

Jack W. Baker

Professor
Dept. of Civil and Environmental Engineering

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PROFESSIONAL APPOINTMENTS

- 2019 - present Professor of Civil & Environmental Engineering, Stanford University
- 2013 - 2019 Associate Professor of Civil & Environmental Engineering, Stanford University
- 2006 - 2013 Assistant Professor of Civil & Environmental Engineering, Stanford University
- 2005 - 2006 Visiting Researcher, Swiss Federal Institute of Technology, Zurich
- 2004 Visiting Researcher, Nagoya University

EDUCATION

- Ph.D., Structural Engineering, Stanford University, 2005
- M.A., Statistics, Stanford University, 2004
- M.S., Structural Engineering, Stanford University, 2002
- B.A., Mathematics/Physics, Magna Cum Laude, Whitman College, 2000

HONORS AND AWARDS

- Structural Engineers Association of Northern California (SEAONC) Helmut Krawinkler Award given to an individual who has demonstrated "outstanding leadership in implementing state of the art research into practice," 2019
- ASCE Walter L. Huber Civil Engineering Research Prize. Citation: "For research to characterize the damaging effects of earthquake ground motion spectral shape, duration, near-fault directivity and other features for seismic hazard analysis and performance-based engineering of buildings, bridges and geographically distributed infrastructure." 2018
- University of Canterbury Visiting Erskine Fellow, 2015
- Excellence in Structural Engineering Research Award from the Structural Engineers Association of California (SEAOC). Awarded to the NGA-West project "for outstanding achievement in the development of ground motion models and databases that have major impacts on structural engineering practice and research." 2015
- Lee Otterson Faculty Scholar, Stanford University, 2013
- Eugene L. Grant Award in recognition of dedication and excellence in teaching as voted by the students of the Department of Civil & Environmental Engineering at Stanford University, 2013
- Early Achievement Research Award from the International Association for Structural Safety and Reliability (IASSAR), 2013
- Outstanding Paper, Earthquake Spectra, 2011
- National Science Foundation CAREER Award, 2010

- Shah Family Innovation Prize, awarded by the Earthquake Engineering Research Institute to honor an individual under the age of 35 for creativity, innovation and an entrepreneurial spirit in earthquake risk mitigation and management. Citation: "In recognition of Jack Baker's exceptional contributions to the field of seismic risk assessment and communication. By bringing together the fields of structural engineering and engineering seismology, Dr. Baker has identified and introduced the pioneering approaches of using the ground motion parameter epsilon and Conditional Mean Spectrum concepts to select and scale ground motions for nonlinear analysis. These concepts are now employed worldwide in seismic risk analysis and performance-based engineering." 2010
- Stanford University Terman Fellow, 2006

ADVISING AND COLLABORATION

Current Ph.D. Students

Gitanjali Bhattacharjee

Thesis: "Seismic resilience analysis of transportation networks using Markov Decision Processes"

Anticipated date of graduation: 2021

Yilin Chen

Thesis: "Geostatistical analysis of nonstationary spatial variation in ground motion amplitudes"

Anticipated date of graduation: 2021

Sabine Loos

Thesis: "Multi-source post-disaster data integration for assessing regional impact"

Anticipated date of graduation: 2021

Rodrigo Silva Lopez

Thesis: "Risk assessment of distributed transportation networks"

Anticipated date of graduation: 2022

Ganyu Teng

Thesis: "Dynamic risk analysis for induced seismicity"

Anticipated date of graduation: 2021

Former Ph.D Students

Lynne Burks

Thesis: "Ground motion simulations: validation and application for civil engineering problems"

Graduated: 2014

Reagan Chandramohan

Thesis: "Effect of long duration ground motions on structural performance"

Graduated: 2016) *Co-advisors: Greg Deierlein and Jack Baker*

Gemma Cremen

Thesis: "Analysis, Evaluation, and Improvement of Performance-Based Earthquake Engineering Damage and Loss Predictions"

Graduated: 2019

Beliz Ugurhan Gokkaya

Thesis: "Seismic reliability assessment of structures incorporating modeling uncertainty and implications for seismic collapse safety"

