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A. Education and Employment Information

A1. Education

2011	**Ph.D.**, Structural Engineering, University of California, San Diego Dissertation: "*Simplified Vector-valued Probabilistic Seismic Hazard and Seismic Demand Analysis of a 13-story Reinforced Concrete Frame-Wall Building.*" Faculty Advisors: *Prof. Joel P. Conte and Prof. Jose Restrepo*.
2002	**M.S.**, Structural Engineering, Instituto Superior Técnico (IST), Portugal, Thesis: *"Wavelets on the Interval Applied to Finite Elements."* Faculty Advisor: *Prof. Luis Castro* (Instituto Superior Técnico, Portugal)
1998	**Licenciatura** (5 year undergraduate degree) in Civil Engineering, Instituto Superior Técnico (IST), Portugal, September 1998 Focus: *Structural Dynamics, Bridges, Foundations and design of special structures*

A2. Professional Experience

ACADEMIC

9/2018 – Present	**Associate Professor,** School of Civil and Construction Engineering Oregon State University.
12/2011 – 9/2018	**Assistant Professor,** School of Civil and Construction Engineering Oregon State University.
03/2002 – 12/2010	**Tenure-track Assistant Lecturer,** Department of Civil Engineering, Universidade Nova de Lisboa, Lisbon, Portugal

PROFESSIONAL

06/2006 – 09/2006	**Engineer**, Englekirk Partners Consulting Engineers, Los Angeles. *Developed a performance-based earthquake engineering design of a 39-story tower to be built in downtown San Diego, USA. Used Perform-3D for nonlinear structural analysis and performance-based design verifications that were submitted to a Peer Review panel.*
08/1998 – 01/2002	**Design Engineer**, Profico, Lda. Portugal. *Design and project management of several bridges and buildings.*

B. Teaching, Advising, and Other Assignments

B1. Instructional Summary

B1.1. Credit Courses

Number	Course Title	Term/Year	Credits	Enrollment
CE 534	Structural Dynamics (G)	Winter 2012	4	12
CE 419	CE Capstone (U)	Spring 2012	4	30
CE 382	Structural Theory II (U)	Winter 2013	4	108
CE 580	Advanced Seismic Design (G)	Spring 2013	3	18
CE 534	Structural Dynamics (G)	Fall 2013	4	16
CE 382	Structural Theory II (U)	Winter 2014	4	60
CE 580	Probability-based Analysis and Design (G)	Spring 2014	4	19
CE 534	Structural Dynamics (G)	Fall 2014	4	20
CE 382	Structural Theory II (U) - Section 1	Winter 2015	4	29
CE 382	Structural Theory II (U) - Section 2	Winter 2015	4	66
CE 580	Performance-based Design (G)	Spring 2015	3	8
CE 588	Probability-based Analysis and Design (G)	Winter 2016	4	11
CE 580	Performance-based Seismic Design (G)	Spring 2016	3	9
CE 382	Structural Theory II (UG)	Spring 2016	4	55
CE 534	Structural Dynamics (G)	Winter 2017	4	20
CE 382	Structural Theory II (U)	Spring 2017	4	46
CE 534	Structural Dynamics (G)	Winter 2018	4	17
CE 382	Structural Theory II (U)	Winter 2018	4	60
CE 580	Performance-based Seismic Design (G)	Spring 2018	4	12
CE 382	Structural Theory II (U)	Spring 2018	4	45

U – Undergraduate course; G – Graduate course

B1.2. Non-Credit Courses and Workshops

1. **Assessing, Coding, and Marking of Highway Structures in Emergency Situations.** Feb. 29 - Mar. 1, 2016. Irvine, CA. Co-taught with Michael Olsen and Gene Roe. Hosted by the National Academies of Sciences, Transportation Research Board.

2. **Workshop on Multi-Hazard Analysis of Structures using OpenSees** (July 2014)
    - URL 1: http://lese.fe.up.pt/OSDPt2014/
    - URL 2: http://web.engr.oregonstate.edu/~barbosa/products/Programme_final_OSD.pdf
    - Co-organized with researchers from three Portuguese Universities
    - Attended by 66 people (Industry, Researchers, and Graduate Students) from 10 different countries.
    - Keynote presentations from: Dr. Pedro Arduino (University of Washington, US); Dr. Andre Barbosa (OSU, US); Dr. Frank McKenna (UC Berkeley/PEER, US); Dr. Lauren Stewart (Georgia Institute of Technology, US); Dr. Asif Usmani (University of Edinburgh, UK)
    - Other 12 presentations were made at the workshop by authors from 7 different countries.
3. **OpenSees on the Road at Oregon State University** (November 2013)
    - Co-organized with Dr. Michael Scott (Oregon State University)
    - URL 1: http://calendar.oregonstate.edu/event/89558/
    - Presentations from by: Dr. Frank McKenna (UC Berkeley/PEER); Professor Pedro Arduino (University of Washington); Dr. Michael Scott (Oregon State University); Dr. Andre Barbosa (Oregon State University)
    - Attended by 35 people (Industry, Researchers, and Graduate Students)

B1.3. Course and Curriculum Development

CE 382 - STRUCTURAL THEORY II. This course presents traditional methods in Structural Analysis. It is a continuation of CE 381 – Structural Analysis I. In both courses the book by Hibbeler (Structural Analysis) is covered from one end to the other. In CE382, topics covered include: Analysis of statically determinate and indeterminate structures (beams, frames, trusses); Deflections; Principle of Virtual Work; Introduction to matrix methods for Structural Analysis.

For this course, I prepared all the material from the ground up. Since CE 382 meets for three hours a week for regular lecture and two hours a week for recitation, class materials were developed for both. For the lectures, I developed lecture slides that include the main concepts that students need to understand. In addition, worked examples were prepared and are presented to illustrate how the main concepts and underlying theory are applied. During lecture, focus is placed on explaining the physics behind equations. At the end of each lecture, additional (challenging) problems with answers are provided to spur curiosity and stimulate thinking by exposing students to problems beyond the ones presented in the lecture. In recitation, each week, students are given a problem to work on as a group and turn it in at the end of each class. The objective is that all groups turn in correct and complete solutions, which is achieved in 95% of the cases. During recitation, both myself and the graduate teaching assistants are available in class to provide continuous feedback on an individual and group basis and to support peer group discussions on how to solve and complete the in-class assignments. Additional methods of assessment include weekly homeworks, a midterm examination, and a final examination. All assessment materials are prepared from scratch yearly. At the time of writing this statement, I completed the fifth consecutive year at teaching this course. I have worked hard to show continuous improvement and I have incorporated feedback from the students each year to improve the delivery of the material. Following the first year, I adopted an approach of setting SMART (S – specific, M – measurable, A – attainable, R – relevant, T – time-bound) goals and

objectives and improved the communication with the students, which allowed me to show a significant increase in interest from the students.

CE 534 - STRUCTURAL DYNAMICS. In this course, I developed a traditional curriculum to teaching Structural Dynamics, following the first 13 chapters in Chopra's "Dynamics of Structures" textbook. For this course, I developed hand-written lecture notes, homework problems, and added new opportunities for experiential learning and cooperative learning, namely through development of laboratory experiments as well as exposure to basic skills of computer programming through the use of MATLAB. Topics covered in the course include: analytical and numerical solutions for single, multi-degree of freedom and continuous vibrating systems, behavior of structures, dynamic forces and support motions, and seismic response spectra analysis.

For CE 534, the lecture notes developed complement the textbook by providing in-depth and extended theoretical derivations of the lectured material. Experiential learning opportunities are brought into this course through student exposure to several hands-on exercises in which they use an instructional shake-table to run a set of pre-defined experiments. In terms of creating a cooperative learning experience, students work in groups to apply methods and concepts learnt in the class to the observations from tests performed on the instructional shake-table. Since this course is intensive in terms of the mathematical preparation and background needed by students to succeed in the class, I work on explaining the physics behind the mathematical expressions, by bringing my industry experience to the classroom and presenting real life problems that relate to the mathematical problem under analysis. This approach has been very well received by the students. In terms of programming skills, Python and MATLAB are used as tools for developing solutions to homeworks and in group projects. As many students have no experience with Python or MATLAB when reaching this class, a set of introductory slides to Python and MATLAB were developed.

CE 580 - PERFORMANCE BASED DESIGN (3 credits). This is a course I developed from scratch. For this course, I developed a new set of slides and gathered literature from the state-of-practice to provide to the students, interesting and engaging, while sometimes challenging, material. The course addresses advanced seismic design of building and bridge systems with emphasis on structural reinforced-concrete building technology, analysis, performance-based design, and nonlinear analysis response verification. Base isolation, self-centering rocking systems, and other emerging systems for design of earthquake resilient systems are also presented. The advanced topics in seismic design are presented by providing journal papers for students to review, while presenting lecture slides with the summary of the main concepts. Models and "toys" are used extensively to illustrate basic structural engineering desired mechanisms. The students develop projects with complete building designs, which they can then use as sample documents presented to potential high-end consulting firms.

CE 588 - PROBABILITY-BASED ANALYSIS AND DESIGN (4 credits). This course focuses on providing students with an understanding of the types of uncertainty encountered in design of civil engineering systems. The main topics covered include: application of probability and statistics in the analysis and design of civil and mechanical engineering systems, probabilistic modeling of loading and resistance, and probability-based design criteria including load and resistance factor design. CE 588 also introduces students to modern methods of structural reliability analysis based on the theory of probability, including both theoretical and

computational aspects of structural reliability analysis. Example applications are mainly geared towards structural mechanics, although other examples related to hydraulics, geotechnical, and transportation engineering are also provided. The students learn to derive probability distributions for functions of one or multiple random variables, perform a reliability analysis of an engineering system given the failure criterion, and determine which random variables are most significant in explaining the failure of an engineering system.

This course was completely restructured. A book by Nowak and Collins (2014) was used as the reference textbook and all but one chapter were covered. A set of lecture notes were developed to explain the theory and expand on many theoretical derivations not developed in the book. Students were also strongly encouraged to read additional material from the literature of the field, which is vast, and a total of 10 book references were made available for the students on the Valley Library. Student assessment included 8 homeworks, a midterm examination, and a term project. Students were introduced to two open source finite element reliability software (FERUM and OpenSees), which were used for solving homework problems and final project. Development of both of these tools started at UC Berkeley, but have not gathered large number of contributors and users, which was the main reason for exposing students in this course to these tools, since it prepares students for industry in fields related to insurance engineering, while providing them with the knowledge for the next generation of civil and mechanical engineers. On the last year in which this course was taught, this course was also used to provide students with an opportunity to develop a seismic risk analysis of downtown Corvallis. Students worked with building inspectors of the City of Corvallis, and developed FEMA 154 – Rapid Visual Assessments of a city block and then developed a complete vulnerability assessment of the city block using reliability and risk concepts learned during the course. This form of assessment was very well received by the students, who were able to use complex concepts and risk assessment tools and bring them into the engineering practice.

B1.4. Team or Collaborative Efforts

CE 419 - CIVIL INFRASTRUCTURE DESIGN. This course provides the capstone design project experience exposing students to problems and issues similar to those encountered in the practice of civil engineering. In this course, in 2012 – which was the only time I taught this course –I was one of six instructors. The organization of the faculty in this course was that there was a lead instructor and additional five instructors, which advised different specialties. I advised the structural team members (30 students). This was taught in 2012, which was the last year that the course was administered in this format, since the format had been unsuccessful for several years. For this course, the main goal for the structural team members was to develop the preliminary design of a sky bridge and multi-modal center (conceptual design of alternatives, design of a representative frame for gravity loads, determination of lateral loads, and some detailing). When needed, minimal lecture notes were provided to guide students on the design of components. The design the students did in this section had to be integrated with the other project elements and detailed in a final report. To aid with the organization of the students and to give them a real-life project experience, weekly deliverables were defined, and these included written assignments. Because each team's projects were different, each assignment included formal letters of transmittal that briefly described the contents of the submittal. All submittals were written so that students could incorporate these easily into the final report. In addition, to introduce students to the concept of time management and book-keeping, students were required to keep track of their "timesheets" and presented those to other members of the team. A portfolio of the work submitted throughout the term was due in week 8.

