

Thomas Oommen, Ph.D.

Associate Professor.

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Education

- **Ph.D. (Civil and Environmental Engineering)** Medford, MA
Tufts University January 2007 - December 2009
 - Dissertation: “Pattern Recognition and Satellite Remote Sensing for Liquefaction Characterization.”
 - Advisor: Dr. Laurie G. Baise, Professor
- **M.S. (Systems Engineering)** Fairbanks, AK
University of Alaska Fairbanks January 2005 - December 2006
 - Thesis: “Geodatabase Development and Resource Assessment of Platinum Placer Deposits in the Offshore Region of Goodnews Bay, Southwest Alaska.”
 - Advisors: Drs. Debasmita Misra, Professor & Anupma Prakash, Professor
- **B.E. (Civil Engineering)** Bangalore, India
Bangalore University September 1995 - September 1999
 - First class with distinction

Work Experience

- **Associate Professor** Houghton, MI
Michigan Technological University 2015 - present
 - Department of Geological and Mining Engineering and Sciences
- **Affiliate Associate Professor** Houghton, MI
Michigan Technological University 2015 - present
 - Department of Civil and Environmental Engineering
- **Assistant Professor** Houghton, MI
Michigan Technological University 2010 - 2015
 - Department of Geological and Mining Engineering and Sciences
- **Adjunct Assistant Professor** Houghton, MI
Michigan Technological University 2012 - 2015
 - Department of Civil and Environmental Engineering
- **Post-Doctoral Associate** Medford, MA
Tufts University January 2010 - August 2010
 - Developing strategies for using satellite remote sensing for post-liquefaction characterization
- **Research/Teaching Assistant** Medford, MA
Tufts University January 2007 - December 2009

- Assisting in teaching, developing research in the application of pattern recognition and remote sensing for liquefaction studies, writing journal articles and research proposals, and presenting the work in conferences

- **Research/Teaching Assistant** Fairbanks, AK
University of Alaska Fairbanks *January 2005 - December 2006*
 - Assisting in teaching, doing research in integrating and interpreting geophysical data for geo-resource estimation of an offshore placer platinum reserve, writing journal articles and research proposals, and presenting the work in conferences
- **Director of Infrastructure Development** Dehradun, India
Bharat Susamachar Samiti *October 2004 - January 2005*
 - Directing the university campus planning and construction, coordinating with architects and local government authorities for developing new projects, and executing and supervising building construction projects
- **Project Manager/ Technical Consultant** Kabul, Afghanistan
USAID projects, Shelter for Life International *January 2004 - September 2004*
 - Coordinating the retrofitting of schools and clinics in Kabul damaged from the 2002 earthquake, and developing seismic design codes with locally available construction materials
- **Project Engineer** Dehradun, India
Bharat Susamachar Samiti *October 1999 - January 2004*
 - Executing and supervising building construction projects, and developing QA/QC program

Research Interests

Geohazard Characterization Using Remote Sensing (InSAR, LiDAR, Thermal, & Photogrammetry)
 Applications of Unmanned Aerial Vehicle (UAV)
 Machine Learning and Pattern Recognition
 Energy Geotechnics
 Geophysical Engineering
 Geological Engineering and Rock Mechanics
 Transportation Geotechniques and Geotechnical Asset Management

Research/Travel Grants Awarded (Total > \$6.4M)

Note: persons noted with * are students advised or co-advised by Thomas Oommen
 persons noted with [!] are post-doctoral research associates advised by Thomas Oommen

Principal Investigator (Total > \$2.23M)

Agency *National Science Foundation (NSF)*
 Title *A Crowdsourced Knowledge Base for the Damage Assessment of Extreme Events*
 Amount *\$325,030*
 Role ***PI: Thomas Oommen***
 Dates *July 2013 – June 2017*

Agency *U.S. Department of Transportation*
Title *Remote Sensing Based Assessment System for Evaluating Risk to Transportation Infrastructure Following Wildfires*
Amount *(\$116,864 USDOT; \$116,864 in-kind = Total project value \$233,728)*
Role *Michigan Tech PI: **Co-PI: Thomas Oommen** Richard Coffman (University of Arkansas, Project PI),*
Dates *September 2014 – August 2017*

Agency *U.S. Department of Transportation*
Title *Sustainable Geotechnical Asset Management along the Transportation Infrastructure Environment Using Remote Sensing*
Amount *(\$736,000 USDOT; \$763,000 in-kind = Total project value \$1.5M)*
Role ***PI: Thomas Oommen**, Co-PI: Colin Brooks, Stanley Vitton, & Pasi Lautala*
Dates *Dec 2013 – June 2016*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Monitoring hazard to critical infrastructure from increased seismic activity in or near injection wells*
Amount *\$10,000*
Role ***PI: Thomas Oommen***
Dates *May 2015 – April 2016*

Agency *Society of Exploration Geophysicists-Geoscientists Without Borders (SEG-GWB)*
Title *Building local capacities for monitoring eruptive and catastrophic landslide activity at Pacaya Volcano (Guatemala)*
Amount *\$100,000*
Role ***PI: Thomas Oommen** Co-PI: ¹Escobar-Wolf R., Co-PI: Greg Waite.*
Dates *Feb 2014 – March 2017*

Agency *Hudson Bay Railway Company*
Title *Rail embankment stabilization needs on the Hudson Bay Railway*
Amount *\$59,000*
Role ***PI: Thomas Oommen** Co-PI: Pasi Lautala.*
Dates *April 2014 – March 2016*

Agency *U.S. Civilian Research & Development Foundation (CRDF)*
Title *Geohazard Prediction for Landslide Areas by Numerical Modeling of Slope Instability: A Tool for Geotechnical System Monitoring.*
Amount *\$10,000*
Role ***PI: Thomas Oommen***
Dates *August 2011 – September 2012*

Co-principal Investigator (Total > \$3.8M)

Agency *NASA*
Title *Minerals and Rock Type Mapping Using Airborne Visible/Infrared Imaging Spectrometer-Next Generation (AVIRIS-NG) Data*
Amount *\$127,810*
Role ***PI: Snehamoy Chatterjee**, & **Co-PIs: Thomas Oommen***
Dates *September 2017 – August 2019*

Agency *World Bank*
 Title *Building Resilience to Landslide and Geohazards in Afghanistan*
 Amount *\$49,146*
 Role *PI: Robert Shuchman, & Co-PIs: Thomas Oommen*
 Dates *August 2016 – February 2017*

Agency *Michigan Department of Transportation (MDOT)*
 Title *Implementation of Unmanned Aerial Vehicles for Assessment of Transportation Infrastructure - Phase II*
 Amount *\$598,526*
 Role *PI: Colin N. Brooks, Co-PIs: Thomas Oommen, Timothy Havens, Amlan Mukherjee, Kuilin Zhang, & Theresa Ahlborn,*
 Dates *May 2016 – May 2018*

Agency *U.S. Department of Transportation*
 Title *Remote Sensing Based Assessment System for Evaluating Risk to Transportation Infrastructure Following Wildfires*
 Amount *(\$600,000 USDOT; \$600,000 in-kind = Total project value \$1.2M)*
 Role *PI: Richard Coffman (University of Arkansas), Co-PI: Thomas Oommen (Michigan Tech PI)*
 Dates *September 2014 – August 2017*

Agency *United States Department of Transportation-Research and Innovative Technology Administration (USDOT-RITA)*
 Title *National University Rail Transportation and Education Center (NURaiL-Tier 1)*
 Amount *\$225,867*
 Role *PI: Pasi Lautala, Co-PIs: Thomas Oommen, Paul G. Sanders, Jeon Myounghoon & Timothy Havens*
 Dates *November 2013 – September 2017*

Agency *North Atlantic Treaty Organization (NATO)*
 Title *Security against geohazards at the major Enguri hydroelectric scheme in Georgia*
 Amount *\$30,000*
 Role *PI: John S. Gierke & Co-PIs: Thomas Oommen*
 Dates *May 2015 – April 2018*

Agency *United States Department of Transportation-Research and Innovative Technology Administration (USDOT-RITA)*
 Title *National University Rail Transportation and Education Center (NURaiL)*
 Amount *\$776,592*
 Role *PI: Pasi Lautala, Co-PIs: Thomas Oommen, Paul G. Sanders, & Timothy Havens*
 Dates *February 2012 – January 2016*

Agency *Michigan Department of Transportation (MDOT)*
Title *Evaluating the Use of Unmanned Aerial Vehicles for Transportation Purposes*
Amount *\$240,899*
Role *PI: Colin N. Brooks, Co-PIs: Thomas Oommen, Timothy Havens, & Theresa Ahlborn,*
Dates *May 2013 – November 2014*

Agency *National Science Foundation (NSF)*
Title *Biomediated Geomechanical Processes for Dust Mitigation and Monitoring at Mine Tailings Impoundments*
Amount *\$208,912*
Role *PI: Eric Seagren, Co-PIs: Thomas Oommen & Stan Vitton*
Dates *September 2012 – August 2015*

Agency *U.S. Geological Survey, National Earthquake Hazards Reduction Program (NEHRP)*
Title *Application of Satellite Data for Post-Liquefaction Reconnaissance*
Amount *\$75,000*
Role *Participant, co-author of the proposal with Principle Investigator and established national and international collaborators (University of Alaska Fairbanks, Alaska Satellite Facility, Indian Institute of Technology Roorkee)*
Dates *January 2010 – December 2010*

Fellowships Received by Students (Total > \$335k)