Graduated: 2015) *Co-advisors: Greg Deierlein and Jack Baker*

Abhineet Gupta

Thesis: "Quantifying temporally-varying induced seismicity hazard and regional risk: Statistical approaches and application in Oklahoma"

Graduated: 2017

Anne Hulseley

Co-advisors: Greg Deierlein and Jack Baker

Thesis: "The community impact of post-earthquake safety decisions based on damage to tall buildings and elevated hazard due to aftershocks"

Graduated: 2020

Nirmal Jayaram

Thesis: "Probabilistic seismic lifeline risk assessment using efficient sampling and data reduction techniques"

Graduated: 2010

Ting Lin

Thesis: "Advancement of hazard consistent ground motion selection methodology"

Graduated: 2012

Christophe Loth

Thesis: "Multivariate ground motion intensity measure models, and implications for structural reliability assessment"

Graduated: 2014

Maryia Markhvida

Thesis: "Engineering and economic modeling of post-earthquake decision making and regional recovery"

Graduated: 2019

Mahalia Miller

Thesis: "Seismic risk assessment of complex transportation networks"

Graduated: 2014

Andrew Seifried

Thesis: "Response spectrum compatibilization and its impact on structural response assessment"

Graduated: 2013

Shrey Shahi

Thesis: "A probabilistic framework to include the effects of near-fault directivity in seismic hazard assessment"

Graduated: 2013

Victor Victorsson

Co-advisors: Greg Deierlein, Jack Baker and Helmut Krawinkler

Thesis: "The reliability of capacity-designed components in seismic resistant systems"

Graduated: 2011

Yoshifumi Yamamoto

Thesis: "Stochastic model for earthquake ground motion using wavelet packets"

Graduated: 2011

Jason Wu

Thesis: "End-to-End Seismic Risk Analysis Framework for the Identification of Infrastructure Network Retrofits"

Graduated: 2017

Current Postdoctoral Students

Rodrigo Costa (2020-present)

Former Postdoctoral Students

Hyeuk Ryu (2007-2010)

Camilo Gomez (2014-2015)

Katy Serafin (2017-2019)

SYNERGISTIC ACTIVITIES

- Steering Committee member for the U.S. Geological Survey National Seismic Hazard Model Program, 2020-present.
- Domain Expert and Faculty Advisor for the Natural Hazards Engineering Research Infrastructure Computational Modeling and Simulation Center (NHERI SimCenter), 2018-present.
- Director, Stanford Urban Resilience Initiative, 2016-present.
- Member of the International Scientific Advisory Panel for QuakeCoRE Center for Earthquake Engineering Resilience, 2017-present.
- Research Committee member, Pacific Earthquake Engineering Research Center, 2017-2019.
- Member of the Building Seismic Safety Council (BSSC) 2020 National Earthquake Hazard Reduction Program (NEHRP) Provisions Update Committee. Member of Issue Team 1—Seismic Performance Objectives, 2016-2018.
- Member of the Board of Directors, and Treasurer, for the Civil Engineering Risk and Reliability Association (CERRA), 2015-present.
- Co-director of the Stanford Center for Induced and Triggered Seismicity, 2013-present.
- Member of SCEC Committee on Utilization of Ground Motion Simulations (UGMS), organized to develop long-period response spectral acceleration maps for Los Angeles region for inclusion in NEHRP and ASCE 7 Seismic Provisions and in Los Angeles City Building Code, 2013-present.
- Member of the Technical Committee on Life-Cycle Performance, Cost and Optimization, within the International Association for Structural Safety and Reliability, 2013-2016.