B1.5. International Teaching

STRUCTURAL RELIABILITY AND RISK ANALYSIS, Universita La Sapienza, Rome, Italy (24 hours). This new course was presented in an "Advanced Summer Course." The objective of this course was to introduce students to modern methods of structural reliability analysis based on the theory of probability. The course covered both the theoretical and the computational aspects of structural reliability analysis. It also presents the formulation of probability-based or reliability-based design codes. A complete set of lecture slides and homeworks was developed for this intense four-day (24 hour) course.

B2. Student and Participant Evaluations

Course No. (credits)	Term	Enroll-ment	# Re-spond-ing	Student Evaluation (#1/#2)*	College Medians (#1/#2)*	Required /Elective
CE 534 (4)	Winter 2012	12	11	5.6/5.6	4.6/4.8	Elective
CE 419 (4)	Spring 2012	30	23	3.1/3.1	4.6/4.7	Required
CE 382 (4)	Winter 2013	108	53	4.0/4.2	4.6/4.8	Required
CE 580 (3)	Spring 2013	18	12	4.3/5.0	4.6/4.8	Elective
CE 534 (4)	Fall 2013	16	14	5.2/5.5	4.8/4.9	Elective
CE 382 (4)	Winter 2014	60	54	4.7/5.0	4.7/4.9	Required
CE 588 (4)	Spring 2014	18	16	5.3/5.5	4.9/5.1	Elective
CE 534 (4)	Fall 2014	20	17	5.4/5.7	4.8/4.9	Elective
CE 382 Sec. 1 (4)	Winter 2015	66	59	5.0/5.1	4.8/5.0	Required
CE 382 Sec. 2 (4)	Winter 2015	29	23	5.5/5.6	4.8/5.0	Required
CE 580 (3)	Spring 2015	7	5	6.0/6.0	4.8/5.1	Elective
CE 588 (4)	Winter 2016	11	9	4.7/5.3	4.6/4.8	Elective
CE 580 (3)	Spring 2016	9	7	5.0/5.3	4.7/4.9	Elective
CE 382 (4)	Spring 2016	55	42	4.8 /5.0	4.7/4.9	Required
CE 534 (4)	Winter 2017	20	19	5.1/5.7	4.9/5.2	Elective
CE 382 (4)	Spring 2017	46	35	5.3/5.2	5.0/5.2	Required
CE 534 (4)	Winter 2018	17	9	5.9/5.1	5.9/5.3	Elective
CE 382 (4)	Winter 2018	60	41	5.1/5.1	5.3/5.3	Required

*#1 – Course as a whole / #2 – Instructor's Contribution; Max. score 6.0/6.0

B3. Advising

B3.1. Graduate Advisees – Completed

Student	Degree	Thesis	Graduated
1. Nicolas Matus (co-advised D, CCE)	M.S.	*Performance of High-Strength Steel Reinforcement in Shear Friction Applications.*	Summer 2018
2. Brian DeMeza	M.S.	*Design and Testing of Shake-Table Specimen of Cross-laminated Timber and Cross-laminated Timber-Concrete Composite Diaphragms*	Spring 2018
3. Rajendra Soti	Ph.D.	*Seismic Assessment of Unreinforced and Retrofitted Masonry Buildings using the Applied Element Method (AEM)*	Fall 2017
4. Andre Belejo	Ph.D.	*Evaluation of Ground Motion Duration Effects on the Damage Prediction of Building and Bridge Structural and Soil-Structural Systems*	Summer 2017
5. Vahid Mahdavifar (co-advised A. Sinha)	Ph.D.	*Cyclic Performance of Connections Used in Hybrid Cross-Laminated Timber*	Spring 2017
6. Mackenzie Lostra (co-advised C. Higgins, CCE)	M.S.	*Seismic Performance of Square Reinforced Concrete Columns Retrofitted with Titanium Alloy Bars*	Summer 2016
7. Curtis Blank	M.S.	*Performance Based Tests on Cross Laminated Timber - Concrete Composite Floor Panels*	Summer 2016
8. Syed Baqir Hussain	M.S.	*Evaluation of seismic response directional combination rules for existing plan irregular reinforced concrete buildings*	Summer 2016
9. Matthew Kessler	M.Eng.	*3-D Computational Modeling of Bridge Bearings*	Spring 2016
10. Patrick Burns (co-advised M. Olsen, CCE)	M.S.	*Multi-objective Loss Assessment of Oregon Bridges Due to Cascading Seismic and Tsunami Hazards*	Summer 2015
11. Drew Nielson (co-advised D. Trejo, CCE)	M.S.	*High-strength reinforcement for bridges*	Spring 2015
12. Amrutha Das (co-advised J. Gambatese, CCE)	M.S.	*Risk and Reliability Associated with Use and Reuse of Vertical Formwork*	Spring 2014
13. Trevor Carey (co-advised Ben Mason, CCE)	M.S.	*Multi-hazard Framework and Analysis of Soil-bridge Systems: Long Duration Earthquake and Tsunami Loading*	Summer 2014
14. Timothy Link (co-advised D. Trejo, CCE)	M.S.	*Seismic Performance of Reinforced Concrete Bridge Columns Constructed with Grade 80 Reinforcement*	Spring 2014
15. Anthonie Kramer (co-advised A. Sinha, WSE)	M.S.	*Cross-Laminated Timber Engineering: Improvement and Application*	Winter 2014
16. Jessica Cawley (co-advised H. Yeh, CCE)	M.S.	*Review of Guidelines for the Design of Tsunami Vertical Evacuation Buildings*	Winter 2014
17. Garlan Ramadhan	M.S.	*Seismic Performance of Diagrid Steel Structures Using Single and Double Friction Mass Dampers*	Fall 2013

18. Kyle Romney (co-advised H. Ben Mason, CCE)	M.S.	*Soil-bridge Interaction during Long-Duration Earthquake Motions*	Spring 2013
19. Yicheng Long	M.S.	*Effect of Subduction Zone Earthquakes on SDOF Bridge Models*	Spring 2013

B3.2. Graduate Advisees – Current

Student	Degree	Expected Graduation	Advanced to Candidacy (Y/N)
1. Mohammad Shafiqual Alam	Ph.D.	Summer 2018	Y
2. Feras Khlef (co-advised J. Ideker)	Ph.D.	Spring 2019	Y
3. Sharoo Shrestha (co-advised C. Higgins)	Ph.D.	Spring 2019	N
4. Mohammed Asaad	Ph.D.	Summer 2019	N
5. Mustafa Buniya	Ph.D.	Fall 2019	N
6. Zeyad Al-Sayhood (co-advised M. Scott)	Ph.D.	Winter 2020	N
7. Ignace Mugabo (co-advised M. Riggio, WSE)	Ph.D. / M.S.	Winter 2019 / Winter 2018	N
8. Brad Taylor (co-advised with A. Sinha, WSE)	M.S.	Summer 2019	N/A
9. Kolton Mahr (co-advised with A. Sinha, WSE)	M.S.	Summer 2019	N/A
10. Renee Engleson	M.S.	Summer 2019	N/A

B3.3. Graduate Thesis or Project Committees

Minor Professor or Committee Member: ***Current***

1. Jon Huffman, Ph.D. (Civil Engineering)
2. Ming Chen, Ph.D. (Civil Engineering)
3. Matt Barner, Ph.D. (Civil Engineering)
4. Sirija Ananth, Ph.D. (Mechanical Engineering)
5. Dillon Fitzgerald, Ph.D. (Civil Engineering and Wood Science and Engineering)
6. Christopher Anderson, M.S. (Civil Engineering and Wood Science and Engineering)
7. Morvarid Dilmaghani, M.S. (Wood Science and Engineering)

Minor Professor or Committee Member: Graduated

1. Lei Zhang, Ph.D., 2017
2. Junhui Lou, Ph.D., 2017
3. Qiang Li, Ph.D., 2017
4. Aiyad Alshimaysawee, M.S., 2017
5. Silas Shields, M.S., 2017
6. Kyle Sullivan, M.S., 2017
7. Thanh Huynh, M.S., 2016
8. Jonathan Knudtsen, M.S., 2016
9. Benjamin Hunter, M.S., 2016

10. William M. Short, M.S., 2016
11. Wennan Li, M.S., 2016
12. Blake Larkin, M.S., 2016
13. Hyoungsu Park, Ph.D., 2016
14. Andrew Hanek, M.S., 2014
15. Therese Pflaum, M.S., 2013
16. Nataliya Kozlova, M.Eng., 2013
17. Anthony Sorentino, M.S., 2012
18. Kathryn Pfretzschner, M.S., 2012
19. Anthony Hafner, M.S., 2012
20. David Taylor, Undergraduate University Honors Thesis, 2012
21. Christina Garrett, Undergraduate University Honors Thesis, 2012

Graduate Council Representative:

1. Kendall Jane Conroy, M.S., 2018 (Wood Science and Engineering)
2. Evan Schmidt, M.S., 2018 (Wood Science and Engineering)
3. Shardul Khandke, M.S., 2018 (Industrial Engineering)
4. Hari Nagarajan, M.S., 2017 (Industrial Engineering)
5. Brandon Massoni, M.S., 2016 (Mechanical Engineering)
6. Mitchell Daniels, M.S., 2016 (Mechanical Engineering)
7. Addison Wisthoff, M.S., 2016 (Mechanical Engineering)
8. Robin Kiff, M.S., 2016 (Mechanical Engineering)
9. Mitchell Colby, M.S., 2013 (Mechanical Engineering)
10. Min Ye, M.S., 2013 (Wood Science and Engineering)
11. Ryan Siegel, PhD, 2012 (Agricultural and Resource Economics)
12. Thomas J. Wright, M.S., 2012 (Mechanical Engineering)
13. Stephen Sills, M.S., 2012 (Mechanical Engineering)

B3.4. Undergraduate Research Assistants

1. Lance Parson (Fall 2015 – **present**)
2. Zeping Liu (Summer 2017)
3. Gokul Vasudevan (Summer 2017)
4. Glen Galant (Winter 2017 – Summer 2018)
5. Christopher Anderson (Fall 2016 – Summer 2017)
6. Kirsten Fox (Summer 2016 – Summer 2018)
7. Brad Taylor (Summer 2016 – Spring 2017)
8. Elshae Tanimoto (Summer 2016 –Winter 2017)
9. Amy McKee (Fall 2015)
10. Kyle Logan (Spring 2015 – Spring 2016)
11. Kaitlyn Dorr (Spring 2015)
12. Vandad Mazarei (Winter 2015 – Spring 2015)
13. Sam Gardner (Summer 2014 – Winter 2015)
14. Matthew Kessler (Winter 2014 – Winter 2015)
15. Paul Schroeder (Winter 2014 – Winter 2015)
16. Gabriel Asch (Winter 2014 – Winter 2015)
17. Kristina Milaj (Winter 2014)
18. Nicholas James Mc Elmurry (Fall 2013)
19. Huijing (Sheela) Wang (Fall 2013)

20. Cody Tibbits (Summer 2013 – Winter 2015)
21. Amy Kordosky (Winter 2013)
22. Anthonie Kramer (Spring – Summer 2012)

B3.5. Postdoctoral Trainees

1. Sabarethinam Kameshwar, Ph.D. (September 2017 – present)
2. Rajendra Soti, Ph.D. (December 2017 – present)

B3.6. Other Advising

Faculty Advisor for the Student Group: Earthquake Engineering Research Institute (EERI) student chapter (Winter 2015 – Spring 2018)

Visiting Scholars

1. Fabio Romano, Ph.D., Univ. degli Studi Niccolò Cusano, Italy (Spring & Summer 2018).
2. Leonardo Rodrigues, Ph.D. Student, University of Minho, Portugal (Winter & Spring 2017).
3. Gerald Jaho, MS Student, University of Genoa, Italy (Fall 2016 – Winter 2017).
4. Emanuele Aldo Mortola, MS Student, University of Genoa, Italy (Fall 2016 – Winter 2017).
5. Alessandro Rizzi, MS Student, University of Torino, Italy (Spring 2016 – Summer 2016).
6. Micaela Cappozzo, MS Student, University of Torino, Italy (Spring 2016 – Summer 2016).
7. Milena Massari, Ph.D. Student, University of Bologna, Italy (Fall 2015 – Spring 2016).
8. Luís Miranda, Visiting Scholar, LNEC, Lisbon, Portugal (Fall 2014).
9. Filipe Ribeiro, Ph.D. Student, Universidade Nova de Lisboa, Portugal (Spring 2013).