Agency *NASA*
Title *Landslide Life-Cycle Monitoring and Failure Prediction using Satellite Remote Sensing*
Amount *\$75,000*
Role *PI: Thomas Oommen, Co-PI: *El Hachemi Bouali*
Dates *Sep 2016 – Aug 2018*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Remote Sensing Based Health Assessment of Infrastructure: A Case Study of Geotechnical Retaining Wall Assets and Systems*
Amount *\$5,000*
Role *PI: *Renee Oats, Co-PI: Thomas Oommen*
Dates *May 2016 – April 2017*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Sustainable Geotechnical Asset Management along the Transportation Infrastructure Environment Using Remote Sensing*
Amount *\$10,000*
Role *PI: *El Hachemi Bouali, Co-PI: Thomas Oommen*
Dates *May 2015 – April 2017*

Agency *NASA*
Title *Application of Remote Sensing and Numerical Modeling to Volcanic Hazard Monitoring*
Amount *\$90,000*
Role *PI: Thomas Oommen, Co-PI: *Lauren Schaefer*
Dates *Sep 2013 – Aug 2016*

Agency *NSF-Graduate Research Fellowship*
Title *Object-Based Earthquake-induced Damage Assessment Using Remote Sensing*
Amount *\$126,000*
Role *PI: *Daniel Cerminaro, Co-PI: Thomas Oommen*
Dates *May 2013 – April 2016*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Thermal remote sensing for dust susceptibility monitoring of mine tailings impoundments*
Amount *\$10,000*
Role *PI: *Bonnie Zwissler, Co-PI: Thomas Oommen*
Dates *May 2014 – April 2017*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Management of geotechnical features in transportation infrastructure using remote sensing*
Amount *\$5,500*
Role *PI: *Daniel Cerminaro, Co-PI: Thomas Oommen*
Dates *April 2014 – March 2015*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Multidisciplinary approach to volcanic hazard monitoring at Pacaya Volcano Guatemala*
Amount *\$10,000*
Role *PI: *Lauren Schaefer, Co-PI: Thomas Oommen*
Dates *April 2012 – March 2014*

Agency *NASA-Michigan Space Grant Consortium (MSGC)*
Title *Object-based earthquake-induced damage assessment using remote sensing*
Amount *\$3,000*
Role *PI: Thomas Oommen, Co-PI: *Daniel Cerminaro*
Dates *April 2012 – March 2013*

MTU Internal Competitive Awards (Total > \$40k)

Agency *MTU Research Excellence Fund*
Title *Identifying Damage in Critical Lifeline Infrastructure after an Earthquake*
Amount *\$15,000*
Role *PI: Thomas Oommen*
Dates *July 2014 – June 2015*

Agency *MTU Century II Campaign Endowed Equipment Fund (C2E2)*
Title *Proposal to Acquire Ground Penetrating Radar Equipment for Research, Education, and Outreach in Natural Hazards, Glaciology, Groundwater, Archaeology, and Geotechnics*
Amount *\$25,500*
Role *PI: Thomas Oommen, Co-PI: Jason Gulley, & Jeremy Shannon*
Dates *January 2015 – December 2015*

Publications

Note: Authors/coauthors noted with * are students advised or co-advised by Thomas Oommen

Authors/coauthors noted with ! are post-doctoral research associates advised by Thomas Oommen

Books

1. !Sajinkumar K.S., and **Oommen T.** (2017) *Landslide Atlas of Kerala*. Geological Society of India. (In print)

Book Chapters

1. !Escobar-Wolf R., **Oommen T.**, and *Bouali, E.H. (2017) *Risk Assessment*. Encyclopedia of Engineering Geology, edited by Peter T. Bobrowsky and Brian Marker, Springer International Publishing.
2. **Oommen T.** (2017) *Liquefaction*. Encyclopedia of Engineering Geology, edited by Peter T. Bobrowsky and Brian Marker, Springer International Publishing.

Springer International Publishing.

Peer-Reviewed Publications

1. *Cobin P., **Oommen T.**, Gierke J.S. and !Sajinkumar K.S. (2017) *Significance of variable selection and scaling issues for probabilistic modeling of rainfall-induced landslide susceptibility*. Spatial Information Research (In review).
2. Naidu S., !Sajinkumar K.S., **Oommen T.**, Anuja V.J., Samuel R.A., and Muraleedharan C. (2017) *Early warning system for shallow seated landslides using rainfall threshold and slope stability analysis*. Geoscience Frontiers (in 2nd review).
3. *Oats, R.C., !Escobar-Wolf R., and **Oommen T.** (2017) *A novel application of photogrammetry for retaining wall assessment*. Infrastructures (in print).
4. *Bialas J., **Oommen T.**, Rebbapragada U., and Havens T. (2017) *Optimal segmentation for building class in high spatial resolution images using random forests*. Remote Sensing of Environment (in 2nd review).
5. Frank J., Rebbapragada U., *Bialas J., **Oommen T.**, and Havens T. (2017) *Effect of label noise on the machine-learned classification of earthquake damage*. Remote Sensing 9(8) 803.
6. *Bouali, E.H., **Oommen T.**, !Escobar-Wolf R. (2017) *Mapping of slow landslides on the Palos Verdes Peninsula using the California Landslide Inventory and Persistent Scatterer Interferometry*. Landslides (in print).
7. Hu X., **Oommen T.**, Wang T., Kim J., and Lu Z. (2017) *Consolidation settlement of Salt Lake County tailings impoundment revealed by time-series InSAR observations from multiple radar satellites*. Remote Sensing of Environment.
8. Buikema N.D., *Zwissler B., Seagren E., **Oommen T.**, and Vitton S. (2017) *Stabilization of iron mine tailings through biocalcification*. Environmental Geotechnics. 1-13.
9. !Escobar-Wolf R., **Oommen T.**, Brooks C.N., Dobson R., and Ahlborn T., (2017) *UAV based assessment of bridge deck delamination areas using thermal and visible camera sensors*. Research in Nondestructive Evaluation.

10. * Schaefer L.N., Wang T., [†]Escobar-Wolf R., **Oommen T.**, Zhong L., Kim J., Lundgreen P. R., and Waite G. P. (2017) *Three-dimensional displacements of a large volcano flank movement during the May 2010 eruptions at Pacaya Volcano, Guatemala*. *Geophysical Research Letters* 44, 135142, doi:10.1002/2016GL071402..
11. * Zwissler B., **Oommen T.**, Vitton S., and Seagren E. (2017) *Thermal remote sensing for moisture content monitoring of mine tailings: laboratory study*. *Environmental and Engineering Geology*, 1078-7275.
12. * Bouali, E.H., **Oommen T.**, Vitton S.J., [†]Escobar-Wolf R. and Brook C.N. (2016) *Rockfall hazard rating system: past, present, and future with remote sensing*. *Environmental and Engineering Geology*, 1078-7275.
13. * Kern, A., * Addison, P., **Oommen T.**, Salazar S., and Coffman R. (2016) *Machine learning based predictive modeling of debris flow probability following wildfire in the intermountain Western United States*. *Mathematical Geosciences*, 1-19.
14. Buikema N.D., Seagren E., * Zwissler B., **Oommen T.**, and Vitton S. (2016) *Calcium carbonate morphologies produced during microbially-induced calcium carbonate precipitation*. American Society for Microbiology (ASM) MicrobeLibrary, Visual Resource Collection (*accepted*).
15. * Bialas J., **Oommen T.**, Rebbapragada U., and Levin E. (2016) *Object-based classification of earthquake damage from high-resolution optical imagery using machine learning*. *Journal of Applied Remote Sensing* 10(3), 036025, doi: 10.1117/1.JRS.10.036025..
16. Flower, V.J., **Oommen T.**, and Carn S.A.. (2016) *Improving automated global detection of volcanic SO₂ plumes using the Ozone Monitoring Instrument (OMI)*. *Atmospheric Measurement Techniques* doi:10.5194/amt-2016-206.
17. * Schaefer L.N., Zhong L., and **Oommen T.** (2016) *Post-eruption deformation processes measured using ALOS-1 and UAVSAR InSAR at Pacaya volcano, Guatemala*. *Remote Sensing* 8(1), 73.
18. * Bouali, E.H., **Oommen T.**, and [†]Escobar-Wolf R. (2016) *Interferometric stacking toward geohazard identification and geotechnical asset monitoring*. *ASCE Journal of Infrastructure Systems* 22(2), 05016001.
19. * Zwissler B., **Oommen T.**, and Vitton S. (2016) *Method to quantify freeze-thaw effects on temperate climate soils: Calvert Cliffs example*. *ASCE Journal of Cold Regions Engineering* 06016002.
20. * Addison, P., Lautala P., and **Oommen T.**. (2016) *Utilizing vegetation index as a proxy to characterize the stability of a railway embankment in a permafrost region*. *AIMS Geosciences* 2 (4): 329-344.
21. Gowda P., **Oommen T.**, Misra D., Schwartz R., Howell T., and Wagle P. (2015) *Retrieving leaf area index from remotely sensed data using advanced statistical approaches*. *GIScience and Remote Sensing* 4, 156.
22. * Bouali, E.H., **Oommen T.**, and [†]Escobar-Wolf R. (2015) *Ground feature monitoring using satellite imagery*. *ASCE Geostata* 2015(4) 38-44.
23. * Schaefer L.N., Kendrick J.E., **Oommen T.**, Lavallee Y., and Chigna G. (2015) *Geomechanical rock properties of a basaltic volcano*. *Frontiers in Earth Science* 29(3).