- Member of the Building Seismic Safety Council Issue Team 4, Evaluation of the Current Response History Analysis Procedures (ASCE 7 Chapter 16), 2011-2014.
- Member of the Southern California Earthquake Center’s Planning Committee, as chair of the Earthquake Engineering Implementation Interface focus group, 2011-2018.
- Global Ground Motion Prediction Equations (GMPE) Program team member for the Global Earthquake Model (GEM) initiative—chair of task group for inclusion of near-fault effects, 2010-2012.
- Member of the ASCE Task Group on Risk Assessment of Structural Infrastructure Facilities and Risk-Based Decision Making (part of the Technical Council on Life-Cycle Performance, Safety, Reliability and Risk of Structural Systems), 2009-2015.
- Host of the JCSS Second Workshop on Structural Robustness, Stanford University, October 26-27, 2008.
- Member of the Executive Committee for the Extreme Ground Motions Project (a Department of Energy research program to identify limits on ground motions to constrain seismic risk at the Yucca Mountain Nuclear Waste Repository), 2008-2010.
- Host and Chair of the Special Workshop on Risk Acceptance and Risk Communication, Stanford University, March 26-27, 2007. www.ripid.ethz.ch.
- Validation team member for Applied Technology Council project ATC-58, “Next-Generation Performance-Based Seismic Design Guidelines for New and Existing Buildings.”
- Technical Advisory Committee member for the Pacific Earthquake Engineering Research (PEER) center’s Ground Motion Selection and Modification Program, 2006-2012.
- Project team member, Design Ground Motion Library (DGML), 2006-2007.

PROFESSIONAL MEMBERSHIPS

- American Society of Civil Engineers (ASCE)
- Consortium of Universities for Research in Earthquake Engineering (CUREE)
- Member of Board of Directors, 2011-2012.
- Member of Executive Committee, 2012
- Earthquake Engineering Research Institute (EERI)
- Shah Family Innovation Prize Selection Committee, 2015-2019
- Associate Editor, Earthquake Spectra, 2013-present
- Editor, Earthquake Spectra, 2018-present
- Joint Committee on Structural Safety (JCSS)
- Civil Engineering Risk and Reliability Association
- Member of Board of Directors, 2015-present
- Treasurer, 2015-present
- Pacific Earthquake Engineering Research (PEER) Center
- Member of Research Committee, 2017-present
- Seismological Society of America (SSA)
- Associate Editor, Bulletin of the Seismological Society of America, 2008-2013.
- Southern California Earthquake Center (SCEC)

- Member of Planning Committee, 2011-2019

ACADEMIC SERVICE

- Editor, Earthquake Spectra, 2018-present
- Associate Editor for:
 - o Structural Safety, 2017-present
 - o Earthquake Engineering and Structural Dynamics, 2016-present
 - o Earthquake Spectra, 2013-present
 - o Bulletin of the Seismological Society of America, 2008-2013.
 - o Earthquakes and Structures, 2010-2013.
- Research Committee Member, Pacific Earthquake Engineering Research Center, 2017-2019
- Proposal reviewer for:
 - o Austrian Science Fund
 - o EERI/FEMA NEHRP Graduate Research Fellowship
 - o Israeli Ministry of Science, Technology and Space
 - o Louisiana Board of Regents' University Seed Funding Proposals
 - o Mitacs Accelerate program, Canada
 - o National Science Foundation
 - o New Zealand Earthquake Commission
 - o Pacific Earthquake Engineering Research (PEER) Center Transportation Systems Research Program
 - o Research Grant Council (RGC) of Hong Kong
 - o Royal Society Newton International Fellowships
 - o Southern California Earthquake Center
- Paper reviewer for
 - o Acta Geotechnica
 - o AGU Advances
 - o ASCE Journal of Structural Engineering
 - o ASCE Practice Periodical on Structural Design and Construction
 - o Bulletin of Earthquake Engineering
 - o Bulletin of the New Zealand Society for Earthquake Engineering
 - o Bulletin of the Seismological Society of America
 - o Canadian Geotechnical Journal
 - o Civil Engineering and Environmental Systems
 - o Computer-Aided Civil and Infrastructure Engineering
 - o Computers & Geosciences
 - o Earthquake Engineering & Structural Dynamics
 - o Earthquake Engineering and Engineering Vibration