Co-advisor of students enrolled at other institutions:

1. Jamil Haddad, Ph.D., University of Genoa, Italy (2014 - 2018).
2. Sam White, M.S., Washington State University (2017 - **present**).
3. Leonardo Rodrigues, Ph.D. Student, University of Minho, Portugal (2015 – **present**).
4. Luís Miranda, Visiting Scholar, LNEC, Lisbon, Portugal (2014 - 2018).
1. Milena Massari, Ph.D., University of Bologna, Italy (2014 – 2017).
2. Filipe Ribeiro, Ph.D., Universidade Nova de Lisboa, Portugal (2012 –2017).
3. Hanshun Yu, M.S., Tufts University, MA, USA (2014 –2016).
4. Eliyar Asgarieh, Ph.D., Tufts University, MA, USA (2012 –2015).
5. Ruben Rosario, M.S., Universidade Nova de Lisboa, Portugal (2013 –2014).
6. Filipe Ribeiro, M.S., Universidade Nova de Lisboa, Portugal (2012).
7. Khaled Mashfiq, M.S., Sapienza University of Rome, Italy (2012).

C. Scholarship and Creative Activity

C1. Publications

Bold font indicates students for which the I served as an advisor.

C1.1. Books & Book Chapters

6. Varum, H., Dumaru, R., Furtado, A., Barbosa, A.R, Gautam, D., Rodrigues, H. (2018). "Seismic performance of buildings in Nepal after the Gorkha earthquake." In: Gautam, D., Rodrigues, H. (eds) Impacts and Insights of the Gorkha Earthquake, pp 47-63. DOI: 10.1016/B978-0-12-812808-4.00003-1
5. **Mohammed, M. A.**, Yu, H., Furtado, A., Barbosa, A. R., Moaveni, B., Varum, H., Rodrigues, H., Vila-Pouca, N., Wood, R. L. (2017). "Post-earthquake Field Measurement-Based System Identification and Finite Element Modeling of an 18-Story Masonry-Infilled RC Building." In: Conte J., Astroza R., Benzoni G., Feltrin G., Loh K., Moaveni B. (eds) Experimental Vibration Analysis for Civil Structures. EVACES 2017. Lecture Notes in Civil Engineering, Vol 5. Springer, Cham. DOI:10.1007/978-3-319-67443-8_66
4. Bose, S., Nozari, A., Mohammadi, M., Stavridis, A., Moaveni, B., Wood, R., Gillins, D., Barbosa, A.R. (2016). "Structural Assessment of a School Building in Sankhu, Nepal Damaged Due to Torsional Response During the 2015 Gorkha Earthquake." *Dynamics of Civil Structures*, edited by Pakzad S., Juan C., Conference Proceedings of the Society for Experimental Mechanics Series (2). Springer International Series, 31-42. DOI: 10.1007/978-3-319-29751-4_5.
3. Yeh, H., Barbosa, A.R., and Mason, B. (2015). "Tsunamis Effects in Man-Made Environment." *Encyclopedia of Complexity and Systems Science*, edited by Meyers, A.R., Springer, Berlin Heidelberg, 1-27. ISBN: 978-3-642-27737-5, 10.1007/978-3-642-27737-5_623-1.
2. **Asgarieh, E.**, Moaveni, B., Nozari, A., Barbosa, A.R., Chatzi, E. (2014). "Nonlinear Identification of a Seven-story Shear Wall Building Based on Numerically Simulated Seismic Data." Dynamics of Civil Structures, edited by Fikret Necati Catbas, Conference Proceedings of the Society for Experimental Mechanics Series, Springer International Series, 245-254. DOI: 10.1007/978-3-319-04546-7_28.
1. Faggella, M., Barbosa, A.R., Conte, J.P., Spacone, E., Restrepo, J.I. (2008). "Probabilistic Seismic Response Sensitivity Analysis of 3D Nonlinear Model of R/C Building Structure." *Valutazione e riduzione della vulnerbilita sismica di edifici esistenti in concreto armado*, edited by E. Cosenza, G. Manfredi, G. Monti, Polimetrica International Scientific Publisher Monza/Italy, 331-338. ISBN: 8876991298, 9788876991295.

C1.2. Refereed Journal Publications

2018

37. **Carey, T.J.**, Mason, H.B., Barbosa, A.R., Scott, M.H. (2018). "Multi-Hazard Earthquake and Tsunami Effects on Soil-Foundation-Bridge Systems." ASCE Journal of Bridge Engineering. IN PRESS. DOI: 10.1061/(ASCE)BE.1943-5592.0001353
36. **Alam, M.S.,** Barbosa, A.R. (2018). "Probabilistic seismic demand assessment accounting forfinite element model class uncertainty: Application to acode-designed URM infilled

reinforced concrete framebuilding." Earthquake Engineering & Structural Dynamics. IN PRESS. DOI: 10.1002/eqe.3113

35. **Mahdavifar, V.**, Barbosa, A.R., Sinha., A., Gupta, R., Muszynski, L., Pryor, S. (2018). "Hysteretic Response of Metal Connections on Hybrid Cross-laminated Timber Panels." ASCE Journal of Structural Engineering. IN PRESS. DOI: 10.1061/(ASCE)ST.1943-541X.0002222
34. Barbosa, A.R., Trejo, D., **Nielson, D.** (2018). "Performance of Shear Specimens Reinforced with High Strength Reinforcing Bars." ACI Structural Journal IN PRESS.
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4. Panagiotou, M., Geonwoo, K., Barbosa, A.R., and Restrepo, J.I. (2008). "Response Verification of a Reinforced Concrete Bearing Wall Building Located in an Area of High Seismic Hazard." SSRP Report 2008/05. UCSD - Department of Structural Engineering, La Jolla, California.
3. Gu Q., Barbosa, A.R., Conte, J.P. (2008). "OpenSees Tutorial for UCSD -SE 207: Nonlinear Structural Analysis."
2. Panagiotou, M., Geonwoo, K., Barbosa, A.R., and Restrepo, J.I. (2007). "Response Verification of a Reinforced Concrete Bearing Wall Building Located in an Area of High Seismic Hazard." Report No. SN2961, Portland Cement Association, Skokie, Illinois.
1. Barbosa, A.R., (2000). "Introduction to SAP2000." Text provided in support of training on SAP2000, Instituto Superior Técnico, (in Portuguese), Universidade Técnica de Lisboa.

C2. Professional Meetings, Symposia, and Conferences

C2.1. Presentations to Professional Groups (includes presentations of papers cited in C1.3)

1. Invited Talk, “Seminar Lessons Learned – 2017 Mexico City Earthquake – Performance of Critical Buildings (Schools, Hospitals).”, Oregon State University, February 1, Corvallis, Oregon, USA.
2. Contributed Talk, “Fire Performance of Cross-Laminated Timber-Concrete Composite Floors.” TallWood Design Institute, January 16, 2018, Oregon, USA,
3. Invited Talk, “2017 Mexico Earthquakes Preliminary Lessons Learnt on Infrastructure Resilience.” January 4, 2018.University of Lisbon, Portugal
4. Invited Talk, *NSF NHERI Coastal Hazards Engineering New User Workshop,* “NHERI UCSD Shake Table User Case Study.” July 20, 2017, Corvallis, OR, USA.
5. Contributed Talk, *Center for Risk-based Community Resilience Planning,* “Multi-Hazard Damage and Loss Estimation: Application to Seaside, OR.” NIST CORE Meeting, April, 2017, Colorado State University, Fort Collins, Colorado.
6. Contributed Talk, *ASCE Structures Congress 2017,* “Earthquake and Tsunami Resiliency Assessment for a Coastal Community in the Pacific Northwest, USA.” SEI Structures Congress, April 6 - 8, 2017, Denver, Colorado.
7. Poster, *Center for Risk-based Community Resilience Planning.* “A Probabilistic Framework for Seismic and Tsunami Hazard Analysis (PSTHA): Application to the City of Seaside, OR, Conditional on A Megathrust Rupture of the Cascadia Subduction Zone.” April 27-28, 2017, Fort Collins, CO.
8. Poster, *EERI Annual Meeting 2017*. “Probabilistic seismic and tsunami hazard analysis (PSTHA) conditional on a megathrust rupture of the Cascadia Subduction Zone.” March 7-10, 2017, Portland, OR.
9. Invited Talk, *1st International Workshop on Resilience,* “Earthquake and Tsunami Fragility Surfaces for a Masonty Infilled Concrete Building.” September 20-22, 2016, Torino, Italy.
10. Contributed Talk, *XII International Conference on Structural Repair and Rehabilitation,* “Seismic Performance of Square Reinforced Concrete Columns Retrofitted with Titanium Alloy Bars,” CINPAR 2016, October 26-28, 2016, Porto, Portugal.
11. Invited Talk, *Cascadia Lifelines Program,* “Cost-effective Retrofitting of Unreinforced Masonry Walls.” Meeting with DOGAMI, September 26, 2016, Corvallis Oregon.
12. Contributed Talk, *41st IAHS World Congress,* “Nonlinear Layered Modeling Approach for Cross Laminated Timber Panels Subjected to Out-Of-Plane Loading.” IAHS World Congress on Sustainability and Innovation for the Future, Sept. 13-16, 2016, Albufeira, Portugal.
13. Contributed Talk, *2016 WCTE World Conference,* “Hysteretic Behavior of Metal Connectors for Hybrid (High- and Low-grade Mixed Species) Cross Laminated Timber.” World Conference in Timber Engineering, August 25, 2016, Vienna, Austria. (Presented by Ph.D. student Vahid Mahdavifar).
14. Contributed Talk, *2016 Engineering Short Course on Cascadia Resilience,* “Seismic Robustness and Resilience of Existing Built Environment.” Oregon State University, July 14, 2016, Corvallis, Oregon.
15. Contributed Talk, *2016 Summer REU Program Kick-off Workshop,* “Multi-Hazard Damage and Loss Estimates to Buildings and Lifelines.” Oregon State University, June 20, 2016, Corvallis, Oregon.
16. Contributed Talk, *2016 ADSC Faculty Workshop,* “Full Scale Response and Numerical Simulation of Traffic Sign and Signal Foundations Subjected to Torsional (Wind) Loading.” ADSC, June 8, 2016, Chattanooga, Tennessee. (Presented by Armin Stuedlein).