24. * Schaefer L.N., Zhong L., and **Oommen T.** (2015) Dramatic volcanic instability revealed by InSAR. *Geology* 43(8), 743-746.
25. * Smith D. M., **Oommen T.**, Bowman L.J., Vitton S., and Gierke J.S. (2015) Hazard assessment of rainfall-induced landslides: A case study of San Vicente Volcano in Central El Salvador. *Natural Hazards* 75(3) 2291-2310.
26. * Zwissler B., **Oommen T.**, and Vitton S. (2014) A study of the impacts of freeze-thaw on cliff recession at the Calvert Cliffs in Calvert County, Maryland. *Geotechnical and Geological Engineering* 32(4) 1133-1148.
27. * Schaefer L.N., **Oommen T.**, Corazzato C., Tibaldi A. Escobar-Wolf R., and Rose W.I. (2013). An integrated field-numerical approach to assess slope stability hazards at volcanoes: the example of Pacaya, Guatemala. *Bulletin of Volcanology* 75(6) 1-18.
28. **Oommen T.**, Baise L.G., Gens R., Prakash A., and Gupta R.P. (2013). Documenting earthquake-induced liquefaction using satellite remote sensing image transformations. *Environmental & Engineering Geoscience* 19(4) 303-318.
29. Samui P., Gowda P.H., **Oommen T.**, Howell T.A., and Marek T.H. (2012). Statistical learning algorithms for identifying contrasting tillage practices with Landsat thematic mapper data. *International Journal of Remote Sensing* 33:(18) 5732-5745.
30. **Oommen T.**, Baise L.G., and Vogel R.M. (2011). Sampling bias and class imbalance in maximum likelihood logistic regression. *Mathematical Geosciences* 43:(1) 99-120. **In the top five most cited papers from Mathematical Geosciences published in 2011 and 2012.**
31. **Oommen T.**, Misra D., Prakash A., Bandopadhyay S., Naidu S., and Kelley J.J. (2011). Multiple regressive pattern recognition technique: An adapted approach for improved georesource estimation. *Natural Resources Research* 20:(1) 12-24.
32. **Oommen T.**, Baise L.G., and Vogel R.M. (2010). Validation and application of empirical liquefaction models. *ASCE Journal of Geotechnical and Geoenvironmental Engineering* 136(12): 1618-1633.
33. **Oommen T.**, and Baise L.G. (2010). Model development and validation for intelligent data collection for lateral spread displacements. *ASCE Journal of Computing in Civil Engineering* 24(6): 467-477.
34. Misra D., **Oommen T.**, Agarwal A., Mishra S.K., and Thompson A. (2009) Application and analysis of support vector machine based simulation for runoff and sediment yield. *Biosystems Engineering* 103(4): 527-535.
35. **Oommen T.**, Prakash A., Misra D., Kelley J.J., Naidu S., and Bandopadhyay S. (2008). GIS based marine platinum exploration, Goodnews Bay, Southwest Alaska. *Marine Georesources & Geotechnology* 26(1): 1-18.
36. **Oommen T.**, Misra D., Twarakavi N.K.C., Prakash A., Sahoo B., and Bandopadhyay S. (2008). An objective analysis of support vector machine based classification for remote sensing. *Mathematical Geoscience* 40(4): 409-424.
37. Sahoo B., **Oommen T.**, Misra D., and Newby G. (2007). S-Transform as a discrimination tool in classification of hyperspectral images. *Canadian Journal of Remote Sensing* 33(6): 551-560.

38. Misra D., Schatzinger A.R., and **Oommen T.** (2005). *Use of modal and geostatistical analysis of outcrop analog to assess the lateral variability of geohydrological parameters.* World Journal of Engineering 2(3): 89-103.

Conference Proceedings

1. * Bouali, E.H., **Oommen T.**, and ¹Escobar-Wolf R. (2017) *Structure mapping through spatial and temporal deformation monitoring using persistent scatterer interferometry and geographic information systems.* Geotechnical Frontiers Conference March 13-16, 2017. Orlando, Florida.
2. **Oommen T.**, * Bouali, E.H., and ¹Escobar-Wolf R. (2016) *New paradigm in geotechnical performance monitoring using remote sensing.* Springer Transactions in Civil and Environmental Engineering (STICEE).
3. ¹Escobar-Wolf R., **Oommen T.**, Brooks C., and Dobson R. (2016) *Monitoring geotechnical assets along pipeline corridors using manned and unmanned aerial platform based photogrammetry.* ASCE Pipelines Conference July 17-20, 2016. Kansas City, Missouri.
4. * Addison, P.E., Lautala P., **Oommen T.**, and Vallos Z. (2016) *Embankment stabilization techniques for railroads on permafrost.* American Society of Mechanical Engineers Joint Rail Conference pp. V001T01A008.
5. * Addison, P., * Baeckeroot, J., **Oommen T.**, Lautala P., Koff K., and Vallos Z. (2015) *Rail embankment investigation using remote sensing for a permafrost region.* ASCE International Conference on Cold Regions Engineering pp. 90-101 doi: 10.1061/9780784479315.009. **Received the best student paper award**
6. Sadeghiamirshahidi, M., Vitton, S., and **Oommen T.** (2015) *Modelling blasting costs based on regulated structure's and environmental constraints.* 37th International Symposium on Application of Computers and Operations Research in the Mineral Industry (APCOM 2015) May 23-27, 2015. Fairbanks, Alaska.
7. * Addison, P., **Oommen T.**, and Lautala P. (2015) *A review of past geotechnical performance of the Hudson Bay rail embankment and its comparison to the current condition.* 2015 Joint Rail Conference pp. V001T01A033.
8. * Zwissler B., * Buikema N., **Oommen T.**, Vitton S., and Seagren E. (2014) *Thermal remote sensing for mine tailings strength characterization.* ASCE- Geotechnical Special Publication: Geo-Characterization and Modeling for Sustainability, 234: 979-988.
9. * Jain A., and **Oommen T.** (2014) *Significance of quantifying uncertainties in probabilistic modeling and a possible approach to select the best: A study using SPT- and CPT-based liquefaction case histories.* ASCE- Geotechnical Special Publication: Advances in Soil Dynamics and Foundation Engineering, 240: 83-96.
10. Brooks C.N., Dobson R.J., Dean D.B., **Oommen T.**, Havens T.C., Ahlborn T.M, Cook S.J., and Clover A., (2014) *Evaluating the use of unmanned aerial vehicles for transportation purposes: A Michigan demonstration.* 21st World Congress: Intelligent Transportation Systems, Detroit.
11. * Zwissler B., **Oommen T.**, and Vitton S. (2013). *The impact of freeze thaw on cliff recession at the Calvert Cliffs in Calvert County, Maryland.* GeoCongress, San Diego, CA, USA.
12. * Schaefer L.N., **Oommen T.**, Corazzato C. and Tibaldi A. and Rose W.I. (2012). *Numerical modeling of volcanic slope instability and related hazards at Pacaya Volcano, Guatemala.* American Rock Mechanics Association ARMA-2012-438, 1-8.

13. **Oommen T.**, Rebbapragada U., and * Cerminaro D.(2012). *Earthquake damage assessment using objective image segmentation: A case study of 2010 Haiti Earthquake*. ASCE- Geotechnical Special Publication: State of the Art and Practice in Geotechnical Engineering, 225: 3069-3078.
14. Rebbapragada U., and **Oommen T.** (2011). *Integrating machine learning into a crowdsourced model for earthquake-induced damage assessment*. Proceedings of the 28th International Conference on Machine Learning, Bellevue, WA, USA.
15. **Oommen T.**, Thompson E., Tanaka H., Baise L.G., Tanaka Y., and Kayen R.E. (2011). *Spatial extent of liquefaction hazard using data from the 1995 Hyogo-Ken Nambu earthquake in Kobe, Japan*. 5th International Conference on Earthquake Geotechnical Engineering, Santiago, Chile.
16. **Oommen T.**, and Baise L.G. (2010). *A practical approach for implementing the probability of liquefaction in performance based design*. Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics.
17. **Oommen T.**, Baise L.G., Gens R., Prakash A., and Gupta R.P. (2010). *Documenting liquefaction failures using satellite*. 8th International Workshop on Remote Sensing for Disaster Management, Tokyo, Japan.
18. **Oommen T.**, and Baise L.G. (2008). *A new approach to liquefaction potential mapping using remote sensing and machine learning*. IEEE International Geoscience & Remote Sensing Symposium 1(III): 51-54.
19. **Oommen T.**, Misra D., Agarwal A., and Mishra S.K. (2007). *Analysis and application of support vector machine based simulation for runoff and sediment yield*. American Society of Agricultural and Biological Engineers.

Reports

1. Sawtell R., [!]Escobar-Wolf R., * Bouali, E.H., **Oommen T.**, Dobson R., and Brooks C.N. (2016). *A review and demonstration of the geotechnical asset management decisions support system (GAMDSS)*. Deliverable-5A & 5B: USDOT Cooperative Agreement No. RITARS-14-H-MTU.
2. [!]Escobar-Wolf R., * Bouali, E.H., * Justice, S., * Cerminaro, D., **Oommen T.**, and Vitton S. (2016). *Report & demonstration of performance rating of geotechnical assets using remotely measured displacement*. Deliverable-4A & 4B: USDOT Cooperative Agreement No. RITARS-14-H-MTU.
3. [!]Escobar-Wolf R., **Oommen T.**, * Bouali, E.H., Dobson R., Brooks C.N., and Vitton S. (2016). *Evaluation of the selected remote sensing techniques to assess the state of geotechnical assets and performance validation with historic geotechnical data*. Deliverable-3A: USDOT Cooperative Agreement No. RITARS-14-H-MTU.
4. [!]Escobar-Wolf R., * Bouali, E.H., **Oommen T.**, Brooks C.N., and Vitton S. (2015). *Cost benefit analysis of a proactive geotechnical asset management system using remote sensing*. Deliverable-6A: USDOT Cooperative Agreement No. RITARS-14-H-MTU.
5. Brooks C.N., Dobson R.J., Banach D.M., Dean D., **Oommen T.**, [!]Escobar-Wolf R., Haven T.C., Ahlborn T.M., and Hart B., (2015). *Evaluating the use of unmanned aerial vehicles for transportation purposes*. Final Report Cooperative Agreement No. RC-1616.