- Earthquake Spectra
- Geophysical Journal International
- Geophysical Research Letters
- Georisk
- International Journal of Disaster Risk Reduction
- Journal of Bridge Engineering
- Journal of Earthquake Engineering
- Journal of Engineering Mechanics
- Journal of Infrastructure Systems
- Journal of Performance of Constructed Facilities
- Journal of Seismology
- Journal of Southwest Jiaotong University
- Materials and Structures
- Natural Hazards Review
- Nature Communications
- Nonlinear Dynamics
- Nuclear Engineering and Design
- Probabilistic Engineering Mechanics
- Risk Analysis
- Seismological Research Letters
- Soil Dynamics and Earthquake Engineering
- Structural Engineering and Mechanics
- Structural Engineering International
- Structural Safety
- Sustainable and Resilient Infrastructure
- Terrestrial Atmospheric and Oceanic Sciences Journal
- Conference committee member for:
 - ASCE Lifelines Conference (Lifelines2021) San Fernando Earthquake Conference – 50 years of Lifeline Engineering
 - 13th International Conference on Structural Safety and Reliability (ICOSSAR2021), Shanghai
 - 7th Asia-Pacific Symposium on Structural Reliability and Its Applications (APSSRA2020) Tokyo, 2020
 - 13th International Conference on Applications of Statistics and Probability in Civil Engineering (ICASP13), Seoul, 2019
 - 11th National Conference on Earthquake Engineering, Los Angeles, 2018
 - 16th World Conference on Earthquake Engineering, Santiago, 2017
 - 10th Pacific Conference on Earthquake Engineering, Sydney, 2015
 - Engineering Mechanics Institute Conference, 2015

- 10th National Conference on Earthquake Engineering, Anchorage, 2014
- 4th IASPEI/IAEE International Symposium on the Effects of Surface Geology on Seismic Motion, Santa Barbara, 2011
- First World Congress on Advances in Structural Engineering and Mechanics (ASEM'11), Seoul, 2011
- 3rd International Symposium on Geotechnical Safety and Risk (ISGSR-2011), Munich, 2011
- 10th International Conference on Structural Safety and Reliability (ICOSSAR2009), Osaka, 2009
- Special Workshop and Risk Acceptance and Risk Communication, Stanford, 2007

PLENARY AND KEYNOTE LECTURES

"Advances in simulating post-earthquake recovery for performance-based engineering and resilience," *Plenary lecture at the Pacific Earthquake Engineering Research Center Annual Meeting, Berkeley, January 2020.*

"Advances in simulating post-earthquake recovery for performance-based engineering and resilience," *Keynote lecture at the Society for Earthquake and Civil Engineering Dynamics 2019 Conference, London, September 2019.*

"Performance-based earthquake engineering for transportation networks," *Theme Session lecture at the 10th National Conference on Earthquake Engineering, Los Angeles, June 2018.*

"Incorporating induced seismicity source models and ground motion predictions to forecast dynamic regional risk," *Keynote lecture at Geotechnical Earthquake Engineering and Soil Dynamics V, Austin, June 2018.*

"Quantifying Seismic Risk to Transportation Networks: User Impacts and At-Risk Communities," *Plenary lecture at the 2018 PEER Annual Meeting, Berkeley, January 2018.*

"Unlocking value in earthquake resilience," *Plenary lecture at the Strengthening our Cities SEAOSC Summit, Los Angeles, November 2017.*

"Characterization of spatial correlations in ground motions—insights from physics-based simulations," *Keynote lecture at the Southern California Earthquake Center Annual Meeting, Palm Springs, California, August 2017.*

"Quantifying seismic risk to transportation networks: user impacts and at-risk communities," *New Zealand Society for Earthquake Engineering Traveling Lectureship, talks given in Auckland, Wellington and Christchurch, New Zealand, 2015-2016.*

"Ground motion selection for performance-based engineering, and the Conditional Mean Spectrum as a selection tool," *Plenary lecture at 10th Pacific Conference on Earthquake Engineering, Sydney, Australia, October 2015.*

"Quantifying seismic risk to transportation networks: user impacts and at-risk communities," *IBK Kolloquium lecture at the Swiss Federal Institute of Technology, Zurich, March 2015.*

"Recent progress in seismic hazard analysis and ground motion selection," *Plenary lecture at 2011 Pacific Earthquake Engineering Research Center, Berkeley, California, October 2011.*

"Effects of earthquake source geometry and site conditions on spatial correlation of earthquake ground motion hazard." *Keynote lecture at 4th IASPEI/IAEE International Symposium on Effects of Surface Geology on Seismic Motion, Santa Barbara, California, August 2011.*