17. Contributed Talk, *EMI 2016 Conference,* "Structural Identification and Modeling of a Three-Story School Building Damaged During the 2015 Gorkha Earthquake." Engineering Mechanics Institute, ASCE, May 22-25, 2016, Nashville, Tennessee. (Presented by Babak Moaveni).
18. Contributed Talk, *EMI 2016 Conference*, "Modeling Infill Strut Model Class Uncertainty on Seismic Response of Reinforced Concrete Masonry Infilled Frames," Engineering Mechanics Institute, May 22-25, 2016, Nashville, Tennessee. (Presented by Ph.D. student M. Shafiqual Alam).
19. Contributed Talk, *Mass-timber Conference*, "Composite Timber Structures." Forest Business Network, March 23, 2016, Portland, Oregon. (Presented by Benton Johnson, SOM).
20. Contributed Talk, *2016 Northwest Transportation Conference,* "Full Scale Response and Numerical Simulation of Traffic Sign and Signal Foundations Subjected to Torsional (Wind) Loading." NWTC, March 16, 2016, Corvallis, Oregon. (Presented by Armin Stuedlein).
21. Contributed Talk, *Meeting on Opportunities for University of Hawaii – Oregon State University Collaborations*, "Engineering Resilient Coastal Communities." Oregon State University, February 18, 2016, Corvallis, Oregon.
22. Contributed Talk, *Geo-Structures 2016*, "Soil-Bridge Modeling in OpenSees Considering Long Duration Earthquake Motions and Soil Liquefaction." *Geotechnical & Structural Engineering Congress*, February 14-17, 2016, Phoenix, Arizona. (Presented by Ben Mason)
23. Invited Panelist, *Geo-Structures 2016,* "Post-Earthquake Reconnaissance Findings from The M7.8 Gorkha Earthquake, Presentation on Remote sensing and laser scanning." Geotechnical & Structural Engineering Congress, February 14-17, 2016, Phoenix, Arizona. (Presented by Daniel Gillins).
24. Contributed Talk, *Geo-Structures 2016,* "Simulation Framework for Reliability-based Serviceability Assessments of Multi-story Steel-framed Structures Supported on Spatially-variable Soil." Geotechnical & Structural Engineering Congress, February 14-17, 2016, Phoenix, Arizona. (Presented by Armin Stuedlein).
25. Invited Talk, *DCA Meeting at the City of Corvallis*, "Lessons Learnt from Recent Earthquakes and Implications for Oregon." Oregon State University and Corvallis Seismic Strategies, February 3, 2016, Corvallis, Oregon.
26. Contributed Talk, *IMAC XXXIV A Conference and Exposition on Structural Dynamics,* "Structural Assessment of a School Building in Sankhu, Nepal Damaged Due to Torsional Response During the 2015 Gorkha Earthquake." Society for Experimental Mechanics, January 25-28, 2016, Orlando, Florida. (Presented by Supratik Bose).
27. Contributed Talk, *ATC-SEI Conference*, "Performance of URM Walls and Infilled RC Frame Retrofitted with Near Surface Mounted Steel Bars." 2nd Conference on Improving the Seismic Performance of Existing Buildings and Other Structures, December 10-12, 2015, San Francisco, California. (Presented by Ph.D. student Rajendra Soti).
28. Invited Talk, *Mayor of City of Corvallis*, "Lessons Learnt from Recent Earthquakes and Implications for Oregon." Oregon State University and Corvallis Seismic Strategies, October 27, 2015, Corvallis, Oregon.
29. Invited Talk, *Special Seminar, "*Earthquake and Tsunami Loss Assessment." Oregon State University, October 27, 2015, Corvallis, Oregon.
30. Invited Talk, *WTS October Luncheon,* "Emergency Preparedness - Are We Ready? Earthquake Preparedness: Lessons Learnt from Recent Earthquakes and Implications for Oregon." WTS, October 13, 2015, Portland, Oregon.

31. Contributed Talk, *Cascadia Lifelines Program*, "Cost-effective Improvements in Seismic Performance of Legacy Infrastructure." Oregon State University, October 8, 2015, Portland, Oregon.
32. Invited Talk, *Eugene Country Club*, "Earthquake Preparedness: Lessons Learnt from Recent Earthquakes and Implications for Oregon." September 29, 2015, Eugene, Oregon.
33. Contributed Talk, *Center for Risk-based Community Resilience Planning,* "Multi-Hazard Damage and Loss Estimation: Application to Seaside, OR." NIST CORE Meeting, September 18, 2015 Portland, Oregon.
34. Invited Talk, *Corvallis Seismic Strategies*, "2014 Napa, California and 2015 Nepal Earthquake: Overview of Observations and Implications for Oregon." Downtown Corvallis Association, September 9, 2015, Corvallis, Oregon.
35. Invited Talk, *PEER – EERI – GEER Reconnaissance Briefing on the April 2015 Gorkha (Nepal) Earthquake,* "Structures and Data Collection." UC Berkeley, August 13, 2015, Berkeley, California. (*Presentation slides and video copy available online: http://peer.berkeley.edu/events/wp-content/uploads/2015/07/03-PEER_Barbosa_2015_Aug13_FINAL.pdf. (Attended by 80 in-room participants and more than 600 participants online live*)
36. Invited Talk, *National Science for Earthquake Technology – Nepal,* "Field Work Closing Seminar". NSF RAPID/NSET, July 2, 2015, Kathmandu, Nepal.
37. Invited Talk, *10th Annual Energy & Construction Best Practices Summit* - Clean Tech. - Washington's WISE Future, "Designing for Resilience in the Pacific Northwest." Center of Excellence for Clean Energy, May 29, 2015, Tacoma, Washington.
38. Invited Talk, *Monthly Meeting of the Cascade Chapter of The American Society of Safety Engineers, "*Oregon Resilience Plan and Current Status of the Implementation Task Force." The American Society of Safety Engineers, May 19, 2015*,* Eugene, Oregon.
39. Invited Talk, *AWC Meeting "*Hybrid CLT Project." American Wood Council, April 21, 2015, Portland, Oregon.
40. Invited Talk, *EERI 2015 Annual Meeting*, "Review of Post-hazard event Safety Evaluation Procedures for Civil Infrastructure." EERI, March 31-April 3, 2015, Boston, Massachusetts.
41. Poster, *EERI 2015 Annual Meeting*, "Multi-Objective Loss Assessment of Oregon Bridges due to Seismic Hazards. EERI, March 31-April 3, 2015, Boston, Massachusetts.
42. Invited Talk, *LCUCC monthly lunch meeting,* "Lessons Learned from Recent Earthquakes: Implications for Oregon." Lane County Utilities Coordinating Council, November 2014, Springfield, Oregon. (*Presented to 40 members of the LCUCC)*
43. Invited Talk, *EERI – PEER Reconnaissance Briefing on the Aug 24, 2014 South Napa Earthquake*, "Structures." UC Berkeley, September 15, 2014. (*Presentation slides and video copy available online: http://www.eqclearinghouse.org/2014-08-24-south-napa/files/2014/08/4-EERI-PEER-Briefing-Structures-Barbosa.pdf. (Attended by 80 in-room participants and more than 1,100 participants online live*)
44. Invited Talk, *NEES Quake Summit,* "Integration of Simulation Data Within the NEES Project Warehouse – NEES Research." Earthquake Engineering Research Institute, July 21-25, 2014, Anchorage, Alaska. (*Closing session of NEES Quake Summit – attended by 20 people*)
45. Contributed Talk, *10th National Conference on Earthquake Engineering,* "Effects of Earthquake Ground-motion Duration on the Response of a 9-story Steel Moment Resisting Frame." Earthquake Engineering Research Institute, July 21-25, 2014, Anchorage, Alaska.

46. Contributed Talk, *10th National Conference on Earthquake Engineering,* "Developing a soil bridge-interaction model for studying the effects of long-duration earthquake motions." July 21-25, 2014, Anchorage, Alaska.
47. Contributed Talk, *10th National Conference on Earthquake Engineering,* "Numerical Modeling of URM Infill Walls Retrofitted with Embedded Reinforcing Steel." Earthquake Engineering Research Institute, July 21-25, 2014, Anchorage, Alaska.
48. Contributed Talk, *International Conference on Coastal Engineering, Seoul, Korea*. "Tsunami Loadings on Structures: Review and Analysis." July 2014.
49. Contributed Talk, SWST 2014 International Convention, "Cross Laminated Timber Panels Using Hybrid Poplar." International Society of Wood Science & Technology (*SWST*), June 23-27, 2014, Zvolen, Slovakia.
50. Contributed Talk, 34th *International Conference of Coastal Engineering*, "Tsunami Loadings on Structures: Review and Analysis." Coastal Engineering Research Council of the COPRI of the American Society of Civil Engineers, June 15-20, 2014, Seoul, Korea.
51. Contributed Talk, *Construction Research Congress 2014,* "Mapped Workflow for Safety and Reliability Assessments of Use and Re-use of Formwork." ASCE*,* May, 19-21, Atlanta. Georgia. *(Presented by Ph.D. Student A.C. Pestana)*
52. Poster Presentation, *OSU CCE/MIME Graduate Research Exposition,* "Hybrid CLT panels for sustainable building solutions." Oregon State University, March 6, 2014, Portland, Oregon. (*Awarded First Place – Presented by Ph.D. student Vahid Mahdavifar*)
53. Poster Presentation, *OSU CCE/MIME Graduate Research Exposition,* "Manufacturing hybrid Cross Laminated Timber (CLT) panels." Oregon State University, March 6, 2014, Portland, Oregon. (*Presented by Ph.D. student Vahid Mahdavifar*)
54. Contributed Talk, *IMAC XXXII, A Conference and Exposition on Structural Dynamics,* "Nonlinear Identification of a Seven-story Shear Wall Building Based on Numerically Simulated Seismic Data." Society for Experimental Mechanics, February 3-6, 2014, Orlando, Florida.
55. Invited Talk, *OpenSees Days 2013,* "Modeling of Frame Structures in Fire." PEER and NEES, August 26-27, 2013. Berkeley, California*.* (A*ttended by 20 people live, YouTube video has been seen by 650+ viewers*)
56. Invited Talk, *NEES Quake Summit,* "NEES/OSG: Experiences in the use of "opportunistic" computing resources." NEES, August 7-8, 2013, Reno, Nevada. *(attended by 20 people)*
57. Contributed Talk, *11th International Conference on Structural Safety & Reliability, ICOSSAR 2013.* "Reliability-Based Robustness Assessment of Structures Subjected to Post-Mainshock Hazard Events." International Association for Structural Safety and Reliability, June 16-20, 2013, New York.
58. Contributed Talk, *First International Conference on Performance-Based and Life-Cycle Structural Engineering (PLSE 2012).* "Preliminary Proposal for Performance-Based Structural Engineering for Fire Following Earthquake." FCE and RISUD, December 5-7, 2012, Hong Kong.
59. Invited Talk, *2012 PEER Annual Meeting,* "Vector-valued Probabilistic Seismic Hazard Analysis and Probabilistic Seismic Demand Analysis Application to the 13-story NEHRP Reinforced Concrete Frame-Wall Building Design Example." PEER, October 2-7, 2012. Berkeley, California*.*
60. Contributed Talk, *15th World Congress on Earthquake Engineering (15WCEE),* "Seismic Robustness Assessment of Code Compliant Steel Moment Resisting Frame under Seismic

Triggered Sequences of Events." The International Association of Earthquake Engineering, September 24-28, 2012, Lisbon, Portugal. (presented by co-advised Ph.D. student Filipe Ribeiro)

