2008 National Merit Scholarship Grant, Tufts University
- 2004–2008 Robert C. Byrd Honors Scholarship, State of New Hampshire
- 2004–2008 Charles E. Austin Memorial Award, City of Nashua, New Hampshire

PRESENTATIONS

“Lessons Learned from KiK-net Data for Site Response Modelling Input Parameters, Assumptions, and Decisions,” Invited Speaker, New Zealand Centre for Earthquake Resilience (QuakeCoRE), Ground Motion Simulation and Validation (GMSV) Flagship Programme (web presentation), July 2018.

“Assessing the Impact of Educational Factors on Conceptual Understanding of Geotechnical Engineering Topics,” *American Society for Engineering Education 2018 Annual Conference and Exposition*, Salt Lake City, Utah, June 2018.

“Insights from KiK-net Data: What Input Parameters Should be Addressed to Improve Site Response Predictions?” *American Society for Civil Engineers (ASCE) 5th Geotechnical Earthquake Engineering and Soil Dynamics Conference*, Austin, Texas, June 2018.

“How Can We Improve Our Prediction of Earthquake Ground Motions?”, Invited Speaker, Department of Civil and Environmental Engineering, University of Rhode Island, Kingston, Rhode Island, December 2017.

“Adjustments to Soil Profile and Constitutive Model Parameter Assumptions to Improve Site Response Predictions,” *2017 Annual Meeting of the Seismological Society of America (SSA)*, Denver, Colorado, April 2017.

“Analyzing Site Response in Earthquakes: Background, Modeling, and Theory,” Invited Speaker, Department of Civil and Environmental Engineering, Tufts University, Medford, Massachusetts, April 2017.

“Site Effects in Strong-Impedance Environments and the Importance of f_0 : Lessons Learned in Boston, Massachusetts,” *2016 Annual Meeting of the Eastern Section of the Seismological Society of America (ES-SSA)*, Reston, Virginia, October 2016.

“Capturing Earthquake Site Response Behavior: Lessons Learned from Japan’s KiK-net Database,” Invited Speaker, Department of Civil and Environmental Engineering, University of California, Los Angeles, California, May 2016.

“Improving Our Understanding of 1D Site Response Model Behavior: Physical Insights for Statistical Deviations from 114 KiK-net Sites,” *2016 Annual Meeting of the Seismological Society of America (SSA)*, Reno, Nevada, April 2016.

“Development of a Geotechnical Engineering Software Package in R and Its Implementation in the Civil Engineering Curriculum,” *American Society of Civil Engineers (ASCE) Geotechnical and Structural Engineering Congress 2016*, Phoenix, Arizona, February 2016.

“The 2010–2011 Canterbury, New Zealand, Earthquakes: A Five-Year Perspective,” Invited Speaker, *Earth Scientists Who Rock* special program, Museum of Science, Boston, Massachusetts, October 2015.

“Improving Our Understanding of Site Response Model Behavior: Statistical and Physical Insights on a Large Dataset,” Invited Speaker, Department of Civil and Natural Resources Engineering, University of Canterbury, Christchurch, New Zealand, August 2015.

“1D Nonlinear Site Response Prediction: Analysis of Residuals at a Large Number of KiK-net Vertical Seismometer Arrays,” *2015 Annual Meeting of the Earthquake Engineering Research Institute (EERI)*, Boston, Massachusetts, April 2015.

“Capturing Earthquake Site Response Behavior: Challenges and Strategies,” Invited Speaker, Department of Civil and Environmental Engineering, University of Rhode Island, Kingston, Rhode Island, March 2015.

“Learning from Catastrophes: Incorporating Natural Disasters into the Undergraduate Civil Engineering Curriculum,” Invited Speaker, *2014 International Conference on Disaster Mitigation, Preparedness, Response, and Sustainable Reconstruction*, Boston, Massachusetts, May 2014.

“Modeling Dynamic Site Response Using the Overlay Concept,” *Geo-Congress 2014: Geo-Characterization and Modeling for Sustainability*, Atlanta, Georgia, February 2014.

“Quantification of Uncertainty in Nonlinear Soil Models at a Representative Seismic Array,” *11th International Conference on Structural Safety and Reliability (ICOSSAR 2013)*, New York City, New York, June 2013.

“Modeling Nonlinear 1D Site Response at Six KiK-net Validation Sites,” *2013 Annual Meeting of the Seismological Society of America (SSA)*, Salt Lake City, Utah, April 2013.