6. ¹Escobar-Wolf R., *Bouali, E.H., **Oommen T.**, *Cerminaro, D., Cunningham K., Dobson R., and Brooks C.N., (2014). *Candidate remote sensing techniques for the different transportation environments, requirements, platforms, and optimal data fusion methods for assessing the state of geotechnical assets.* Deliverable-2: USDOT Cooperative Agreement No. RITARS-14-H-MTU.
7. ¹Escobar-Wolf R., *Bouali, E.H., *Cerminaro, D., **Oommen T.**, Brooks C.N., Vitton S., Lautala P., and Cunningham K., (2014). *Requirements for remote sensing based geotechnical asset management system including types of geotechnical assets and their conditions that need to be assessed in different transportation environments.* Deliverable-1: USDOT Cooperative Agreement No. RITARS-14-H-MTU.
8. **Oommen T.** (2012). *Geohazard Prediction for Landslide Areas by Numerical Modeling of Slope Instability: A Tool for Geotechnical System Monitoring.* End of Grant Report Submitted to CRDF Award Number#UKG1-9203-DP-11.
9. **Oommen T.**, Baise L.G., Gens R., Prakash A., and Gupta R.P. (2011). *Collaborative Research with Tufts University and University of Alaska Fairbanks: Application of Satellite Data for Post-liquefaction Reconnaissance.* Technical Report Submitted to USGS-National Earthquake Hazard Reduction Program, USGS Award Number#G10AP00025 & G10AP00026.
10. Misra D., Heinrichs T.A., Bandopadhyay S., Naidu S. A., and **Oommen T.**, (2008). *Web server mapping, reserve definition, and resource assessment of platinum placers in Goodnews Bay region, Alaska.* Technical Report Submitted to Mineral Management Services, U.S. Department of Interior through the Marine Mining Technology Center Arctic Seas Division, University of Alaska Fairbanks, MMS Cooperative Agreement #1435-02-01-CA-85124.
11. Bandopadhyay S., Misra D., Prakash A., Naidu S.A., Kelley J.J., and **Oommen T.**, (2008). *GIS based assessment of platinum placers in Goodnews Bay Region, Alaska.* Technical Report Submitted to Mineral Management Services, U.S. Department of Interior through the Marine Mining Technology Center Arctic Seas Division, University of Alaska Fairbanks, Fairbanks, Alaska, MMS Cooperative Agreement #1435-01-02-CA-85124.

Abstracts and Conference Presentations

1. *Bouali E.H., **Oommen T.**, and ¹Escobar-Wolf R. (2017) *Landslide Life-Cycle Monitoring and Failure Prediction using Satellite Remote Sensing* Eos Trans. AGU, Fall Meet. Suppl. Dec 11-15, 2017. New Orleans, LA.
2. *Bouali E.H., **Oommen T.**, and ¹Escobar-Wolf R. (2017) *Slow Landslide Identification using InSAR to Update the California Landslide Inventory on the Palos Verdes Peninsula* GSA Annual Meeting Oct 22-25, 2017. Seattle, WA.
3. *Anderson E., *Bird N., *Lucca C., *Fleming Z., Gierke J.S., and **Oommen T.** (2017) *Slope Stability Analysis in the Vicinity of the Enguri Hydroelectric Dam, Republic of Georgia.* 60th Annual Meeting of the Association of Environmental & Engineering Geologists, Colorado Springs, Colorado Sep 10-17, 2017.
4. *Addison, P., and **Oommen T.** (2017) *A Machine Learning Approach to Burn Severity Estimation Using Radar Sensors.* 60th Annual Meeting of the Association of Environmental & Engineering Geologists, Colorado Springs, Colorado Sep 10-17, 2017.
5. *Anderson E., **Oommen T.**, and *Addison, P. (2017) *Utilizing a Simplified Hydrology Model to Map Fire-Induced Debris Flow Travel Paths.* 60th Annual Meeting of the Association of Environmental & Engineering Geologists, Colorado Springs, Colorado Sep 10-17, 2017.

6. * Weidner L., **Oommen T.**, [!]Escobar-Wolf R., and Sajinkumar K.S. (2017) *Comparison of Two Physically-Based Regional Landslide Susceptibility Models in Kerala, India*. 60th Annual Meeting of the Association of Environmental & Engineering Geologists, Colorado Springs, Colorado Sep 10-17, 2017.
7. * Bouali E.H., **Oommen T.**, and [!]Escobar-Wolf R. (2017) *Monitoring the Casitas Dam in Ventura County, California with Satellite InSAR*. 60th Annual Meeting of the Association of Environmental & Engineering Geologists, Colorado Springs, Colorado Sep 10-17, 2017.
8. * Bouali E.H., **Oommen T.**, [!]Escobar-Wolf R., Brooks C.N, and Lautala P., (2017) *Evaluating the Integrity of Railway Corridor Using Remote Sensing*. Rail Infrastructure and Vehicle Inspection Technology Conference, University of Illinois at Urbana-Champaign June 20-21, 2017.
9. * Zwissler B., Seagren E., **Oommen T.**, and Vitton S. (2017) *Development of methodology for laboratory simulation of cold-weather fugitive dust events at mine tailings impoundments and mitigation methods* ASCE Congress on Technical Advancement, Duluth, MN Sep 10-13, 2017.
10. * Schaefer, L., Wang T., [!]Escobar-Wolf R., **Oommen T.**, Zhong L., Kim J., Waite G., and Lungdren P. (2016) *3-D displacement map of a large volcanic landslide surge*. 8th Cities on Volcanoes November 20-25, 2016. Puerto Varas, Chile.
11. * Bouali E.H., **Oommen T.**, Vitton S., [!]Escobar-Wolf R., and Brooks C.N. (2016) *Comparing the California landslide inventory to ground motion detected by the COSMO-SkyMed satellite across the Palos Verdes Peninsula*. 59th Annual Meeting of the Association of Environmental & Engineering Geologists, Kona, Hawaii Sep 18-24, 2016.
12. * Bouali E.H., **Oommen T.**, and [!]Escobar-Wolf R. (2016) *Rockfall hazard analysis using satellite, UAV, and field data: A comparison of techniques and RHRS results*. 59th Annual Meeting of the Association of Environmental & Engineering Geologists, Kona, Hawaii Sep 18-24, 2016.
13. * Addison P., Lautala P., and **Oommen T.** (2016) *Utilizing vegetation index as a proxy to characterize railway embankment stability in a permafrost region*. 59th Annual Meeting of the Association of Environmental & Engineering Geologists, Kona, Hawaii Sep 18-24, 2016.
14. * Addison, P., * Kern, A., Sha Q., and **Oommen T.** (2016) *Regional influence on predicting post-wildfire debris flow occurrence in Western United States*. 59th Annual Meeting of the Association of Environmental & Engineering Geologists, Kona, Hawaii Sep 18-24, 2016.
15. Flower V., **Oommen T.**, and Carn S. (2015) *Automated identification of volcanic plumes using the Ozone Monitoring Instrument (OMI)* Eos Trans. AGU, Fall Meet. Suppl. Dec 14-18, 2015. San Francisco, CA.
16. * Bouali, E.H., **Oommen T.**, and [!]Escobar-Wolf R. (2015) *A multi-sensor approach to monitor slope displacement* Eos Trans. AGU, Fall Meet. Suppl. Dec 14-18, 2015. San Francisco, CA.
17. [!]Escobar-Wolf R., Chigna G., Morales H., Waite G.P., **Oommen T.**, and Lechner H. (2015) *International collaboration on building local technical capacities for monitoring volcanic activity at Pacaya volcano, Guatemala*. Eos Trans. AGU, Fall Meet. Suppl. Dec 14-18, 2015. San Francisco, CA.
18. * Schaefer, L., Zhong, L., and **Oommen T.** (2015) *InSAR observations of ground surface deformation patterns and lava flow emplacement at Pacaya volcano, Guatemala* Eos Trans. AGU, Fall Meet. Suppl. Dec 14-18, 2015. San Francisco, CA.