61. Contributed Talk, *2012 Joint Conference of the Engineering Mechanics Institute and the 11th ASCE Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability.* "Identifying the Hysteretic Models of Structural Elements using Instantaneous Modal Parameters." EMI, ASCE, June 17-20, 2012, Notre Dame, Indiana. (presented by Babak Moaveni)
62. Invited Talk, *2011 PEER Annual Meeting,* "High Fidelity Nonlinear Building Simulation and Use of Open Science Grid." PEER, Sept. 30-Oct. 1, 2011, Berkeley, California.
63. Keynote talk, *2nd International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN 2009).* "System and Damage Identification Studies of a Seven-Story Reinforced Concrete Building Structure Subjected to Shake Table Tests." CERTH, June 22-24, 2009, Rhodes, Greece. (Presented by Joel Conte)
64. Contributed Talk, *First International Conference on Parallel, Distributed and Grid Computing Engineering,* "Use of High Performance Computing for Probabilistic Seismic Response Sensitivity Analyses of a Building Structure." Civil-Comp Press, April 6-8, 2009, Pécs, Hungary. (*Presented by Marco Faggella*).
65. Invited Talk, *Sixth International Conference on Urban Earthquake Engineering,* "Comparison of Dynamic Strut-and Tie and Fiber Beam-Column Models for the UCSD Seven-Story Full-scale Building Slice Test." CUEE*,* March 3-4, 2009, Tokyo, Japan.
66. Contributed Talk, *27th International Modal Analysis Conference (IMAC-XXVII).* "Uncertainty Analysis of Identified Damping Ratios in Nonlinear Dynamic Systems." Society for Experimental Mechanics, February 9-12, 2009, Orlando, Florida. (*Presented by Babak Moaveni*).
67. Contributed Talk, *Seismic Engineering International Conference,* "Seismic Assessment of R/C Building Structure through Nonlinear Probabilistic Analysis with High-performance Computing." MERCEA08*,* June 24-27, 2008, Messina and Reggio Calabria, Italy. (*Presented by Marco Faggella*).
68. Contributed Talk, *Convegno "Valutazione e riduzione della vulnerabilità sismica di edifici esistenti in cemento armato",* "Probabilistic Seismic Response Sensitivity Analysis of a 3-D Nonlinear Model of a Building Structure." May 29-30, 2008, Rome, Italy. (*Presented by Marco Faggella*).
69. Contributed Talk. "Bridge Abutment Interaction under Seismic Loading." *SCAMI-2,* November 19-21, 2007, Changsha, China. (*Presented by Marco Faggella*).
70. Contributed Talk, *7th Congresso de Sismologia e Engenharia Sísmica,* "Modelação Numérica de Pontes Incluindo Interacção Encontro-Superestrutura." Sociedade Portuguesa de Engenharia Sísmica, September 26-28, 2007, Porto, Portugal. (*Presented by Laura Caldeira*).
71. Contributed Talk, *25th International Modal Analysis Conference (IMAC-XXV).* "Uncertainty Analysis of Modal Parameters Obtained from Three System Identification Methods." SEM, Feb. 19-22, 2007. (*Presented by Joel Conte*).
72. Contributed Talk, *Congreso de Métodos Numéricos en Ingeniería 2005,* "Utilização de um Modelo Híbrido-Misto na Análise Dinâmica de Estruturas Reticuladas Planas." SEMNI and APMTAC, July 4-7, 2005, Granada, Spain. (*Presented by Mario Silva*).
73. Contributed Talk, *IX International Conference on Civil and Structural Engineering Computing, CC2003,* "Implementation of a Hybrid-Mixed Stress Model Based on the Use of Wavelets." Civil-Comp press. September, 2-4 2003, Egmond-aan-Zee, Netherlands. (*Presented by Luis Castro*).

C2.2. Participation at Invitational Workshops

1. Keynote Talk, *Seminar Lessons Learned – 2017 Mexico City Earthquake*. "Performance of Critical Buildings (Schools, Hospitals)." Oregon State University, February 1, 2018, Corvallis, Oregon, USA.
2. Keynote Talk, *OpenSees Days Europe*, "Use of OpenSees for the development of physics-based tsunami fragility functions." First European Conference on Opensees, June 19-20, 2017, Porto, Portugal.
3. Keynote Talk, *OpenSees Days Europe*, "Dynamic Analysis with Examples – Seismic and Tsunami Loadings." Workshop on Multi-Hazard Analysis of Structures using OpenSees, July 3-4, 2014, Porto, Portugal.
4. Keynote Talk, *OpenSees Days Europe*, "Uncertainty and Sensitivity Analysis using High-throughput Computing (HTC) and High-performance Computing (HPC)." Workshop on Multi-Hazard Analysis of Structures using OpenSees, July 3-4, 2014, Porto, Portugal.

C3. Grant and Contract Support

Agency & Dates	*PI (and coPIs)*	*Title*	*Total Budget*	*My Share*
US Economic Dev. Admin.	**Barbosa, A.R.,** Higgins, C.	Design and Testing of a Pier-and-Spandrel CLT Solution	$70,000	$35,000
USDA Agricultural Research Service	Fischer, E. **Barbosa, A.R.,** Sinha, A.	Fire Performance of Cross-Laminated Timber-Concrete Composite Floors	$250,000	$75,000
USDA Agricultural Research Service	Sinha, A., Morell, J., **Barbosa, A.R.,** Nairn, J.	Water in Mass Timber: How Could That Ever Happen?	$250,000	$62,500
USDA Agricultural Research Service	**Barbosa, A.R.**	Impact of Moisture on the Cyclic Performance of a Two-Story Post-Tensioned CLT Rocking Wall with External Hysteretic Energy Dissipators	$25,000	$25,000
NSF CMMI 7/17 – 6/20	**Cox, D.T.** Barbosa, A.R.	Collaborative Research: Wave, Surge, and Tsunami Overland Hazard, Loading and Structural Response for Developed Shorelines	$385,882	$192,241
NCHRP 7/17 – 6/18	**Barbosa, A.R.**, Trejo, D.	Project 20-07/Task 402: Improved Reinforced Concrete Interface Shear	$95,000	$47,500

		Design and Detailing for LRFD Specifications		
ODOT 2/17 – 2/19	**Barbosa, A.R.**, Trejo, D.	Performance of High-Strength Steel Reinforcement in Shear Friction Applications	$400,000	$200,000
USDA Agricultural Research Service 6/17 – 5/20	**Barbosa, A.R.**, Sinha, A., Higgins, C.	Seismic Performance of CLT and CLT-Concrete Composite Floor Diaphragms	$250,000	$84,000
USDA Agricultural Research Service 6/17 – 5/20	Higgins, C., Sinha, A., **Barbosa, A.R.**	Composite Concrete-CLT Floor Systems for Tall Building Design	$250,000	$84,000
USDA Agricultural Research Service 6/17 – 5/20	Riggio, M., **Barbosa, A.R.,** Wymelenberg, K.	Living Lab @ Peavy Hall: Structural Health Performance of Mass Timber Buildings	$156,331	$52,110
USDA Agricultural Research Service 7/16 – 6/19	Riggio, M., **Barbosa, A.R.,** Van Den Wymelenberg, K.	SMART-CLT – "Structural Health Monitoring and Post-Occupancy Performance of Mass Timber Buildings."	$147,497	$36,874
KPFF Consulting Engineers	**Barbosa, A.R.**, Sinha, A., Higgins, C.	Structural Testing for the Framework Project	$109,224	$36,408
Oregon DOT 1/16 – 12/17	Higgins, C., **Barbosa, A.R.**	Development of Titanium Seismic Retrofits for Deficient Concrete Columns	$400,000	$200,000
Skidmore, Owings & Merrill, SOM 10/15 – 9/16	**Barbosa, A.R.,** Higgins, C.	Composite Long-span Mass-timber Floor System for Building Applications	$48,000	$24,000
NSF ENH 7/2015 – 6/2016	**Barbosa, A.R.,** Olsen, M., Stavridis, A.	RAPID/Collaborative Research: Post-Disaster, Reinforced Concrete Building Performance Data Collection following the April 25, 2015 Nepal Eqke	$81,326	$28,643
NIST 2/15 – 1/20	Cox, D., Scott, M.H., **Barbosa, A.R.**	NIST Center of Excellence in Community Resilience	$1,147,532	$344,260

Cascadia Lifeline Prog. 10/15 – 12/16	**Barbosa, A.R.**	Cost-Effective Improvements in Seismic Performance of Legacy Infrastructure (Year 3)	$48,961	$48,961
PacTrans 6/15 – 5/16	**Barbosa, A.R.** and Stuedlein, A.	Torsional Safety of Highway Traffic Signal and Signage Support Structures	$20,971	$11,000
Oregon DOT 09/14-10/15	Stuedlein, A. and **Barbosa, A.R.**	Shafts in Torsion	$60,000	$20,000
Oregon BEST 10/14-08/16	Muszynski, L., **Barbosa, A.R.**, Sinha, A., and Gupta, R.	Commercialization of Cross Laminated Timber Panels Production in Oregon	$150,000	$37,500
Cascadia Lifeline Prog. 10/14 – 09/15	**Barbosa, A.R.**	Cost-Effective Improvements in Seismic Performance of Legacy Infrastructure (Year 2)	$92,961	$92,961
USDA NIFA 01/14-08/16	Muszynski, L., **Barbosa, A.R.**, Sinha, A., and Gupta, R.	Hybrid Cross-Laminated Timber Panels for Sustainable Building Solutions	$289,631	$72,485
NAS/NCHRP 11/13-11/15	Olsen, M. and **Barbosa, A. R.,** Veletzos, M., Chen, Z.	NCHRP 14-29: Assessing, Coding, and Marking of Highway Structures in Emergency Situations (Phase II)	$299,655	$150,000
NAS/NCHRP 11/13-11/15	Olsen, M. and **Barbosa, A.R.,** Veletzos, M. Chen, Z.	NCHRP 14-29: Assessing, Coding, and Marking of Highway Structures in Emergency Situations (Phase I)	$100,000	$50,000
CalTrans 11/13 – 08/15	**Barbosa, A.R.** and Ashford, S.	Assessment of Soil Arching Factor for Retaining Wall Pile Foundations (Phase 1)	$185,257	$92,629
Cascadia Lifeline Prog. 10/13-09/14	**Barbosa, A.R.**	Cost-Effective Improvements in Seismic Performance of Legacy Infrastructure (Year 1)	$48,961	$48,961
PACTRANS 9/13 – 12/14	**Barbosa, A.R.** and Trejo, D.	High-Performance Bridge Systems for Lifeline Corridors in the Pacific Northwest	$100,000	$50,000
Oregon DOT 9/13 – 12/15	**Barbosa, A.R.** and Trejo, D.	High Strength Steel Reinforcement for Bridges	$135,000	$67,500

PACTRANS 9/13 – 10/14	Mason, H.B. and **Barbosa, A.R.**	SSI Bridge 2: Evaluation of Soil-structure Interaction Effects on PNW Bridges	$20,000	$10,000
CPWR / NIH 07/13 – 06/14	Gambatese, J. and **Barbosa, A.R.**	Use and Re-use of Formwork: Safety Risks and Reliability Assessment	$29,925	$14,963
PACTRANS + ODOT 9/12 – 12/13	Trejo, D. and **Barbosa, A.R.**	Inspection, Assessment, Monitoring, and Renewal Strategies for Structures on Critical Lifeline Corridors	$180,000	$90,000
PACTRANS 9/12 – 8/13	**Barbosa, A.R.** and Mason, H.B.	SSI Bridge: Evaluation of Soil-structure Interaction Effects on PNW Bridges	$44,727	$22,363
		Totals	**$5,647,114**	**$2,294,496**

C3.1. Donations

Year	*Source*	*Donation*	*Approx Value*
2014	Perryman Company	Strengthening of Civil Infrastructure (50% for C. Higgins and 50% my share)	$115,000

C3.2. Proposals Currently under Review

Agency	*PI (and co-PIs)*	*Title*	*Budget*	*Duration*
Oregon State University	Fischer, E. Barbosa, A.R., Liu, J.	Innovation Grant on Experiential Structural Fire Engineering Learning	$9,431	1 year
NSF	Olsen, M.J. Barbosa, A.R.	Collaborative Research: Enabling Robust Post-Event Building Damage Assessment by Engaging Remote Experts	$325,000	3 years

C4. Patents Filed and In Process

None

C5. Other Scholarship and Creative Activities

C5.1. Non-refereed Conference Proceedings

1. Barbosa, A.R., Castro, L.M.S.S., (2003). "Resolução de Problemas de Elasticidade com Wavelets no Intervalo." *VII Encontro Nacional de Mecanica Aplicada e Computacional,* APMTAC, Évora, Portugal.
2. Barbosa, A.R., Castro, L.M.S.S., (2011). "Wavelets on the Interval - Application to elasticity problems, *Ondelettes et équations aux dérivées partielles*, Luminy, Marseille, France.