"An overview of the Conditional Mean Spectrum," *Keynote lecture at the 2010 COSMOS Technical Session. San Francisco, California. October 2010.*

"Active Region Time History Selection/Generation Approaches." *Keynote lecture at the Association of Environmental & Engineering Geologists Shlemon Specialty Conference. Memphis, Tennessee. June 2009.*

"Engineering use of ground motions: Challenges and opportunities." *Keynote lecture at the Southern California Earthquake Center Annual Meeting. Palm Springs, California. August 2008.*

OTHER INVITED LECTURES AND SEMINARS

"Reflections on productive academic writing" Oregon State University Department of Civil and Construction Engineering, March 2020. (Virtual)

"Selection of simulated CyberShake time series for engineering building code analyses" *National Earthquake Conference, San Diego, March 2020.*

"Advances in simulation of post-earthquake recovery for performance-based engineering and resilience" *UCLA EERI-SEAOSC Distinguished Speaker Series, University of California, Los Angeles, February 2020.*

"Consideration of network effects in identifying critical components of transportation infrastructure," *US Geological Survey's Geologic Hazards Science Seminar Series, Golden, CO, September 2019.*

"Quantifying Seismic Risk to Transportation Networks: User Impacts and At-Risk Communities," *Johns Hopkins University, Baltimore, April 2019.*

"Use of ground motion simulations in engineering practice," *US Geological Survey Earthquake Science Seminar, Menlo Park, CA, February 2019.*

"Incorporating Induced Seismicity Source Models and Ground Motion Predictions to Forecast Dynamic Regional Risk," *University of California, Davis Geotechnical Graduate Student Society Seminar, Davis, CA, January 2019.*

"Quantifying Seismic Risk to Transportation Networks: User Impacts and At-Risk Communities," *ASCE Los Angeles and Orange County Geo-Institute, Los Angeles, December 2018.*

"Ground motion selection for performance-based engineering, and the Conditional Mean Spectrum as a selection tool," *AECOM International Seismic Hazards Workshop, Los Angeles, December 2018.*

- "Quantifying Seismic Risk to Transportation Networks: User Impacts and At-Risk Communities," *University of Illinois, Urbana-Champaign*, Champaign, December 2017.
- "Quantifying Seismic Risk to Transportation Networks: User Impacts and At-Risk Communities," *Case Western Reserve University*, Cleveland, November 2017.
- "Ground motion selection for performance-based engineering," *University of California San Diego*, San Diego, June 2015.
- "Introduction to Probabilistic Seismic Hazard Analysis," *Short course for Stanford Center for Induced and Triggered Seismicity Affiliates*, Stanford, May 2015.
- "Ground Motion Simulations: Validation and Application for Civil Engineering Problems," *SMIP14 Seminar on Utilization of Strong Motion Data*, Berkeley, October 2014.
- "Ground motion selection for performance-based engineering," *University of California Los Angeles*, Los Angeles, May 2014.
- "Ground motion selection for performance-based engineering, and the Conditional Mean Spectrum as a selection tool," *Structural Engineers Association of Northern California' Continuing Education and Sustainable Design Committees seminar*, San Francisco, May 2014.
- "Characterization of ground motions for assessing seismic risk to infrastructure," *California Institute of Technology*, Pasadena, April 2013.
- "Building code use of ground motions, and the role of simulations," Invited Presentation at the Seismological Society of America Annual Meeting, Salt Lake City, Utah. April 2013.
- "Introduction to the conditional mean spectrum," *Structural Engineers Association of Northern California Seismology Ground Motions Subcommittee*, San Francisco, June, 2012.
- "Characterization of ground motions for seismic evaluation," *Centre for Energy Advancement through Technological Innovation (CEATI) Seismic Hazard and Risk Workshop for Hydropower Projects*, San Francisco, May, 2012.
- "Ground motion selection for structural analysis: current practice and future directions," *University at Buffalo Earthquake Engineering Research Seminar*, Buffalo, December, 2011.
- "Ground motion selection for structural analysis: current practice and future directions," *Structural Engineers Association of Northern California Seismology Committee*, San Francisco, May, 2011.
- "Using precarious rocks to compute points in hazard space and update seismic hazard analysis logic tree weights," *Workshop on the Applications of Precarious Rocks and Related Fragile Geological Features to US National Hazard Maps*, Reno, October, 2010.
- "Innovations in seismic hazard and ground motion selection for risk analysis calculations," *CUREE-Kajima Phase IIV final project meeting*, Tokyo, October 2010.
- "Ground motions for the PEER Transportation Systems Research Program," *PEER Annual Meeting*, San Francisco, October 2010