19. Buikema N.D., Seagren E., * Zwissler B., **Oommen T.**, and Vitton S. (2015) *Stabilization of iron mine tailing particles through in-situ microbially induced calcite precipitation* Upper Peninsula Section Society for Mining, Metallurgy & Exploration (SME) Fall Meeting, Houghton, MI, Oct 7-8, 2015.
20. Salazar S., Garner C., Coffman R. and **Oommen T.**. (2015) *Ultra-violet near-infrared reflectance spectroscopy for remote measurement of soil water potential* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
21. * Kern, A., **Oommen T.**, * Addison, P., and Coffman R. (2015) *Predictive modeling of debris flows probabilities following wild fire in the Intermountain Western United States* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
22. * Addison, P., **Oommen T.**, and Lautala P. (2015) *Characterizing the vulnerable sections along a railway corridor underlain by permafrost using remote sensing* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
23. * Bouali, E.H., **Oommen T.**, and ¹Escobar-Wolf R. (2015) *Can we extract information regarding transportation asset condition from satellite-based radar interferometric data?* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
24. * Schaefer L.N., Kendrick J.E., **Oommen T.**, Lavallee Y., and Chigna G. (2015) *Frictional properties in balatic rock using high velocity rotation experiments: implications for landslides, earthquakes, and volcanic processes* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
25. * Justice S., Vitton S., **Oommen T.**, and ¹Escobar-Wolf R. (2015) *Application of a hazard rating system for rock slopes along a transportation corridor using remote sensing* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
26. * Zwissler B., **Oommen T.**, Vitton S., and Seagren E. (2015) *Thermal remote sensing for moisture content characterization at mine tailings impoundments: a field study* 58th Annual Meeting of the Association of Environmental & Engineering Geologists, Pittsburgh, PA Sep 19-26, 2015.
27. * Bialas, J., **Oommen T.**, and Rebbapragada, U.D. (2015) *Object based earthquake damage assessment using machine learning* Geospatial Confluence - ASPRS Western Great Lakes region April 17, 2015. Eau Claire, Wisconsin.
28. ¹Escobar-Wolf R., **Oommen T.**, and Waite G.P. (2015) *Geoscience technical cooperation to enhance the volcano monitoring capacity at Pacaya volcano, Guatemala.* 85th Annual Meeting of SEG Oct 18-23, 2015. New Orleans, LA.
29. * Bouali, E.H., **Oommen T.**, and ¹Escobar-Wolf R. (2015) *Field verification of satellite-based velocity data* The Geological Society of America, North-Central Section 49th Annual Meeting May 19-20, 2015. Madison, Wisconsin.
30. * Bialas, J., **Oommen T.**, and Rebbapragada, U.D. (2015) *Systematic evaluation of machine learning and image segmentation methods in evaluating earthquake damage* IGTF 2015 - ASPRS Annual Conference May 4-8, 2015. Tampa, Florida.

31. * *Bialas, J., Oommen T., and Rebbapragada, U.D. (2014) Systematic evaluation of object based classification of remotely sensed images using machine learning Pecora 19: "Sustaining Land Imaging: UAS to Satellites" in conjunction with The Joint Symposium of ISPRS Technical Commission I & IAG Commission 4 Nov 17-20, 2014. Denver, Colorado.*
32. * *Schaefer, L., Zhong, L., and Oommen T. (2014) Slope instability and post-emplacement lava flow deformation revealed using interferometric synthetic aperture radar (InSAR) at Pacaya Volcano, Guatemala Eos Trans. AGU, Fall Meet. Suppl. Dec 15-19, 2014. San Francisco, CA.*
33. *Kendrick, J.E., Lavallee, Y., Hornby, A.J., *Schaefer, L., Oommen T., Toro, G.D., and Hirose, T. (2014) Magma dynamics in dome-building volcanoes Eos Trans. AGU, Fall Meet. Suppl. Dec 15-19, 2014. San Francisco, CA.*
34. * *Baeckeroot, J., *Addison, P., Oommen T., and Lautala P. (2014) Rail embankment investigation using remote sensing for a permafrost region 2014 NURail Annual Meeting Aug 18-19, 2014. Altoona, Pennsylvania.*
35. * *Cerminaro, D., Oommen T., ¹Escobar-Wolf R., Vitton S., Dobson R.J., Brooks C.N., and Endres R.B. (2014) Monitoring retaining walls along transportation corridors using optical remote sensing 2014 Annual Technical Forum on Geohazards Impacting Transportation Oct 1-3, 2014. Bloomington, Minnesota.*
36. * *Bouali, E.H., Oommen T., ¹Escobar-Wolf R., and Douglas C.S. (2014) An application of interferometric synthetic aperture radar in a railroad corridor 2014 Annual Technical Forum on Geohazards Impacting Transportation Aug 6-7, 2014. Lexington, Kentucky.*
37. * *Cerminaro, D., Oommen T., ¹Escobar-Wolf R., Vitton S., Dobson R.J., Brooks C.N., and Endres R.B. (2014) Proactive assessment of retaining walls along transportation corridors using optical remote sensing 2014 Annual Technical Forum on Geohazards Impacting Transportation Aug 6-7, 2014. Lexington, Kentucky.*
38. * *Schaefer L.N., Kendrick J.E., Oommen T., and Lavallee Y. (2014) Understanding the effects of cyclic heating and loading on the rock properties at Pacaya Volcano, Guatemala. 8th Cities on Volcanoes Sep 9-13, 2014. , Yogyakarta, Indonesia.*
39. * *Bouali, E.H., ¹Escobar-Wolf R., and Oommen T. (2014) Interferometric synthetic aperture radar applied to geotechnical asset management in transportation environments 57th Annual Meeting of the Association of Environmental & Engineering Geologists, Scottsdale, Arizona Sep 20-28, 2014.*
40. * *Zwissler B., *Buikema N., Oommen T., Vitton S., and Seagren E. (2014) Thermal remote sensing for dust susceptibility characterization at mine tailings impoundments 57th Annual Meeting of the Association of Environmental & Engineering Geologists, Scottsdale, Arizona Sep 20-28, 2014.*
41. * *Schaefer L.N., and Oommen T. (2014) Assessing volcanic slope stability using interferometric synthetic aperture radar 57th Annual Meeting of the Association of Environmental & Engineering Geologists, Scottsdale, Arizona Sep 20-28, 2014.*
42. * *Schaefer L.N., Kendrick J.E., Oommen T., and Lavallee Y. (2014) Assessment of rock properties and slope stability at Pacaya Volcano, Guatemala European Geophysical Union (EGU) General Assembly April 27-02 May, 2014. Vienna, Austria.*

43. ¹Escobar-Wolf R., **Oommen T.**, Brooks C.N., Lautala P., and Vitton S. (2014) Sustainable geotechnical asset management along the transportation infrastructure environment using remote sensing American Society of Photogrammetry and Remote Sensing (ASPRS), Annual Conference March 23-27, 2014. Louisville, KY.
44. * Schaefer L.N., **Oommen T.**, and Waite G.P. (2013) Integrating GPS, InSAR, and numerical modeling to link surface deformation and eruptive activity at Pacaya Volcano (Guatemala) Eos Trans. AGU, Fall Meet. Suppl. Dec 9-13, 2013. San Francisco, CA.
45. * Cobin P., **Oommen T.**, and Gierke J. S. (2013) Mining input data for multivariate probabilistic modeling of rainfall-induced landslide hazard in the Lake Atitlan watershed in Guatemala Eos Trans. AGU, Fall Meet. Suppl. Dec 9-13, 2013. San Francisco, CA.
46. * Cobin P., **Oommen T.**, and Gierke J. S. (2013) A landslide probability map of San Juan La Laguna, Guatemala modeled from the Hurricane Stan (2005) landslide database and validated with landslides from tropical storm Agatha (2010) GSA Annual Meeting Proceedings Oct 27-30, 2013. Denver, CO.
47. * Zwissler B., * Buikema N., Seagren E., **Oommen T.**, and Vitton S. (2013) Biomediated geomechanical processes for dust mitigation and monitoring at mine tailings impoundments 56th Annual Meeting of the Association of Environmental & Engineering Geologists, Seattle, Washington Sep 8-15, 2013.
48. * Zwissler B., **Oommen T.**, and Vitton S. (2013) A study of the impacts of free-thaw on cliff recession at the Calvert Cliffs in Calvert County, Maryland 56th Annual Meeting of the Association of Environmental & Engineering Geologists, Seattle, Washington Sep 8-15, 2013.
49. * Schaefer L.N., and **Oommen T.** (2013) Geotechnical characterization of materials for stability analysis of large volcanic slopes: are studies for specific volcanoes justifiable? 56th Annual Meeting of the Association of Environmental & Engineering Geologists, Seattle, Washington Sep 8-15, 2013.
50. Vitton S., Seagren E., and **Oommen T.** (2013) Dust emissions from a mine tailing impoundment due to dry freeze conditions: Generation and control 2013 Society for Mining, Metallurgy & Exploration Annual Meeting Feb 24 - 27, 2013. Denver, Colorado.
51. Marek T.H., Porter D., Gowda P., **Oommen T.**, Howell T.A., Holman D., and Moorhead J. (2012) Spatial interpolation of daily evapotranspiration data in the Texas High Plains Soil Science Society of America International Annual Meeting Oct 21 - 24, 2012. Cincinnati, Ohio.
52. * Schaefer L.N., **Oommen T.**, Van Wyk de Vries B., and Rose W.I. (2012) From analogues to numerical models: A comprehensive approach to understanding volcanic collapse 7th Cities on Volcanoes Nov 19-23, 2012. Colima, Mexico.
53. * Schaefer L.N., and **Oommen T.** (2012) Numerical modeling of magmatic intrusions and their affects on volcanic stability 55th Annual Meeting of the Association of Environmental & Engineering Geologists, Salt Lake City, Utah Sep 15-23, 2012.
54. * Jain A., **Oommen T.**, and Rudakov D. (2012) Characteristic Analysis of Loess Slope Instability: A Case Study of Loess Soil Slope from Dnipropetrovsk, Ukraine 55th Annual Meeting of the Association of Environmental & Engineering Geologists, Salt Lake City, Utah Sep 15-23, 2012.