“Quantifying Uncertainty in Dynamic Site Response Models Using Ground Motions from the Japan KiK-net Array,” *United States Universities Council on Geotechnical Education and Research (USUCGER) First Early Career Geotechnical Engineering Conference*, Boston, Massachusetts, July 2012.

“Critical Parameters Affecting Bias and Variability in Site Response Analyses Using KiK-net Downhole Array Data,” *2012 Annual Meeting of the Seismological Society of America (SSA)*, San Diego, California, April 2012.

“Critical Parameters for Earthquake Site Response Analyses,” Invited Speaker, Department of Civil and Environmental Engineering, University of Massachusetts, Amherst, Massachusetts, April 2012.

“Improving the Prediction of Earthquake-Induced Ground Motion” and “Hurricane Katrina: A Geotechnical Engineering Case Study”, Invited Speaker, Department of Civil and Mechanical Engineering, Merrimack College, North Andover, Massachusetts, March 2012.

“Improving the Prediction of Earthquake-Induced Ground Motion” and “Engineering in Context: The Integration of Liberal Arts in Developing Viable Solutions”, Invited Speaker, Picker Engineering Program, Smith College, Northampton, Massachusetts, February 2012.

“The New Madrid Earthquakes, 200 Years Later,” Invited Speaker (with J. Ebel and P. Morey), podcast at the Museum of Science, Boston, Massachusetts, December 2011, available at <http://www.mos.org/podcasts>.

“The 2011 *M* 6.3 Earthquake in Christchurch, New Zealand, and Seismic Hazards in Boston,” Invited Speaker, *Rare But Real: Big Earthquakes in the Eastern U.S.* special program, Museum of Science, Boston, Massachusetts, November 2011.

“Effects of the *M* 9.0 Tohoku Earthquake and Potential Impacts of an Earthquake in Boston,” Invited Speaker, *Earth Day* special program, Museum of Science, Boston, Massachusetts, April 2011.

“Identifying and Modeling Complex Site Response Behavior: Objectives, Preliminary Results, and Future Directions,” *2011 NSF Engineering Research and Innovation Conference*, Atlanta, Georgia, January 2011.

“Identifying and Reducing Earthquake Hazards in Boston,” Invited Speaker, *Earthquake Day* special program, Museum of Science, Boston, Massachusetts, October 2010.

“Model Validation of Recent Ground Motion Prediction Relations for Shallow Crustal Earthquakes in Active Tectonic Regions” and “Discussion: Incorporation of Site Effects in Ground Motion Prediction Equations”, *Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, San Diego, California, May 2010.

“Lessons Learned for Ground Motion Prediction Equation Development from NGA West,” *2009 Annual Meeting of the Eastern Section of the Seismological Society of America (ES-SSA)*, Palisades, New York, October 2009.

RESEARCH GRANTS AWARDED

Enhancing the Prediction of Earthquake-Induced Ground Motion, Merrimack College, Zampell Family Faculty Fellowship, September 2018 – August 2019. Principal Investigator.

A Hybrid 3D-1D Framework for Site-Specific Seismic Response Analysis, Royal Society of New Zealand, Marsden Fund, NZ\$300,000 (lead institution: University of Canterbury), July 2018 – June 2021. Associate Investigator.

Challenges in Predicting Earthquake Ground Motions in New England, Merrimack College, Faculty Development Grant, \$4,400, September 2018 – May 2019. Principal Investigator.

Assessment of the Contribution of Input Motion Selection Procedures to Uncertainty in Ground Motion Intensity Measures: Collaborative Research with North Carolina State University and Merrimack College, U.S. Geological Survey, National Earthquake Hazards Reduction Program (NEHRP), \$28,427, January 2018 – December 2018. Principal Investigator.

Soil Dynamics: How Effective is the Effective Strain Ratio?, Merrimack College, Faculty Development Grant, \$4,400, September 2017 – May 2018. Principal Investigator.

Influence of Soil Profile Assumptions on Earthquake Site Response Predictions, Merrimack College, Faculty Development Grant, \$4,200, September 2016 – May 2017. Principal Investigator.

Assessment of 1D Nonlinear Site Response Uncertainty at a Large Number of Vertical Seismometer Arrays, U.S. Geological Survey, National Earthquake Hazards Reduction Program (NEHRP), \$55,786, December 2015 – November 2016. Principal Investigator.