C5.2. Conference Abstracts

1. Barbosa, A.R., Sinha, A., Higgins, C., Rodrigues, L., Zimmerman, R., McDonnell, E., Breneman, S., Pei, S., van de Lindt, J., Berman, J., Branco, J., **DeMeza, B.** (2018). "Design and Shake-Table Experimental Results of CLT and CLT-Concrete Composite Diaphragms." World Conference on Timber Engineering, August 20-23,2018, Seoul, Rep. of Korea. (Abstract submitted).
2. Barbosa, A.R., **Rodrigues, L.G.**, Sinha, A., Higgins, C., DeMeza, B., Zemmerman, R., Breneman S., Pei, S., van de Lindt, J.W., Berman, J., McDonnell, E. , Branco, J.M., Neves, L.A.C., (2018). "Numerical Modeling of CLT And CLT-Concrete Composite Diaphragms Tested on A Shake Table Experiment." World Conference on Timber Engineering, August 20–23, 2018, Seoul, Republic of Korea. (Abstract submitted).
3. **Rodrigues, L.G.**, Branco, J.M., Neves, L.A.C., Barbosa, A.R. (2018). "Fragility Analysis of A Heavy-Timber Frame Structure with Ring-Doweled Moment-Resisting Connections." World Conference on Timber Engineering, August 20–23, 2018, Seoul, Republic of Korea. (Abstract submitted).
4. Cox, D.T., Park, H., **Alam, M.S**., Barbosa, A. R. (2018). "Probabilistic tsunami hazard assessment and damage estimation of the built environment: Application to the Cascadia Subduction Zone and Seaside, OR." *36th International Conference on Coastal Engineering*, July 30 - August 3, 2018, Baltimore, Maryland. (Abstract submitted).
5. Lomonaco, P., **Alam, M.S.**, Arduino, P., Barbosa, A.R, Cox, D., Do, T., Eberhard, M.O., Motley, M.R., Shekhar, K., Tomiczek, T., Park, H., van de Lindt, J.W., Winter, A.O. (2018). "Experimental Modeling of Wave Forces and Hydrodynamics of Elevated Coastal Structures Subjected to Waves, Surge or Tsunamis: The Effect of Breaking, Shielding And Debris." *36th International Conference on Coastal Engineering*, July 30 - August 3, 2018, Baltimore, Maryland. (Abstract submitted).
6. Misra, S., Padgett, J.E., Barbosa, A.R., Webb, B. (2018). "Post-Earthquake Restoration Modelling of Roadways and Bridges – A survey based approach." *Eleventh U.S. National Conference on Earthquake Engineering,* June 25-29, 2018, Los Angeles, CA. (Abstract submitted).
7. Berman, J., Wichman, S., Pei, S., van de Lindt, J., Barbosa, A., Dolan, J., Blomgren, H., McDonnell, E., Zimmerman, R. (2018). "Dynamic Testing and Analysis of Multi-Story Rocking Cross Laminated Timber Walls." *Eleventh U.S. National Conference on Earthquake Engineering,* June 25-29, 2018. Los Angeles, CA. (Abstract submitted).
8. Pei, S., Lindt, J.W., Berman, J., Barbosa, A.R., Ricles, J., Sause, R., Dolan, J., Ryan, K., Blomgren, H. McDonnell, E., Zimmerman, R., Robinson, T., Rammer, D., Buchanan, A. and Popovski, M. (2018). "NHERI Tallwood investigative testing: Full-scale shake table test of a two-story mass-timber building. *Eleventh U.S. National Conference on Earthquake Engineering,* June 25-29, 2018. Los Angeles, CA. (Abstract submitted).
9. **Kameshwar, S.**, Barbosa, A.R., Cox, D. (2018). "Surrogate Model Based Tsunami Fragility and Sensitivity Analysis of a Three Story Steel Building." *ASCE Engineering Mechanics Institute Conference 2018*, May 29 - June 1, Cambridge MA (Abstract submitted).
10. Cox, D.T., Barbosa, A.R., Park, H., **Alam, M.S.** (2018). "A Probabilistic Framework for Seismic and Tsunami Community Loss Assessment." *ASCE-SEI Structures Congress*, ASCE-SEI, April 19–21, 2018, Fort Worth, Texas. (Abstract submitted).
11. Barbosa, A.R., Higgins, C., Sinha, A., **Rodrigues, L.**, **DeMeza, B.** (2018). "Seismic Design and Response of CLT and CLT-Concrete Floor Diaphragms." *ASCE-SEI Structures Congress*, ASCE-SEI, April 19–21, 2018, Fort Worth, Texas. (Abstract submitted).

12. **DeMeza, B.**, Barbosa, A.R., Sinha, A., Higgins, C. (2018). "Design and Shake-Table Experimental Results of CLT and CLT-Concrete Composite Diaphragms." *Poster,* International Mass Timber Conference, March 20-22, Portland, OR.
13. O'Banion, M.S., Olsen, M.J., Barbosa, A.R. (2017). "Post-Earthquake Damage Assessment of a UNESCO Heritage Site in Nepal Using Lidar and a Virtual Reality Visualization Environment." *International Workshop on Computing in Civil Engineering (IWCCE 2017)*, ASCE, Seattle, WA.
14. **Mahdavifar, V.**, Barbosa, A.R., Sinha, A., Muszynski, L., Gupta, R. (2017). "Lateral and Withdrawal Capacity of One Screw Type on Hybrid Cross Laminated Timber Panel Applications." *71st International Convention*, Forest Products Society, June 26-28, 2017, Starkville, Mississippi
15. Attary N., van de Lindt J.W., Barbosa A.R., Cox D.T. and Unnikrishnan V.U.. (2017). "Performance-Based Risk Assessment of Structures Subjected to Multi-Hazard Case of Tsunamis Following Earthquakes." *ASCE Engineering Mechanics Institute 2017 Conference*, ASCE, June 4-7, San Diego, CA.
16. Barbosa A. R., **Soti, R.** (2017). "Three-Dimensional Numerical Evaluation of Masonry Walls Retrofitted with Near Surface Mounted Reinforcing Steel Bars." *ASCE Engineering Mechanics Institute 2017 Conference*, ASCE, June 4-7, San Diego, CA.
17. **Rodrigues, L.**, Branco, J., Neves, L., Barbosa, A.R. (2017). "Robustness of Multi-Story Timber Buildings in Seismic Regions." *Third INFRARISK- Summer Workshop*, LNEC, Lisbon, Portugal.
18. Attary, N., van de Lindt, J.W., Barbosa, A.R., Cox, D. T., Unnikrishnan, V. (2017) "Performance-Based Risk Assessment of Structures Subjected to Multi-Hazard Case of Tsunamis Following Earthquakes." *ASCE Engineering Mechanics Institute 2017 Conference*, ASCE, June 4-7, San Diego, CA.
19. **Alam, M.S.**, Barbosa, A.R., Park, H., Cox, D. (2017). "Probabilistic Seismic and Tsunami Hazard Analysis (PSTHA) Conditional on A Mega-Thrust Rupture of The Cascadia Subduction Zone." *2017 EERI annual meeting*, March 7-10, Portland, OR.
20. **Soti R.**, Barbosa, A.R., Jaho G., Mortola, E. A., Lagomarsino S., Cattari S. (2017). "New Generation Fragility Functions for Unreinforced Masonry Buildings: Application to the City of Portland, Oregon." *EERI annual Meeting*, on March 7-10, Portland, OR.
21. **Mahdavifar, V.**, Barbosa, A.R., Sinha, A., Muszynski, L., Gupta, R. (2016). "Shear and Withdrawal Capacity of Fasteners on Hybrid Cross-Laminated Timber Panels." *70th International Convention- Forest Products Society,* June 26-29, 2016, Portland, OR.
22. Larkin B., Muszynski, L., Barbosa, A.R., Sinha, A., Gupta, R. (2016). Effective bonding parameters for hybrid cross-laminated timber (CLT) layups. *70th International Convention-* Forest Products Society*,* June 26-29, 2016, Portland, OR.
23. **Alam, M.S.**, Barbosa, A.R. (2016). "Infill Strut Model Class Uncertainty of Seismic Response of Reinforced Concrete Masonry Infilled Frames." *ASCE Engineering Mechanics Institute Conference*, ASCE, May 22-25, 2016, Nashville, TN.
24. Chang, W.Y., Nozari, A., **Alam, M.S.**, Stavridis, A. Moaveni, B., Barbosa, A.R., Wood, R.L. (2016). "Structural Identification and Modeling of a Three-Story School Building Damaged During the 2015 Gorkha Earthquake." *EMI 2016, ASCE Engineering Mechanics Institute Conference*, ASCE, May 22-25, 2016, Nashville, TN.
25. Huffman, J.C., Barbosa, A.R., Stuedlein, A.W. (2016). "Simulation Framework for Reliability-based Serviceability Assessments of Multi-Story Steel-framed Structures Supported on Spatially-variable Soil." *ASCE Geotechnical & Structural Engineering Congress*, ASCE, Phoenix, AR.

26. **Soti, R.**, Barbosa, A.R., Stavridis, A. (2015). "Analytical and Experimental Study of Seismic Performance of URM Walls and Infilled RC Frames Retrofitted with Near Surface Mounted Steel Bars." *2nd Conference on Improving the Seismic Performance of Existing Buildings,* ATC-SEI, Dec. 10-12, San Francisco, CA.
27. Larkin, B., Muszynski, L., Sinha, A., Barbosa, A.R., Gupta, R. (2015). "Effective adhesive systems and optimal bonding parameters for hybrid CLT."*58th SWST International Convention. Renewable Materials and the Bio-Economy,* SWST, June 7-12, Jackson Lake Lodge, Grand Teton NP, Jackson, WY
28. Sinha A., Barbosa, A.R., **Kramer, A.** (2015). "Design and Performance of Steel Energy Dissipators to be Used in Cross-Laminated Timber Self-Centering Systems." *58th SWST International Convention. Renewable Materials and the Bio-Economy*, SWST , June 7-12, Jackson Lake Lodge, Grand Teton NP, Jackson, WY (*corresponding author; primary advisor of MS student author*)
29. **Alam, M.**, Barbosa, A.R. (2015). "Modeling Uncertainties in Reinforced Concrete Masonry Infilled Frames." *Poster, ASCE Structures Congress,* ASCE, Portland, OR.
30. Mason, H.B., Barbosa, A.R., **Carey, T.**, Scott, M. (2015). "Tsunami bore impact on soil-bridge systems." *Oral Presentation, ASCE Structures Congress,* ASCE*,* Portland, OR.
31. Asgarieh, E., Moaveni, B., and Barbosa, A. R. (2015). "Probabilistic Nonlinear Identification of a Shear Wall using Time and Frequency Data." *IMAC XXXIII,* Society for Experimental Mechanics, February 2015, Orlando, FL.
32. **Belejo, A.**, Barbosa, A.R. (2014). "Mainshock – Aftershock Interaction Diagram for a 3D Plan-Asymmetric Structure." *11th World Congress on Computational Mechanics (WCCM XI)*, International Association for Computational Mechanics, July 2014, Barcelona, Spain.
33. **Kramer, A.K.**, Sinha, A., Barbosa, A.R. (2014). "Cross-Laminated Timber Panels Using Hybrid Poplar." *57th International Convention of Society of Wood Science and Technology,* Society of Wood Science and Technology, June 23-27, Zvolen, Slovakia, 321-322.
34. Conte, J. P., Moaveni, B., He, X., and Barbosa, A.R. (2009). "System and Damage Identification Studies of a Seven-Story Reinforced Concrete Building Structure Subjected to Shake Table Tests." *2nd International Conference on Computational Methods in Structural Dynamics and Earthquake Engineering (COMPDYN 2009)*, The International Association for Computational Mechanics, June 22-24, Rhodes, Greece.