- "Ground Plotting unexceeded ground motions: improved methodology and consideration of time dependent fragilities." *Southern California Earthquake Center workshop on Extreme Ground Motions*, September, 2010.
- "Ground motion selection for structural analysis: current practice and future directions," *University of Washington Civil and Environmental Engineering Department Seminar*, Seattle, August, 2010.
- "Spatial correlation of strong ground motion intensities: Measurement and implications for engineering applications." *Northwestern University, Civil and Environmental Engineering Department Seminar Series*, May, 2010.
- "Signal processing and probabilistic seismic hazard analysis tools for characterizing near-fault directivity." *University of California, Berkeley, Reliability Seminar*. April, 2010.
- "Refinements to the Conditional Mean Spectrum concept, to link seismic hazard and dynamic structural analysis." *U.S. Geological Survey Seminar*. Golden, Colorado. February 2010.
- "Spatial correlation of strong ground motion intensities: Measurement and implications for engineering applications." *U.S. Geological Survey Seminar*. Golden, Colorado. February 2010.
- "Spatial correlation of strong ground motion intensities: Measurement and implications for engineering applications." *University of Colorado, Boulder, Civil Environmental and Architectural Engineering Department Seminar*, February, 2010.
- "Spatial correlation of strong ground motion intensities: Measurement and implications for engineering applications." *Georgia Institute of Technology, Civil and Environmental Engineering Department Seminar Series*, November, 2009.
- "Spatial correlation of strong ground motion intensities: Measurement and implications for engineering applications." *University of Southern California, Civil and Environmental Engineering Department Seminar*. Los Angeles, California. October, 2009.
- "Characterizing seismic hazard to distributed systems using efficient simulation techniques." *Pacific Earthquake Engineering Research Center Transportation Networks Workshop*. Berkeley, California. March 2009.
- "Efficient techniques for seismic risk assessment of lifelines, considering spatial correlation of strong ground motion intensities." *U.S. Geological Survey Earthquake Seminar Series*. Menlo Park, California. February 2009.
- "Ground motions and intensity measures as a link between seismology and engineering." *Stanford University, Department of Geophysics*. June, 2007.
- "Ground motions and intensity measures for performance-based earthquake engineering" *University of California, Berkeley, Structural Engineering Mechanics and Materials Seminar*. April, 2008.
- "Risk-based assessment of robustness: what can it do and what can't it do?" *Invited lecture at the European Union Robustness of Structures, 1st Workshop (COST Action TU601)*. ETH Zurich, Switzerland. February, 2008.

- "Ground motions and intensity measures as a link between seismology and engineering." *California Institute of Technology*. October, 2007.
- "Breaking the Uniform Hazard Spectrum into component events: The effect of epsilon on response spectra and structural response." *2006 COSMOS Technical Workshop*. Berkeley, California. November 2006.
- "Record selection and scaling using the conditional mean spectrum." *First workshop on ground motion selection and modification (GMSM) for nonlinear analysis*. Berkeley, California. October 2006.
- "An overview of Probabilistic Seismic Hazard Analysis." *Swiss Federal Institute of Technology, Zurich*. March, 2006.
- "Improved ground motion intensity measures for prediction of structural response." *Swiss Federal Institute of Technology, Zurich*. November, 2005.
- "An improved vector-valued intensity measure for prediction of seismic response." *University of Illinois at Urbana-Champaign*. March, 2005.
- "An improved vector-valued intensity measure for prediction of seismic response." *University of Minnesota*. March, 2005
- "An improved vector-valued intensity measure for prediction of seismic response." *University of Michigan*. November, 2004
- "Intensity measures and structural response." *Natural Hazards Mitigation in Japan Research Symposium, Tokyo Institute of Technology*. June, 2004.