55. * *Jain A., and Oommen T. (2012) Sampling Bias in Evaluating the Probability of Seismically-induced Soil Liquefaction* 55th Annual Meeting of the Association of Environmental & Engineering Geologists, Salt Lake City, Utah Sep 15-23, 2012.
56. * *Zwissler B., Oommen T., and Vitton S. (2012) Modeling in the impact of freeze thaw on cliff recession: A case study of Calvert Cliffs in Calvert County, Maryland* 55th Annual Meeting of the Association of Environmental & Engineering Geologists, Salt Lake City, Utah Sep 15-23, 2012.
57. * *Smith D. M., Oommen T., Bowman L.J., Vitton S., and Gierke J.S. (2012) Stability and Rainfall Susceptibility of Volcanic Slopes on the Chichontepec Volcano in Central El Salvador* 55th Annual Meeting of the Association of Environmental & Engineering Geologists, Salt Lake City, Utah Sep 15-23, 2012.
58. * *Cerminaro D. and Oommen T. (2012). Object-based Earthquake-induced Damage Assessment Using Remote Sensing* The Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) National Conference, Seattle, Washington.
59. *Oommen T., (2011) Challenges in sampling extreme events: A case study of probabilistic earthquake-induced liquefaction hazard evaluation* European Science Foundation, Understanding Extreme Geohazards: The science of the Disaster Risk Management Cycle Nov 28- Dec 1, 2011. Sant Feliu de Guixols, Spain.
60. * *Schaefer L.N., Corazzato C., Oommen T., *Manzoni P., and Tibaldi A., (2011) Numerical modeling of edifice collapse and related hazards at the Pacaya Volcano, Guatemala* Eos Trans. AGU, Fall Meet. Suppl. Dec 5-9, 2011. San Francisco, CA.
61. *Oommen T. (2011). Challenges in sampling and spatial extent for liquefaction hazard evaluation.* 54th Annual Meeting of the Association of Environmental & Engineering Geologists, Anchorage, AK.
62. *Misra D., Calvin P. A., Oommen T., Ganguli R., Sonwalkar V., and Metz P.A. (2011). Characterization of subsurface hydraulic conductivity using geophysical signatures.* 54th Annual Meeting of the Association of Environmental & Engineering Geologists, Anchorage, AK.
63. * *Schaefer L.N., Corazzato C., *Manzoni P., Oommen T., and Tibaldi A.,(2011) Numerical Modeling of Volcanic Flank Instability: A Case Study of Pacaya Volcano, Guatemala* GSA Annual Meeting Proceedings Oct 9-12, 2011. Minneapolis, MN.
64. *Wonsook Ha., Gowda P.H., Oommen T., Marek T.H., Porter D.O., and Howell T.A. (2011). Spatial interpolation of daily reference evapotranspiration in the Texas Panhandle.* ASCE: World Environmental & Water Resources Congress, Palm Springs, CA.
65. * *Manzoni P., Oommen T., Rose W.I., Tibaldi A., *Schaefer L. N., Corazzato C., and Vitton S. J. (2011). Slope stability analysis of the Pacaya Volcano, Guatemala, using limit equilibrium and finite element method.* 54th Annual Meeting of the Association of Environmental & Engineering Geologists, Anchorage, AK.
66. *Wonsook Ha., Gowda P.H., Oommen T., Howell T.A., and Hernandez J.E. (2010). Downscaling of Aircraft-, Landsat-, and MODIS-based Land Surface Temperature Images with Support Vector Machines.* Eos Trans. AGU, Fall Meet. Suppl. Dec 13-17, 2010. San Francisco, CA.
67. *Oommen T., Baise L.G., Gens R., Prakash A., and Gupta R.P. (2010). Applying Satellite Remote Sensing to Document Liquefaction Failures.* Seismological Society of America Annual Meeting April 21-23, 2010, Portland, OR.

68. **Oommen T.**, and Baise L.G. (2010). *A practical approach for implementing the probability of liquefaction in performance based design*. Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics May 24-29, 2010, San Diego, CA.
69. **Oommen T.**, Baise L.G., Gens R., Prakash A., and Gupta R.P. (2009). *Documenting liquefaction failures using satellite remote sensing and artificial intelligence algorithms*. Eos Trans. AGU, Fall Meet. Suppl. Dec 14-18, 2009. San Francisco, CA.
70. Misra D., **Oommen T.**, Radatz T., and Thompson A. (2008). *Using support vector machines to characterize runoff-triggering in small watersheds*. Eos Trans. AGU, Fall Meet. Suppl. Dec 14-18, 2009. San Francisco, CA.
71. **Oommen T.**, Baise L.G., Gens R., Prakash A., and Gupta R.P. (2008). *Multisensor and multispectral approach in documenting and analyzing liquefaction hazard using remote sensing*. Eos Trans. AGU, Fall Meet. Suppl. Abstract IN113A-1054.
72. Misra D., **Oommen T.**, Prasanna H.G., Bajwa S.G., and Howell T.A. (2008). *Estimation of Leaf Area Index from Landsat Imagery for Texas High Plains using Support Vector Machines*. Eos Trans. AGU, Fall Meet. Suppl. Abstract H31C-0879.
73. **Oommen T.**, Radatz T., Thompson A., and Misra D. (2008). *Probability of Triggering Runoff in Small Watersheds Using Support Vector Machines*. Association of Environmental & Engineering Geologists 51st Annual Meeting September 15-20, New Orleans, LA, USA.
74. **Oommen T.**, and Baise L.G. (2008). *A new approach to liquefaction potential mapping using remote sensing and machine learning*. IEEE International Geoscience & Remote Sensing Symposium 1(III): 51-54.
75. **Oommen T.**, and Baise L.G. (2008). *Critical Evaluation of Lateral Spread Displacement Using Support Vector Regression and Stack Generalization*. Seismological Research Letters 79(2):277.
76. **Oommen T.**, Radatz T., Thompson A., and Misra D. (2008). *Developing Runoff-Triggering Characteristics in Small Watersheds Using Artificial Intelligence Models*. American Society of Agricultural and Biological Engineers June 29- July 2, Providence, RI, USA.
77. **Oommen T.**, and Misra D. (2008). *Spatial & Temporal Modeling Using Artificial Intelligence/Pattern Recognition Technique*. Annual Alaska-American Water Resources Association Conference Jan 28-31, Juneau, AK, USA.
78. **Oommen T.**, and Baise L.G., (2007). *A New Approach to Liquefaction Potential Mapping Using Remote Sensing and Machine Learning*. Eos Trans. AGU, Fall Meet. Suppl. Abstract H41G-0845.
79. **Oommen T.**, and Baise L.G. (2007). *A New Approach to Liquefaction Potential Mapping Using Remote Sensing and Machine Learning*. Northeast Geotechnical Graduate Research Symposium UMass Amherst, MA, USA.
80. Sahoo B., **Oommen T.**, and Misra D. (2007). *Using 1D S-Transform as a Discrimination Tool in Classification of Hyperspectral Images*. Association of Environmental & Engineering Geologists 50th Annual Meeting September 24-29, Los Angeles, CA, USA.
81. **Oommen T.**, and Misra D. (2007). *Comparative Analysis of Artificial Neural Networks and Support Vector Machines for Simulation of Runoff and Sediment Yield*. Annual Alaska-American Water Resources Association Conference April 3-5, Fairbanks, AK, USA.

82. **Oommen T.**, Misra D., Agarwal A., and Mishra S.K. (2007). *Analysis and Application of Support Vector Machine Based Simulation for Runoff and Sediment Yield*. American Society of Agricultural and Biological Engineers, Annual Meeting Minneapolis, MN, USA.
83. **Oommen T.**, Misra D., Prakash A., Bandopadhyay S., Naidu S., and Kelley J.J. (2006) *Marine Geodatabase and Multiple Regressive Pattern Recognition Technique: A New Approach to Marine Placer Resource Assessment*. Eos Trans. AGU Fall Meet. Suppl. Abstract IN14A-05.
84. Sahoo B., **Oommen T.**, Misra D., and Newby G. (2006). *Application of 1D S-Transform in Discrimination Problems in Remote Sensing*. Eos Trans. AGU, Fall Meet. Suppl. Abstract IN11A-1152.
85. Misra D., **Oommen T.**, Agarwal A., and Mishra S.K. (2006). *Simulation of Runoff and Sediment Yield Using Support Vector Machines: A Preliminary Analysis*. Eos Trans. Fall Meet. Suppl. Abstract H31E-1470.
86. **Oommen T.**, Kelley J.J., Naidu S., Prakash A., Misra D., and Bandopadhyay S. (2005). *A Preliminary GIS Analysis of Marine Geophysical Signatures to Decipher Distribution Patterns of Platinum Placer in Offshore Goodnews Bay Region, Alaska*. Eos Trans. AGU, Fall Meet. Suppl. Abstract IN23B-1214.
87. **Oommen T.**, Prakash A., Misra D., Gens R., Bandopadhyay S., Naidu S., and Kelley J.J. (2005). *Marine Placer Platinum Prospects Near Goodnews Bay, Alaska: GIS database design and preliminary analysis*. Alaska Geological Society, Geology Symposium Fairbanks, AK, USA.