C5.3. Press

1. CBS 8 News, San Diego, California (2017). "Engineers test new building material on world's largest quake simulator. URL: http://www.cbs8.com/story/35889987/engineers-test-new-building-material-on-worlds-largest-quake-simulator#.WWmaygjItes.twitter (accessed, 2017/7/31).
2. Chalmers, K., KGW News, Oregon (2017). "Tests show timber buildings do well in quakes"; URL: http://api.tegna-tv.com/video/v2/play/1283002663400/283/progressive?subscription-key=ad03606241d049e0b478145b70de72e2 (accessed, 2017/7/31).
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4. KTVZ News, Oregon (2017). "Test to see how special wood structures fare in quakes Cross-laminated timber to get seismic check." URL: http://www.ktvz.com/news/test-to-see-how-special-wood-structures-fare-in-quakes/585971852 (accessed, 2017/7/31).

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6. NBC 10 News, San Diego, California (2017) “Researchers studying whether wood can stand up to Mother Nature's worst earthquakes.” URL: http://www.10news.com/news/researchers-studying-whether-wood-can-stand-up-to-mother-natures-worst-earthquakes (accessed, 2017/7/31).
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    This news piece and video was published in several other news outlets including:

    a. New York Times
    b. Boston Herald
    c. Chicago Tribune
    d. Washington Post

e. Miami Herald
f. San Francisco Chronicle
g. Seattle Post-Intelligencer
h. Several TV stations in Oregon and Washington, e.g. KTVZ http://www.ktvz.com/

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31. OSU Building Together, Industry Newsletter, (2012). "Welcome New Faculty." https://goo.gl/P3QHEP (accessed: 2017/6/27)
32. International Urban Earthquake Engineering Center for Mitigating Seismic Mega Risk (2009). "CUEE/PEER Young Researchers Workshop." https://goo.gl/QNPwzM (accessed: 2017/6/27).
33. PEER NEWS, (2009). "PEER Students attend CUEE Conference and Visit E-Defense Shaking Table in Japan." https://goo.gl/xEoSAe (accessed: 2017/6/27).

C5.4. Guest Lectures and Other Presentations

1. Barbosa, A.R. (2015). "Earthquake and Tsunami Loss Assessment." *University of Porto, Faculdade de Engenharia*, November 2015.

2. Barbosa, A.R. (2015). "PEER-EERI-GEER Reconnaissance Briefing on the April 25, 2015 Nepal Earthquake." *UC Berkeley and live broadcast to the world* (presentation paper and video copy available online)
3. Barbosa, A.R. (2014). "EERI-PEER Reconnaissance Briefing on the August 24, 2014 South Napa Earthquake." *UC Berkeley and live broadcast to the world* (presentation paper and video copy available online)
4. Barbosa, A.R. (2014). "EERI-PEER Reconnaissance Briefing on the August 24, 2014 South Napa Earthquake." *UC Berkeley and live broadcast to the world* (presentation paper and video copy available online)
5. Barbosa, A.R. and Ashford, S. (2014). "Lessons Learned from Recent Earthquakes: Implications for Oregon." *Presentation at the Lane County Utilities Coordinating Council*. November 2014
6. Barbosa, A.R., Birely, A, Hacker, T., Lowes, L., Pordes, R. and Gazorglio, G. (2014). "Integration of Simulation Data within the NEES Project Warehouse – NEES Research." *NEES Quake Summit*, Anchorage, Alaska, July 2014
7. Barbosa, A.R. (2013). "NEES/OSG: Experiences in the use of "opportunistic" computing resources." *NEES Quake Summit*, Reno, Nevada, August 2013
8. Barbosa, A.R., Rosario, R., and Neves, L.A.C. (2013). "Modeling of Frame Structures in Fire." *OpenSees Days 2013, UC Berkeley*, August 2013
9. Barbosa, A.R., Conte, J.P., Restrepo, J.I., Baker, J.W. (2012). "Vector-valued Probabilistic Seismic Hazard Analysis and Probabilistic Seismic Demand Analysis Application to the 13-story NEHRP Reinforced Concrete Frame-Wall Building Design Example." *PEER Annual Meeting, Berkeley,* CA, August 2012
10. Barbosa, A.R., Conte, J.P., Restrepo, J.I., Baker, J.W. (2011). "High Fidelity Nonlinear Building Simulation and Use of Open Science Grid." *PEER Annual Meeting, Berkeley, CA*., August 2011

C5.5. Refereed Publications Under Review and Under Preparation

Archival Journals Under Review

1. **Alam, M.S.**, Winter, A., **Galant, G.**, Shekhar, K., Motley, M., Barbosa, A.R., Eberhard, M.O., Cox, D.T., Arduino, P., Lomonaco, P. (201X). "Tsunami-like Wave Induced Lateral and Uplift Pressures and Forces on an Elevated Coastal Structure." *ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering.* (Submitted Fall 2018).
2. Winter, A., **Alam, M.S.**, Shekhar, K., Motley, M., Eberhard, M.O., Barbosa, A.R., Lomonaco, P., Arduino, P., Cox, D.T. (201X). "Tsunami-like Wave Forces on an Elevated Coastal Structure: Effects of Flow Shielding and Channeling." *ASCE Journal of Waterway, Port, Coastal, and Ocean Engineering.* (Submitted Fall 2018).
3. Schmidt, E., Riggio, M., Barbosa, A.R. (201X). "Environmental Response of A CLT Floor Panel: Lessons for Moisture Management and Monitoring of Mass Timber Buildings." *Building and Environment*. (Submitted Summer 2018).
4. **Soti, R.**, Barbosa A.R. (201X). "Experimental and Applied Element Modeling of Masonry Walls Retrofitted with Near Surface Mounted (NSM) Reinforcing Steel Bars." *Bulletin of Earthquake Engineering* (Submitted Summer 2018).

5. **Feras, K.**, Barbosa, A.R., Ideker, J. (201X). "Cyclic Behavior of High-Performance Fiber-Reinforced Cementitious Composites." *ASCE Journal of Materials in Civil Engineering*. (*Submitted February 2018*).
6. Li, Q., Stuedlein, A.W., Barbosa, A.R. (201X). "Role of Torsional Shear in Combined Loading of Drilled Shaft Foundations." *ASCE Journal of Geotechnical and Geoenvironmental Engineering.* (*Submitted January 2018*).
7. **Mahdavifar, V.**, Barbosa, A.R., Sinha, A. (201X). "Experimental and Numerical Modelling for Out-of-Plane Response Prediction of Cross-Laminated Timber Panels." *Wood Material Science and Engineering* (*Submitted November 2017*).
8. Barbosa, A.R., Mason, H.B., **Soti, R.** (201X). "The 2014 South Napa, California Earthquake: Performance and Restoration Times of Unreinforced Masonry Buildings." *Journal of Earthquake Engineering.* (*Submitted Fall 2016; Accepted pending revisions; revisions to be submitted Fall 2018*).
9. **Burns, P.**, Barbosa, A.R., Olsen, M., Wang, H. (201X). "Multi-hazard Damage and Loss Assessment of a Highway Bridge Network Subjected to Earthquake and Tsunami Hazards." *ASCE Natural Hazards Review*. (*Submitted Fall 2016; Accepted pending revisions; revisions to be submitted Winter 2018*).

Archival Journals Under Preparation

1. **Hussain, S.B.**, **Belejo, A.**, and Barbosa, A.R. (201X). "Evaluation of Seismic Response Directional Combination Rules for Existing Plan Irregular Reinforced Concrete Buildings." To be submitted to *Bulletin of Earthquake Engineering* (Being prepared for submission in Spring 2018).
2. Park, H., Cox, D., **Alam, M.S.**, Barbosa, A.R. (201X). "Multi-Hazard Damage Assessment of Building Portfolio for Earthquake and Tsunami Cascading Events: Application to Seaside, OR." To be submitted to *Earthquake Spectra* (Being prepared for submission in Spring 2018).
3. **Mugabo, I.**, Barbosa, A.R., Riggio, M., Schmidt, E.L. (201X). "Dynamic Testing and Characterization of Cross-Laminated Timber Floor Section." To be submitted to *ASCE Journal of Architectural Engineering* (Being prepared for submission in Spring 2018).
4. Shekhar, K., **Alam, M.S.**, Arduino, P., Motley, M., Cox, D.T., Miller, G., Eberhard, M.O., Barbosa, A.R. (201X). "Experimental Evaluation of Tsunami Debris Damming and Impact Forces." To be submitted to *Earthquake Engineering and Structural Dynamics.* (Being prepared for submission in Spring 2018).
5. **Mugabo, I.**, Barbosa A.R., Riggio, M., Schmidt, E.L. (201X). "Ambient vibrations testing of a four-story building." (Being prepared for submission in Spring 2018).
6. **Belejo, A.**, Barbosa, A.R., and Higgins, C. (201X). "Study of Ground Motion Duration Effects in the Seismic Assessment of Bridges Retrofitted with Titanium Alloy Bars." To be submitted to *ASCE Journal of Bridge Engineering* (Being prepared for submission in Spring 2018).
7. **Soti, R.**, Barbosa, A.R., Stavridis, A. (201X?). "Experimental and Numerical Assessment of URM Infilled RC Frames Retrofitted with Near-Surface Mounted Steel Bars." To be Submitted to *ASCE Journal of Structural Engineering* (Being prepared for submission in Summer 2018).
8. Scott, M.H., Barbosa, A.R., and **Alam, M.S.** (201X). "Force-Based Distributed Plasticity Finite-Length Plastic Hinge Elements." To be submitted to *Computers and Structures* (Being prepared for submission in Summer 2018).
9. Barbosa, A. R. and **Long, Y.** (201X). "Effect of Subduction Zone Earthquakes on SDOF Bridge Models." (Being prepared for submission in Summer 2018).