PUBLICATIONS (STUDENT NAMES IN BOLD, POSTDOC NAMES IN ITALICS)

Archival Journal Publications

1. **Crement, G.**, and Baker, J. W. (2020). "Variance-based Sensitivity Analyses and Uncertainty Quantification for FEMA P-58 Consequence Predictions." *Earthquake Engineering & Structural Dynamics*, (in press).
2. Baker, J. W., and **Chen, Y.** (2020). "Ground motion spatial correlation fitting methods and estimation uncertainty." *Earthquake Engineering & Structural Dynamics*, (in press).
3. **Loos, S.**, Lallemand, D., Baker, J. W., McCaughery, J., Yun, S.-H., Budhathoki, N., Khan, F., and Singh, R. (2020). "G-DIF: A geospatial data integration framework to rapidly estimate post-earthquake damage." *Earthquake Spectra*, in press.
4. **Teng, G.**, and Baker, J. W. (2020). "Short-term probabilistic hazard assessment in regions of induced seismicity." *Bulletin of the Seismological Society of America*, 110(5), 2441-2453.
5. Schultz, R., Beroza, G. C., Ellsworth, W. L., and Baker, J. W. (2020). "Risk-informed recommendations for managing hydraulic fracturing induced seismicity via traffic light protocols." *Bulletin of the Seismological Society of America*, 110(5), 2411-2422.

6. **Wu, J.**, and Baker, J. W. (2020). "Statistical Learning Techniques for the Estimation of Lifeline Network Performance and Retrofit Selection." *Reliability Engineering & System Safety*, 200, 106921.
7. *Zsarnóczyai, Á.*, and Baker, J. W. (2020). "Using model error in response history analysis to evaluate component calibration methods." *Earthquake Engineering & Structural Dynamics*, 49(2), 175–193.
8. **Markhvida, M.**, Walsh, B., Hallegatte, S., and Baker, J. W. (2020). "Quantification of disaster impacts through household well-being losses." *Nature Sustainability*, <https://doi.org/10.1038/s41893-020-0508-7>.
9. **Crement, G.**, Seville, E., and Baker, J. W. (2019). "Modeling Post-Earthquake Business Recovery Time: An Analytical Framework." *International Journal of Disaster Risk Reduction*, 40, 101328.
10. **Chen, Y.**, and Baker, J. W. (2019). "Spatial correlations in CyberShake physics-based ground motion simulations." *Bulletin of the Seismological Society of America*, 109(6), 2447–2458.
11. **Teng, G.**, and Baker, J. W. (2019). "Seismicity Declustering and Hazard for Oklahoma and Kansas." *Bulletin of the Seismological Society of America*, 109(6), 2356–2366.
12. **Teng, G.**, and Baker, J. W. (2019). "Evaluation of CyberShake time series for engineering practice." *Earthquake Spectra*, 35(3), 1311–1328.
13. Silva, V., Akkar, S., Baker, J.W., Bazzurro, P., Castro, J. M., Crowley, H., Dolsek, M., Galasso, C., Lagomarsino, S., Monteiro, R., Perrone, D., Pitilakis, K., and Vamvatsikos, D. (2019). "Current Challenges and Future Trends in Analytical Fragility and Vulnerability Modelling." *Earthquake Spectra*, 35(4), 1927–1952.
14. **Crement, G.**, and Baker, J. W. (2019). "Improving FEMA P-58 Non-Structural Component Fragility Functions and Loss Predictions." *Bulletin of Earthquake Engineering*, 17(4), 1941–1960.
15. **Gupta, A.**, and Baker, J. W. (2019). "A framework for time-varying induced seismicity risk assessment, with application in Oklahoma." *Bulletin of Earthquake Engineering*, 17(8), 4475–4493.
16. **Crement, G.**, and Baker, J. W. (2019). "A Methodology for Benchmarking Loss Predictions of the FEMA P-58 Seismic Performance Assessment Procedure." *Earthquake Spectra*, 35(1), 193–210.
17. Tarbali, K., Bradley, B. A., and Baker, J. W. (2019). "Ground Motion Selection in the Near-Fault Region Considering Directivity-Induced Pulse Effects." *Earthquake Spectra*, 35(2), 759–786.
18. *Gomez, C.*, and Baker, J. W. (2019). "An optimization-based decision support framework for coupled pre- and post-earthquake infrastructure risk management." *Structural Safety*, 77, 1–9.
19. **Crement, G.**, and Baker, J. W. (2018). "Quantifying the Benefits of Building Instruments to FEMA P-58 Rapid Post-Earthquake Damage and Loss Predictions." *Engineering Structures*, 176, 243–253.