Awards and Honors

Publication Awards

<i>Northeast Geotechnical Graduate Research Symposium, Second prize in the abstract competition</i>	2009
<i>Association of Environmental & Engineering Geologists Annual Meeting, Platinum corporate sponsor award for outstanding abstract</i>	2008
<i>Northeast Geotechnical Graduate Research Symposium, First prize in the abstract competition</i>	2007
<i>American Geophysical Union Annual meeting, Outstanding student paper award</i>	2005

Academic Awards

<i>First Erudite Scholar of the Department of Geology, Kerala University, India.</i>	2017
<i>Littleton Award, Civil and Environmental Engineering, Tufts University</i>	2009
<i>Dean's fellow, College of Engineering, Tufts University</i>	2006 - 2007
<i>Best student award for academics, M.S. Ramaiah Institute of Technology</i>	1999

Professional Honors and Awards of Students Resulting from Their Research

External Awards

<i>Lauren Schaefer, Natural Hazards Focus Group Award for Graduate Research, AGU</i>	2017
<i>Priscilla Efua Addison, Stout Scholarship, Second place, AEG</i>	2016
<i>El Hachemi Bouali, NASA Earth and Space Science Fellowship</i>	2016
<i>Lauren Schaefer, Google Earth Engine Scholarship</i>	2015
<i>Bonnie Zwissler, Lemke Scholar, AEG</i>	2015
<i>Lauren Schaefer, Third place for student poster competition, AEG</i>	2015
<i>Ashley Kern, Lemke Scholar, AEG</i>	2015
<i>Lauren Schaefer, Marliave Scholar, for outstanding scholarship in engineering geology and geological engineering, AEG</i>	2015
<i>Priscilla Efua Addison, Terrey Hawthorne Memorial Scholarship, ASME Joint Rail Conference held in San Jose, California</i>	2015
<i>El Hachemi Bouali, Platinum Corporate Sponsor Award for outstanding student abstract at the 57th annual meeting of the AEG held in Scottsdale, Arizona</i>	2014
<i>Bonnie Zwissler, Platinum Corporate Sponsor Award for outstanding student abstract at the 57th annual meeting of the AEG held in Scottsdale, Arizona</i>	2014
<i>Lauren Schaefer, NASA Earth and Space Science Fellowship</i>	2013
<i>Daniel Cerminaro, NSF Graduate Research Fellowship</i>	2013
<i>Lauren Schaefer, winner of the AEG Foundation, Tilford Field Scholarship</i>	2013
<i>Lauren Schaefer, Lemke Scholar AEG</i>	2013
<i>Bonnie Zwissler, Lemke Scholar AEG</i>	2013
<i>Lauren Schaefer, Tilford Field Scholarship AEG</i>	2013
<i>Lauren Schaefer, Lemke Scholar AEG</i>	2012
<i>Daniel Smith, Platinum Corporate Sponsor Award for outstanding student abstract at the 55th annual meeting of the AEG held in Salt Lake City, Utah</i>	2012
<i>Lauren Schaefer, runner-up in the graduate student division of the AEG North Central Section student paper competition</i>	2012
<i>Guoqon Zhang, winner in the under-graduate student division of the AEG North Central Section student paper competition</i>	2012
<i>Patrick Manzoni, Platinum Corporate Sponsor Award for outstanding student abstract at the 54th annual meeting of the AEG held in Anchorage, Alaska</i>	2011

Michigan Tech Awards

<i>Lauren Schaefer, Exceptional Graduate Student Scholar Award</i>	2015-2016
<i>Bonnie Zwissler, 3rd Place for Presentation at the Michigan Tech Graduate Research Colloquium</i>	2013
<i>Lauren Schaefer, Michigan Tech Graduate School Outstanding Scholarship Award</i>	2012

Invited Lectures

- *Invited talk at the Indian Geotechnical Conference IGC2016, IIT Madras, Chennai, India. " New Paradigm in Geotechnical Performance Monitoring Using Remote Sensing" (December 2016)*
- *Invited talk at the First South to South Workshop organized by World Bank in Kandy, Sri Lanka "Geotechnical Asset Management and Tools: Global and US Federal Highway Experience" (November, 2016)*
- *Invited talk at the Department of Civil and Environmental Engineering Seminar, Washington State University, Pullman, Washington "Integrated Remote Sensing Techniques for Geohazard Characterization" (November, 2016)*
- *Invited talk at the Van Tuyl Lecture, Colorado School of Mines, Golden, Colorado "Sustainable*

Geotechnical Asset Management Along the Transportation Infrastructure Environment” (October, 2015)

- *Invited talk at the 35 Years of International Lithosphere Program: Celebrating Excellence in Solid Earth Sciences, Potsdam, Germany “Integrated Remote Sensing and Numerical Modeling for Geohazard Characterization and Monitoring” (September, 2015)*
- *Invited talk at the Indian Institute of Technology, Mumbai, India “Geotechnical Asset Management along the Transportation Corridor Using Remote Sensing” (June, 2015)*
- *Invited talk at the Department of Geoscience Seminar, University of Texas, Arlington, Texas “Integrated Remote Sensing Techniques for Geohazard Characterization” (April, 2015)*
- *Invited talk at the Department of Civil Engineering Seminar, University of Michigan, Ann Arbor, Michigan “Sustainable Geotechnical Asset Management Along the Transportation Infrastructure Environment” (November, 2014)*
- *Invited talk at the Department of Civil Engineering Seminar, University of Texas, Arlington, Texas “Sustainable Geotechnical Asset Management Along the Transportation Infrastructure Environment” (October, 2014)*
- *Invited talk at the United States Department of Transportation (USDOT) - Research and Innovation Technology Administration (RITA) , Washington DC “Sustainable Geotechnical Asset Management along the Transportation Infrastructure Environment Using Remote Sensing” (April, 2013)*
- *Invited talk at the Naval Research Lab Trafficability Meeting, Washington DC “Machine Learning & Thermal Remote Sensing for Trafficability Factors” (April, 2013)*
- *Invited talk to Enbridge at Great Lakes research Center, Houghton, MI “Geotechnical and Hydrologic Characterization of the Straits of Mackinac” (January, 2013)*
- *Invited talk at the Department of Hydrogeology and Engineering Geology, National Mining University, Dnipropetrovsk, Ukraine “Numerical Modeling of Loess Slope Instability” (May, 2012)*
- *Invited talk at the Department of Foreign Languages, National Mining University, Dnipropetrovsk, Ukraine “Graduate Education in Geo- Science and Engineering at Michigan Technological University” (May, 2012)*
- *Invited talk at the Department of Geological Sciences, University of Milan-Bicocca, Milan, Italy “Geo-hazard Characterization Using Remote Sensing Techniques” (May, 2012)*
- *Invited talk at the Laboratory of Magmas and Volcanoes, University of Blaise-Pascal, Clermont-Ferrand, France “Slope Characterization Using Remote Sensing and Geomechanical Modeling” (May, 2012)*
- *Invited workshop at Kansas State University, Manhattan, KS “An Introduction to Support Vector Machine Implementations in R” (April, 2011)*
- *Invited talk at the Civil Engineering Seminar, Michigan Technological University “Pre- and Post-Earthquake Induced Liquefaction: Characterization Using Pattern Recognition and Satellite Remote Sensing” (September, 2010)*
- *Invited talk at the Geotechnical Engineering Seminar, University of Oklahoma “Pre- and Post-Earthquake Induced Liquefaction: Characterization Using Pattern Recognition and Satellite Remote Sensing” (September, 2010)*
- *Invited talk at the Center for Spatial Analysis, College of Atmospheric and Geographic Sciences, University of Oklahoma “Intelligent Thematic Classification and Data Collection Using Support Vector Machine” (September, 2010)*

- *Invited talk at the Geological, Mining Engineering and Sciences Seminar, Michigan Technological University “Liquefaction Characterization Using Pattern Recognition and Satellite Remote Sensing” (April, 2010)*
- *Invited talk at the Geohazards Engineering Research, Tufts University “Documenting Earthquake Induced Damages from Space: An Overview from Port-au-Prince, Haiti and Bhuj, India” (February, 2010)*
- *Invited talk at the Texas A & M AgriLife Research Seminar, Amarillo, TX “Liquefaction Characterization Using Pattern Recognition and Satellite Remote Sensing” (February, 2010)*
- *Invited talk at the 2009 Space Day at Boston Museum of Science, Massachusetts Space Grant Consortium “Post-Liquefaction Characterization from Space” (November, 2009)*
- *Invited talk at the IEEE Geoscience and Remote Sensing Society, Boston Section “Multisensor and Multispectral Approach in Documenting and Analyzing Liquefaction Hazard using Remote Sensing and Support Vector Data Description” (February, 2009)*
- *Invited talk at the Machine Learning Group, Department of Computer Science, Tufts University “Application of Remote Sensing & Machine Learning for Liquefaction Susceptibility Mapping” (April 23, 2007)*
- *Invited talk at the Institute of Marine Science Seminar, University of Alaska Fairbanks “Goodnews Bay Platinum Reserve” (November 15, 2006)*

Professional Activities

Committee Service

- *Session Co-chair, Geostatistics II, SME APCOM 2015*
- *Session Co-chair, Soil Dynamics, Geoshanghai 2014*
- *Moderator, Geo-Characterization Interactive Poster Session, ASCE Geocongress 2014*
- *Session Chair, Remote Sensing Techniques for Geo-Characterization, ASCE Geocongress 2014*
- *Secretary, ASCE - Geo-Institute Engineering Geology & Site Characterization Committee (EG&SC), 2013 - present*
- *Member, AEG Communications Committee, 2013 - present*
- *Member, AEG Landslide Technical Working Group, 2013 - present*
- *Chair, AEG Seismic Hazards Technical Working Group, 2013 - present*
- *Program Committee Member, International Symposium on Soil Erosion and Landscape Evolution (ISELE-ASABE), September 18-21, 2011, Anchorage, Alaska*
- *Program Committee Member, 11th IEEE International Conference on Information Technology (ICIT), December 17-20, 2008, India*
- *Graduate Representative, Emil Usibelli Distinguished Teaching, Research and Service Award committee - 2006, University of Alaska, Fairbanks*