10. Barbosa, A.R., Conte, J.P., Baker, J.W., and Restrepo, J.I. (201X). "Vector-Valued Probabilistic Seismic Hazard Analysis Using USGS Probabilistic Seismic Hazard Results." To be Submitted to *Earthquake Spectra* (being prepared for submission in Summer 2018).
11. Barbosa, A. R., Conte, J.P., Restrepo, J.I., and Baker, J.W. (201X). "Probabilistic Seismic Demand Analysis of a 13-story RC Frame Wall Building based on Efficient Vector-Valued Probabilistic Seismic Hazard Analysis." (Being prepared for submission in Summer 2018).
12. Barbosa, A. R., Conte, J.P., and Restrepo, J.I. (201X). "Three-Dimensional Nonlinear Finite Element Modeling and Earthquake Response Analysis of the 13-Story NEHRP reinforced concrete Frame-Wall Building Example." To Be Submitted to *ASCE Journal of Structural Engineering* (Being prepared for submission in Summer 2018).
13. **Rodrigues, L.**, Barbosa, A.R., Branco, J., Neves, L. (201X). "Progressive Collapse Modeling of Multi-Story Timber Buildings." To be Submitted to *Engineering Structures* (Being prepared for submission in Summer 2018).
14. Huffman, J., Stuedlein, A., **Belejo, A.**, and Barbosa, A.R. (201X). "Simulation Framework for Reliability-based Serviceability Assessments of Multi-Story Steel-framed Structures Supported on Spatially-variable Soil." To Be Submitted to *ASCE Journal of Structural Engineering* (Being prepared for submission in Fall 2018).
15. **Belejo, A.**, Barbosa, A.R., and Stuedlein, A. (201X). "Impact of Soil-Structure Interaction on the Ground Motion Duration Effects Assessment of Steel Moment Resisting Frame Buildings." To be submitted to *Engineering Structures* (Being prepared for submission in Fall 2018).
16. Barbosa, A.R., Mason, H. B., **Carey, T.**, Scott, M.H. (201X). "Tightly Coupled Modeling Framework for Tsunami following Earthquake Event Analysis using OpenSees." To be Submitted to the *Journal of Earthquake and Tsunami* (Being prepared for submission in Fall 2018).

D. Service

D1. University Service

- College of Engineering Change Team for Diversity, Equity, and Inclusion; College of Engineering, 2017-2018 (Chair J. McGuire)
- Structures Faculty Search Committee, School of Civil & Construction Engineering, 2016-2017 (Chair I. Burkan)
- Search Committee for Advanced Wood Products Lab Director, School of Civil & Construction Engineering, 2015-2016 (Chair Laurence Schimleck – Wood Science)
- School Head Search Committee Member, School of Civil & Construction Engineering, 2014-2015 (Chair Christine Kelly – COE)
- Scholarship Committee, School of Civil & Construction Engineering, 2014-2015 (Chair J. Ideker)
- Interim School Head Search Committee Member, School of Civil & Construction Engineering, 2014
- Faculty Search Committee Member, Construction and Engineering Management, School of Civil & Construction Engineering, 2013-2014 (Chair D. Trejo)
- Strategic Planning Committee, School of Civil & Construction Engineering, 2013 (Chair D. Sillars)
- Faculty Search Committee Member, Structural Engineering, School of Civil & Construction Engineering, 2012-2013, (Chair J. Gambatese)
- Graduate Committee Representative for several Masters Theses Defenses

D2. Service to the Profession

D2.1. ,Journal Editorships

None

D2.2. Conference and Workshop Organization

- Organizing Committee, First European Conference on Opensees, URL: http://opensees.fe.up.pt/EOSD17/index.html, June 19-20, 2017, Portugal
- Organizing Committee – OpenSees Days 2014 – Portugal, http://lese.fe.up.pt/OSDPt2014/
- Organizing Committee – OpenSees on the Road at Oregon State University Workshop, November 21-22, 2013, Corvallis, Oregon; co-organized with Prof. Michael Scott.

D2.3. Conference Program Committees

- Session co-chair (w/ Craig Davis and Haizhong Wang) and presenter at the ASCE 2018 Fall Convention on "2017 Mexico Earthquakes: Infrastructure, Community Resilience Reconnaissance." ASCE Fall 2018 Convention, Sponsored by the ASCE Infrastructure Resilience Division, October 2018, Denver, Colorado
- Mini-Symposium 08, co-organizer and chair, ASCE EMI 2018, Engineering Mechanics Institute Conference, Mini-Symposium 22, Computational Modeling in Civil Engineering, June 2018, Cambridge, MA, USA.

- Technical Committee, International Workshop on Computing for Civil Engineering (IWCCE) 2017, sponsored by the Computing Division of American Society of Civil Engineers (ASCE), June 25-27, 2017, Seattle, WA, USA.
- Mini-Symposium 22, co-organizer and chair, ASCE EMI 2017, Engineering Mechanics Institute Conference, Mini-Symposium 22, Computational Modeling in Civil Engineering, June 4-7, 2017, San Diego, CA, USA.
- Chair and co-organizer of session on High-Strength Materials (Seismic Performance and Design), 2017 World Conference of Earthquake Engineering, Santiago, Chile, 2017
- Scientific Committee, CINPAR 2016, 12th International Conference on Structural Repair and Rehabilitation, 26-29 October 2016, Porto, Portugal.
- Mini-Symposium 37, co-organizer and chair, ASCE EMI 2016, Engineering Mechanics Institute Conference, Computational Modeling in Civil Engineering, May 22-25, 2016, San Diego, USA.
- Scientific Committee, International Conference on Earthquake Engineering and Post Disaster Reconstruction Planning, 24-26 April 2016, Bhaktapur, Nepal.
- Panel member on the Cascadia Region Earthquake Readiness Report at the 10th Annual Energy and Construction Best Practices Summit. *10th Annual Energy & Construction Best Practices Summit - Clean Tech. - Washington's WISE Future, Tacoma, WA*, May 29, 2015.
- Session Chair, Performance-based Engineering (Organizer, Michele Barbato, LSU), 11th International Conference on Structural Safety & Reliability (ICOSSAR 2013), June 2013.

D2.4. Reviewing

- National Science Foundation, Hazard Mitigation and Structural Engineering, 2013/2014 submission cycle (Program manager: Kishor Mehta)
- Other Funding Agencies:
    - Romanian-Executive Agency for Higher Education, Research, Development and Innovation Funding (www.uefiscdi.gov.ro), 4 proposals, 2014
    - Italian-Cineca (Min. Dell'Instruzione, Dell'Universita e Della Ricerca), 6 proposals, http://www.cineca.it/en, 2012
- Archival Journal Reviewer
    - America Concrete Institute, ACI
    - Bulleting of Earthquake Engineering
    - Computer and science
    - Earthquake Engineering and Structural Dynamics
    - Elsevier Fire Structural Journal
    - Engineering Structures
    - Forest Products Journal
    - Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards
    - Journal of Bridge Engineering, ASCE
    - Journal of Earthquake Engineering
    - Journal of Engineering Management, ASCE

- Journal of Maderas, Chile
- Journal of Structural Engineering, ASCE
- Journal of Wood Science
- Portuguese Journal of Structural Engineering
- Soil Dynamics and Earthquake Engineering
- Structural Safety

- Refereed Conference Proceedings
  - 2018, 11th National Conference in Earthquake Engineering, Los Angeles, 4 papers
  - 2017, 16th World Conference in Earthquake Engineering, Chile, several abstracts
  - 2016, CINPAR XII International Conference on Structural Repair and Rehabilitation
  - 2014, 10th National Conference in Earthquake Engineering, Alaska, 9 papers
  - 2013, 11th Int. Conf. on Structural Safety & Reliability – ICOSSAR, 3 papers

D2.5. Other

- Chair of the ASCE SEI Wood Research Committee
- Member of the ASCE SEI Methods of Monitoring Structural Performance Committee
- Member of the ASCE SEI Performance-Based Design for Structures Committee
- Member of the ASCE SEI Advances in Simulation Committee
- Member of the ASCE SEI Seismic Effects for Structures Committee
- Member of the ASCE SEI Wood Research Committee
- American Concrete Institute (ACI), Member, 2014 – present
- Consortium of Universities for Research of Earthquake Engineering (CUREE), Member, 2012 – 2016
- American Society of Civil Engineers (ASCE), Member, 2008 – present
- Earthquake Engineering Research Institute (EERI), Member, 2008 – present
- Professional/Licensed Engineer in Portugal (1999-present).

D3. Service to the Public

D3.1. Professionally Related

- Appraiser for the Oregon CLT Design Contest (2016) http://oregonbest.org/what-we-offer/expertise/competitions/clt/
- Mass-timber Conference (2016) Construction Lessons Learned, Track leader and panel moderator https://www.masstimberconference.com/2016-home/2016-agenda/
- Member of the ASCE Infrastructure Resilience Division Disaster Response and Recovery Committee (2015)
- Member of the NEES (2013-2014) Requirements Analysis and Assessment Subcommittee (RAAS)
- NIST GCR 14 917-30 (2013), "Use of High-Strength Reinforcement in Earthquake-Resistant Concrete Structures." Acknowledgement

- Bridge to the future: End-to-end Simulations and Integration of Simulation Data within the NEES Project Warehouse (2013)
- Oregon Wood Innovation Center (2013), "Bending stiffness and strength of massive (8'x40') engineered timber composites." (URL: http://owic.oregonstate.edu/evaluation-massive-timber-composites, accessed 1/15/2015)
- Open Source Code Development (OpenSees):
    - Led updates, implementation, and committed three material models in OpenSees for cyclic/earthquake analysis of strength and stiffness degrading force-deformation models:
        - Bilinear model with degradation
        - Peak oriented with degradation
        - Pinching material with degradation
    - Updated examples for dynamic analysis of 2-Story moment resisting frame: http://opensees.berkeley.edu/wiki/index.php/Dynamic_Analysis_of_2-Story_Moment_Frame
- Oregon Resilience Plan (2012) – Participated in the Critical Buildings Task Group; served as Resource Manager, and co-authored the section on Critical Buildings. Available online at: http://www.oregon.gov/OMD/OEM/osspac/docs/Oregon_Resilience_Plan_Final.pdf
- Led the Production-demo Phase of Integration of the Network for Earthquake Engineering Simulation (NEES) running OpenSees on the Open Science Grid, https://twiki.opensciencegrid.org/bin/view/Engagement/EngageOpenSeesProductionDemo

D3.2. Other Public Service

- Volunteer and Appraiser for Destination Imagination (2016 and 2017)
- Currently working on the development of an Incentive Program for Improving Resilience of Downtown Corvallis (w/ Cathy Kerr, Historic Resources Commission, City of Corvallis).

D3.3. On the Media

- Daily Journal of Commerce Oregon, January 23, 2017. https://goo.gl/MVV2aV (accessed: 2017/2/19).
- http://www.enr.com/articles/40146-soms-timber-tower-floor-system-passes-muster
- https://twitter.com/benjohnson_som/status/766345362537783296
- https://www.fastcodesign.com/3062920/timber-skyscrapers-arent-sci-fi-heres-the-research-that-proves-it
- http://archpaper.tumblr.com/post/149700102878/working-with-oregon-state-university-osu
- http://archpaper.com/2016/08/som-timber-tower-technology/#gallery-0-slide-0
- http://www.architectmagazine.com/technology/q-a-soms-benton-johnson-on-testing-a-new-composite-system-for-tall-timber_o

E. Awards

E1. National and International Awards

- Invited Young Researcher, Tokyo Tech, Japan, CUEE/PEER Young Research Workshop, Mar. 2009
- NEES Graduate Summer Internship (NEES GSI) Program, August, 2008 at the San Diego Supercomputer Center (SDSC) at the University of California, San Diego (UCSD)
- Ph.D. scholarship by the Fundação para a Ciência e a Tecnologia for performing Ph.D. studies at UCSD - BD/17266/2004, Portugal
- M.S. scholarship by the Fundação para a Ciência e a Tecnologia – Portugal

E2. State and Regional Awards

- 2017 State of Oregon Daily Journal of Commerce Newsmaker for contributions to the Cross-Laminated Timber Industry in Oregon.
- 2014 Recognition by State of Oregon Senator's office for contributions to the development of the Oregon Resilience Plan in 2013.

E3. University or Community Awards

- 2017 Award for Research Excellence, School of Civil and Construction Engineering (http://bit.ly/2gBNAAE)
- 2014-2017 Kearney Faculty Scholar for Outstanding Achievements by an Assistant Professor