20. **Markhvida, M.**, and Baker, J. W. (2018). "Unification of seismic performance estimation and real estate investment analysis to model post-earthquake building repair decisions¹." *Earthquake Spectra*, 34(4), 1787–1808.
21. Tarbali, K., Bradley, B. A., and Baker, J. W. (2018). "Consideration and Propagation of Ground Motion Selection Epistemic Uncertainties to Seismic Performance Metrics." *Earthquake Spectra*, 34(2), 587–610.
22. Baker, J. W., and **Lee, C.** (2018). "An Improved Algorithm for Selecting Ground Motions to Match a Conditional Spectrum." *Journal of Earthquake Engineering*, 22(4), 708–723.
23. Worden, C. B., Thompson, E. M., Baker, J. W., Bradley, B. A., Luco, N., and Wald, D. J. (2018). "Spatial and Spectral Interpolation of Ground-Motion Intensity Measure Observations." *Bulletin of the Seismological Society of America*, 108(2), 866–875.
24. **Markhvida, M.**, Ceferino, L., and Baker, J. W. (2018). "Modeling spatially correlated spectral accelerations at multiple periods using principal component analysis and geostatistics." *Earthquake Engineering & Structural Dynamics*, 47(5), 1107–1123.
25. Bradley, B. A., Pettinga, D., Baker, J. W., and Fraser, J. (2017). "Guidance on the utilization of earthquake-induced ground motion simulations in engineering practice." *Earthquake Spectra*, 33(3), 809–835.
26. Baker, J. W., and Bradley, B. A. (2017). "Intensity Measure Correlations Observed in the NGA-West2 Database, and Dependence of Correlations on Rupture and Site Parameters." *Earthquake Spectra*, 33(1), 145–156.
27. **Gokkaya, B. U.**, Baker, J. W., and Deierlein, G. G. (2017). "Estimation and Impacts of Model Parameter Correlation for Seismic Performance Assessment of Reinforced Concrete Structures." *Structural Safety*, 69, 68–78.
28. **Gupta, A.**, Baker, J. W., and Ellsworth, W. L. (2017). "Assessing ground motion amplitudes and attenuation for small to moderate induced and tectonic earthquakes in the Central and Eastern United States." *Seismological Research Letters*, 88(5), 1379-1389.
29. Haselton, C. B., Baker, J. W., Stewart, J. P., Whittaker, A. S., Luco, N., Fry, A., Hamburger, R. O., Zimmerman, R. B., Hooper, J. D., Charney, F. A., and Pekelnicky, R. G. (2017). "Response History Analysis for the Design of New Buildings in the NEHRP Provisions and ASCE/SEI 7 Standard: Part I - Overview and Specification of Ground Motions." *Earthquake Spectra*, 33(2), 373–395.
30. Haselton, C. B., Fry, A., Hamburger, R. O., Baker, J. W., Zimmerman, R. B., Luco, N., Elwood, K. J., Hooper, J. D., Charney, F. A., Pekelnicky, R. G., and Whittaker, A. S. (2017). "Response History Analysis for the Design of New Buildings in the NEHRP Provisions and ASCE/SEI 7 Standard: Part II - Structural Analysis Procedures and Acceptance Criteria." *Earthquake Spectra*, 33(2), 397–417.
31. Zimmerman, R. B., Baker, J. W., Hooper, J. D., Bono, S., Haselton, C. B., Engel, A., Hamburger, R. O., Celikbas, A., and Jalalian, A. (2017). "Response History Analysis for the Design of New Buildings in the NEHRP Provisions and ASCE/SEI 7 Standard: Part III - Example Applications Illustrating the Recommended Methodology." *Earthquake Spectra*, 33(2), 419–447.

¹ Recipient of the 2018 Earthquake Spectra Graduate Student Paper Award

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