Review Panels

- *NASA, Experimental Program to Stimulate Competitive Research (EPSCoR), 2015*
- *National Science Foundation: Big Data and Disaster Research, 2014*

- *National Science Foundation: Big Data and Disaster Research, 2014*
- *National Science Foundation: Catalyzing New International Collaborations (CNIC), 2014*
- *National Science Foundation: Geotechnical Engineering, 2014*
- *Michigan Tech: Summer Undergraduate Research Fellowship (SURF), 2013*
- *National Science Foundation: George E. Brown, Jr. Network for Earthquake Engineering Simulation Research, 2012*

Editorial Board

- *Editorial Board Member for Environmental & Engineering Geoscience (Dec 2015-)*
- *Editorial Board Member for AIMS Geoscience (2015-)*

Journal Reviews

- *Journal of Computing in Civil Engineering*
- *Journal of Geotechnical & Geoenvironmental Engineering*
- *Computers & Geosciences*
- *Environmental & Engineering Geosciences*
- *Natural Hazards*
- *Bulletin of Earthquake Engineering*
- *Geoscience Frontiers*
- *Seismological Research Letters*
- *International Journal of Remote Sensing*
- *Water Resources Management*
- *Journal of Geology and Mining Research*
- *IEEE Geoscience and Remote Sensing Letters*
- *Transactions of the ASABE*
- *Mathematical Geosciences*
- *Journal of Applied Geophysics*
- *Science Asia*

Conference Reviews

- *ASCE GEOCongress 2014, February 23-26th 2014, Atlanta, GA*
- *ASCE GEOCongress 2012, March 25-28th 2012, Oakland, CA*
- *GEORISK: Risk Assessment and Management in Geoengineering, June 26-28th 2011, Atlanta*
- *9th IEEE International Conference on Information Technology (CIT 2006) December 18th-21st 2006, India*

Professional Training

- *First USUCGER Early Career Geotechnical Engineering Conference, in Boston, MA, July 7, 2012.*
- *NSF Workshop: Tracking an Energy Elephant, at the University of Utah, Nov 7-9, 2011, Utah, USA*
- *Introduction to Computed Tomography and Neutron Tomography, at the GEOX 2010 Feb 28, 2010, New Orleans, Louisiana, USA*
- *Pedagogy, by the Graduate Institute for Teaching (GIFT) and the Center for the Enhancement of Teaching and Learning (CELT), at Tufts University May 8 - June 11, 2009, Medford, Massachusetts, USA*

- *Multi-Interdisciplinary Subsurface Integration in Exploration and Production from “Plates to Pores...”*, at ExxonMobil March 18-21, 2009, Woodlands, Texas, USA
- *Feedforward Neural Networks: Theory & Applications by the IEEE Geoscience & Remote Sensing Society*, at the IGARSS July 6-11, 2008, Boston, Massachusetts, USA
- *SAR Polarimetry: Basics, Processing Techniques & Applications by the IEEE Geoscience & Remote Sensing Society*, at the IGARSS July 6-11, 2008, Boston, Massachusetts, USA
- *Introduction to ArcGIS Geostatistical Analyst by the Environmental Systems Research Institute at the Virtual Campus*, June 23rd, 2006
- *Basics of the Geodatabase Data Model by the Environmental Systems Research Institute at the Virtual Campus*, October 15th, 2005
- *ArcGIS Spatial Analyst by the Environmental Systems Research Institute at the Virtual Campus*, October 10th, 2005

Academic advising and committees

Postdoctoral Scholars

- *Rudiger P. Escobar Wolf, Ph.D.* 2013-
- *Sajin Kumar Kochappi Sathyan, Ph.D.* 2016-2017

Doctor of Philosophy, Chair/Co-Chair

- *Mike Sayers* Co-Chair, GMES, Michigan Tech
- *Priscilla Addison* Chair, GMES, Michigan Tech
- *James Bialas* Co-Chair, Computer Science, Michigan Tech
- *El Hachemi Y Bouali* Chair, GMES, Michigan Tech
- *Renee Oats* Co-Chair, Civil Engineering, Michigan Tech, 2016
- *Bonnie Zwissler* Co-Chair, Civil Engineering, Michigan Tech, 2016
- *Lauren Schaefer* Chair, GMES, Michigan Tech, 2016

Doctor of Philosophy, Committee Member

- *Ryan Schneider* Computer Science, Michigan Tech
- *Leonid Surovitsky* GMES, Michigan Tech
- *Amaneh Eslami Kenarsari* Civil, Michigan Tech
- *Marine Foucher* GMES, Michigan Tech
- *Bryan Franklin* Computer Science, Michigan Tech
- *Jordan R. Mertes* GMES, Michigan Tech, 2017
- *Hanieh Deilamsalehy* Computer Science, Michigan Tech, 2017
- *Tony Pinar* Computer Science, Michigan Tech, 2017
- *Chao Zhang* Civil, Michigan Tech, 2017
- *Engielle Mae Paguican* University of Blaise-Pascal, France, 2012
- *Abdul Ahmed Koroma* Civil Engineering, Michigan Tech, 2011

Master of Science, Chair/Co-Chair

- *Maria Diletta Acciaro* Co-Chair, GMES, Michigan Tech

- *Lindsay Ellingson* Co-Chair, GMES, Michigan Tech, 2017
- *Jonathan Sanders* Chair, GMES, Michigan Tech, 2017
- *Samantha Justice* Co-Chair, GMES, Michigan Tech, 2015
- *Priscilla Addison* Co-Chair, GMES, Michigan Tech, 2015
- *James Bialas* Co-Chair, School of Technology, Michigan Tech, 2015
- *Daniel Cerminaro* Chair, Civil Engineering, Michigan Tech, 2014
- *Ren Keyport* Chair, GMES, Michigan Tech, 2013
- *Bonnie Zwissler* Chair, Civil Engineering, Michigan Tech, 2013
- *Patrice Cobin* Co-chair, GMES, Michigan Tech, 2013
- *Rachel Hetherington* Co-chair, GMES, Michigan Tech, 2013
- *Abhishek Jain* Chair, GMES, Michigan Tech, 2013
- *Daniel Smith* Co-chair, GMES, Michigan Tech, 2013
- *Lauren Schaefer* Chair, GMES, Michigan Tech, 2012
- *Patrick Manzoni* Co-chair, GMES, Michigan Tech, 2012

Master of Science, Committee Member

- *Monica Castro-Escobar* Geology, Michigan Tech, 2017
- *Cassandra Javor* Geology, Michigan Tech, 2016
- *Noah Buikema* Environmental Engineering, Michigan Tech, 2015
- *Stephanie Watts-Garcia* Civil Engineering, Michigan Tech, 2014
- *Elena Russo* Geology, Michigan Tech, 2014
- *Karl Meingast* Forestry, Michigan Tech, 2013
- *Kacy Crawford* Civil Engineering, Michigan Tech, 2013
- *Jessica Smith* Geology, Michigan Tech, 2012
- *Michael Hochscheidt* Civil Engineering, Michigan Tech, 2011
- *Sara Brandt* Civil Engineering, Tufts University, 2010
- *Peter Calvin* Geological Engineering, University of Alaska Fairbanks, 2010

Teaching Experience

- *Engineering Geology & Geoinformatics* Under-grad level
Michigan Technological University, Fall-2015
- *Computational Geosciences* Graduate/Under-grad level
Michigan Technological University, Spring-2012, 2013, 2014, 2015
- *Computer Methods in Geomechanics* Graduate/Under-grad level
Michigan Technological University, Fall-2011, Spring 2013, 2014, 2015
- *Environmental Statistics* Graduate level
Tufts University, Fall-2009 Teaching fellow (Two invited lectures)
- *Environmental Statistics* Graduate level
Tufts University, Fall-2009 Teaching fellow (Two invited lectures)
- *Computer Applications in Geotechnical Engineering* Graduate level
Tufts University, Spring-2009 Grader
- *Foundations Engineering* Graduate level
Tufts University, Fall-2008 Grader

- **Geohazards Engineering**
Tufts University, Spring-2008
- **Dynamics**
University of Alaska Fairbanks, Fall-2006

Undergraduate level
Teaching assistant

Undergraduate level
Teaching assistant

Computational Skills

Highlights

- In coordination with the Geographic Information Network of Alaska (GINA) developed an internet map service. This service provides the near shore placer potential for Bering Sea to the public. My role in this included the integration and development of the geodatabase and analysis of the available data layers for resource estimation. Available at:
<http://mms-goodnewsbay.gina.alaska.edu/index.phtml>

Languages

- Proficient in R and Matlab, and experience with C, Perl, VBA, and Fortran

Applications

- ArcGIS, ENVI, Erdas Imagine, AutoCAD, Plaxis, GeoStudio, ROCscience, Winsaf, Winstress, Lpile, Weka, L^AT_EX, and MS Office

Professional Society Affiliations

- ASCE: American Society of Civil Engineers
- EERI: Earthquake Engineering Research Institute
- AGU: American Geophysical Union
- AEG: Association of Environmental & Engineering Geologist
- GEER: Geotechnical Extreme Events Research
- USUCGER: United States Universities Council on Geotechnical Education and Research
- IAMG: International Association of Mathematical Geosciences

Professional Registrations

- Engineer-in-Training, New Hampshire, 2010