A New Software Platform for Geotechnical Engineering in the Statistical Language and Environment R, Merrimack College, Faculty Development Grant, \$4,000, June–August 2015. Principal Investigator.

geotech: Development of a Geotechnical Engineering Software Package in R, United States Universities Council on Geotechnical Education and Research (USUCGER), Special Project Grant, \$5,000, October 2014 – September 2015. Principal Investigator.

Uncertainty in Predicting Earthquake-Induced Ground Motion, Merrimack College, Faculty Development Grant, \$3,500, June–August 2014. Principal Investigator.

Statistics in Civil Engineering (SCE): An Interdisciplinary Student Research Program, Merrimack College, Provost Innovation Fund, \$5,000, January–June 2014. Principal Investigator.

Development and Validation of Modeling Techniques for Earthquake Site Response, Merrimack College, Faculty Development Grant, \$3,500, June–August 2013. Principal Investigator.

Foundations for STEM Success, National Science Foundation, \$448,856, January 2014 – December 2018. Faculty Participant.

TEACHING EXPERIENCE

Merrimack College:

- CEN 3020 Geotechnical Engineering (Fall semesters, 2012 to present)
- CEN 3020L Geotechnical Engineering Lab (Fall semesters, 2012 to present)
- CEN 5020 Foundation Engineering (Spring 2013; Fall semesters, 2013 to present)
- CEN 5022 Earth Slopes and Retaining Structures (Spring semesters, 2014 to present)
- CEN 5024 Seismological and Geotechnical Aspects of Earthquakes (Spring 2018)
- GEN 2012 Mechanics II: Strength of Materials (Spring 2015, 2016)
- GEN 2012L Mechanics II: Strength of Materials Lab (Spring 2015, 2016, 2017)
- GEN 6010 Earthquake Engineering (Spring 2013)
- GEN 6999A Groundwater Hydrology (Fall 2013)
- GEN 6999B Computer Methods in Geotechnical Engineering (Fall 2015)
- GEN 6999C Soil Dynamics (Spring 2017)
- GEN 6999D Earthquake Ground Motion Characterization (Spring 2018)
- GEN 1001L Introduction to Engineering Lab (Fall 2014)
- MTH 1505 Applied Statistics and Probability for Engineers (Spring 2014)

Tufts University:

- ACL 13 Computer Science, Engineering, and Mathematics Scholars (CSEMS) Seminar; a weekly scholarship seminar for freshmen and sophomores from underrepresented groups in these fields (Graduate Mentor, Fall 2009 – Spring 2012)
- CEE 146 Foundation Engineering (Teaching Fellow, Spring 2012)

- CEE 147 Soil Dynamics and Earthquake Engineering (Grader, Fall 2011)
EN 2 Engineering Graphics and CAD (Teaching Assistant, Fall 2008, 2009)
ES 2 Introduction to Computing in Engineering (Teaching Assistant, Spring 2009, 2010)

SERVICE TO THE PROFESSION

Committees:

- Earthquake Engineering and Soil Dynamics Committee, American Society of Civil Engineers (ASCE) Geo-Institute, 2014–present
Student Activities Committee, Earthquake Engineering Research Institute (EERI), 2014–present
Membership Committee, Seismological Society of America (SSA), 2012–present
Committee on Effective Teaching, American Society for Engineering Education (ASEE) Civil Engineering Division, 2018–present
Nominations and Elections Committee, Earthquake Engineering Research Institute – New England Chapter, 2014–present
Working group on seismic hazard in the Northeast, Earthquake Engineering Research Institute – New England Chapter, 2013–present
Graduate student thesis/dissertation committees, University of New Hampshire and University of Rhode Island, 2015–present

Peer Review Service:

- Arabian Journal of Geosciences*
Bulletin of Earthquake Engineering
Bulletin of the Seismological Society of America
Earth, Planets and Space
Earthquake Engineering and Engineering Vibration
Earthquake Spectra
Engineering Geology
HardwareX
Journal of Earthquake Engineering
Journal of Geotechnical and Geoenvironmental Engineering
Natural Hazards
Natural Hazards Review
Nuclear Engineering and Design
Seismological Research Letters
Soil Dynamics and Earthquake Engineering
Soils and Foundations

American Rock Mechanics Association (ARMA)
American Society for Engineering Education (ASEE) Annual Conference
American Society of Civil Engineers (ASCE) Geo-Institute conferences
United States Geological Survey (USGS), panel member and external reviewer
National Science Foundation (NSF), panel member and ad hoc reviewer
U.S. – Israel Binational Science Foundation (BSF), ad hoc reviewer
Wiley/Blackwell Earth Science, ad hoc reviewer
City of Boston Natural Hazard Mitigation Plan, 2013 (cooperative stakeholder and reviewer)

Conference Session Chair Service:

Session Co-Chair, EE03: Earthquake Engineering and Soil Dynamics: Laboratory Testing, *8th International Conference on Case Histories in Geotechnical Engineering*, American Society of Civil Engineers Geo-Congress 2019.

Session Chair, B03: Ground Motions and Site Response, Part 3, *5th Geotechnical Earthquake Engineering and Soil Dynamics Conference*, American Society of Civil Engineers, 2018.

Session Chair, Earthquake 01, *11th International Conference on Structural Safety and Reliability (ICOSSAR)*, 2013

DEPARTMENTAL/INSTITUTIONAL SERVICE

Merrimack College:

College-level committees, Merrimack College:

- Chair of the Budget, Salary, and Benefits Committee, 2017–present
- School of Science and Engineering Dean Search Committee, 2018–present
- Faculty Senate, 2012–present
- Chair of the Academic Calendar Committee, 2015–2017; internal consultant, 2017–2018
- Orientation Committee, 2013–2014, 2016–2017
- Undergraduate Curriculum Committee, 2014–2016
- Admission Standards and Educational Policies Committee, 2014–2016

School-level committees, School of Science and Engineering:

- Program Development and Planning Committee for the Innovation through Engineering and Computer Science (*iTEC*) program, 2013–2016
- Murray Fellowship Selection Committee, 2012–2014

Department-level committees, Department of Civil Engineering:

- Curriculum Committee, 2012–present
- Strategic Planning Committee, 2012–present
- Laboratory Development Committee, 2012–present
- Recruitment and Retention Committee, 2012–present

- ABET Accreditation Committee, 2012–present
- Department Faculty Search Committees, 2013–present
- Senior Capstone Design Committee, 2013–present

Undergraduate student advising, 2013–present; graduate student advising, 2012–present

Speaker and representative at outreach events for prospective, accepted, and current students, 2012–present

Leader of review sessions for the Fundamentals of Engineering (FE) Exam, 2013–present

Faculty co-advisor, Merrimack College Engineering Honor Society, 2017–present

Faculty advisor, American Society of Civil Engineers (ASCE) student chapter, 2012–2018

Faculty leader and developer of the Advising, Tutoring, and Mentoring (ATM) initiative, Innovation through Engineering and Computer Science (*iTEC*) program, School of Science and Engineering, 2013–2016

Hope for Haiti Service Learning Initiative, 2013–2014

Tufts University:

Committees:

- BSCE Program Review Board, Department of Civil and Environmental Engineering, 2008–present
- School of Engineering First-Year Experience Working Group, 2011–2012
- Student Advisory Committee, Civil and Environmental Engineering Graduate Program, 2011–2012
- School of Engineering Curriculum Task Force, 2009–2012
- Inaugural Teaching with Technology Awards Committee, 2012

American Society of Civil Engineers (ASCE) student chapter, 2005–2012

- Graduate advisor, 2008–2012
- President, 2007–2008

First-Year Student Orientation, 2005–2012

- Engineering orientation organizer and advisor, 2010–2011
- Executive orientation leader, 2005–2008

Speaker on miscellaneous panels for prospective undergraduate and graduate students, current undergraduate students (e.g., freshman engineering major meetings), and current graduate students (e.g., teaching assistant and research assistant orientations), 2005–2012

PROFESSIONAL MEMBERSHIPS AND CERTIFICATIONS

Membership in Professional and Honorary Societies:

American Society of Civil Engineers (ASCE)

- Geo-Institute/ASCE (G-I)

- Boston Society of Civil Engineers Section/ASCE (BSCES)

Seismological Society of America (SSA)

- Eastern Section of the Seismological Society of America (ES-SSA)

Earthquake Engineering Research Institute (EERI)

- EERI New England Chapter

American Society for Engineering Education (ASEE)

- ASEE Civil Engineering Division
- ASEE Northeast Section

United States Universities Council on Geotechnical Education and Research (USUCGER)

Tau Beta Pi, the Engineering Honor Society

Omicron Kappa Delta, the National Leadership Honor Society

Order of the Engineer

Certifications:

Engineer-in-Training, Commonwealth of Massachusetts, 2008

24-hour training and certification in Hazardous Waste Operations and Emergency Response (HAZWOPER), 2007

Nuclear Density Gauge safety training and certification, 2008