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Stanford Address
Stanford University Bldg 540
Stanford CA, 94305
Room 211

ACADEMIC POSITIONS:

Nanyang Technological University (NTU) Singapore *Dec 2016-Present*
Assistant Professor at the Asian School of the Environment
Principal Investigator – Earth Observatory of Singapore
Principal Investigator – Complexity Institute

Stanford University Stanford, CA *Jan 2017-June 2017*
Visiting Assistant Professor
Co-founder – Stanford Urban Resilience Initiative (<http://urbanresilience.stanford.edu/>) – further details below

Stanford University Stanford, CA *May 2016-Dec 2016*
Engineering Research Associate in the Department of Civil and Environmental Engineering

EDUCATION:

Stanford University Stanford, CA *2015*
Doctorate in Structural Engineering and Geomechanics.
Dissertation: Modeling the Future Disaster Risk of Cities to Envision Paths Towards their Future Resilience
Advisor: Anne Kiremidjian. Committee: Jack Baker, Gregory Deierlein, Mary-Lou Zoback

University of California at Berkeley Berkeley, CA *2009*
Masters of Science in Structural Engineering, Mechanics and Materials.

Massachusetts Institute of Technology (MIT) Cambridge, MA *2007*
Bachelors of Science in Civil and Environmental Engineering. Minor in Urban Studies and Planning.

AWARDS & RESEARCH GRANTS

Awards & Fellowships:

- Red Cross Research Fellowship, 2014
- Shah Family Fellowship, Stanford University, 2012
- John A. Blume Fellowship, Stanford University, 2011
- P.K. Mehta Fellowship, UC Berkeley, 2009
- Development Impact Award. Project coordinator for the World Bank 2010 Haiti Post-Disaster Damage Assessment Program. Project won the Development Impact Honors awarded by the United States Secretary of Treasury. Award accepted by World Bank President Jim Kim from US Congressman Eliott Engel, 2013 (<http://tinyurl.com/lqbc5zj>).
- World Bank Vice Presidency Unit (VPU) Award for work on post-disaster response in Haiti, 2011.
- Travel Awards: National Science and Technology Center for Disaster Reduction, Taiwan (2013), Understanding Risk Conference, London (2014), 3rd International Conference on Urban Disaster Recovery, Boulder CO (2014), Global Disaster Preparedness Center annual meeting, Washington, DC (2015), NSF/NCSU Resilient Infrastructure for Sustainable Communities Workshop, Washington DC (2014).

Successful Funding & Grant Proposals:

- NSF EAGER Grant (NSF 1645335/EAGER) - A dynamic, reliability-weighted, multi-pass probabilistic framework to reduce uncertainty in crowd-sourced post-disaster damage assessments (\$100,000)
- Environmental Ventures Project (EVP) grant - Getting our feet wet: Developing a modeling approach to assess the role of nature in mitigating flood risk (\$50,000)

- NSF Grant Proposal (NSF Grant No 106756) to conduct research on dynamic urban disaster risk modeling (\$400,000)
- Google Earth Engine Research Grant (\$70,000 unrestricted gift)
- California Seismic Safety Commission Grant. Primary contributor to a Global Earthquake Model (GEM) proposal for modeling urban recovery to earthquake disasters (\$300,000)

PUBLICATIONS LIST

Journal Papers:

1. Burton, H., Deierlein, G., **Lallemant, D.**, Singh, Y., Measuring the Impact of Enhanced Building Performance on the Seismic Resilience of a Residential Community. *Earthquake Spectra*, doi:10.1193/040916EQS057M.
2. **Lallemant, D.**, Burton, H., Ceferino, L., Bullock, Z., Kiremidjian, (2017) A. A Framework and Case Study for Earthquake Vulnerability Assessment Of Incrementally Expanding Buildings. *Earthquake Spectra*.
3. **Lallemant, D.**, Soden, R., Rubinyi, S., Loos, S., Barns, K., Bhattacharjee, G. (2017) Post-disaster damage assessments as catalysts for recovery: A look at assessments conducted in the wake of the 2015 earthquake in Nepal. *Earthquake Spectra*. (accepted)
4. **Lallemant D.**, Kiremidjian A. and Burton H. (2015), Statistical procedures for developing earthquake damage fragility curves. *Earthquake Engineering and Structural Dynamics*. DOI: 10.1002/eqe.2522.
5. Burton, H. Deierlein, G., **Lallemant, D.**, Lin, T. (2015). A Framework for Assessing Building Performance Limit states that Inform Community Seismic Resilience, *Journal of Structural Engineering* Special Issue: Resilience-based design of structures.
6. **Lallemant, D.**, Kiremidjian, A. (2014). A Beta Distribution Model for Characterizing Earthquake Damage State Distribution. *Earthquake Spectra*, p.140514111412006.
7. Noh H. Y., **Lallemant D.**, and Kiremidjian A. S. (2014) Development of empirical and analytical fragility functions using kernel smoothing methods, *Earthquake Engineering and Structural Dynamics*. doi: 10.1002/eqe.2505.
8. C. Corbane, K. Saito, L. Dell’Oro, E.Bjorgo, S. Gill, B. Piard, C. Huyck, T. Kemper, G. Lemoine, R. Spence, R. Shankar, O. Senegas, F. Ghesquiere, **D. Lallemant**, G. Evans, R. Gartley, J. Toro, S. Ghosh, W. D. Svekla, B. Adams, and R. Eguchi (2011). A Comprehensive Analysis of Building Damage in the 12 January 2010 Mw7 Haiti Earthquake Using High-Resolution Satellite and Aerial Imagery, *Photogrammetric Engineering & Remote Sensing*, Vol. 77, No. 10, October 2011, pp. 0997-1009.

Book / Chapters:

1. **Lallemant, D.**, McNaughton, E., Wills, J. (2015). Book: Leading in Disaster Recovery - A Companion through the Chaos. Red Cross Global Disaster Preparedness Center. DOI: 10.13140/2.1.4764.3689
2. **Lallemant, D.** (2015). Risk Reduction in Post-Disaster Reconstruction. In *The Shelter Response and Housing Recovery in the First Two Years after the 2010 Haiti Earthquake: What Was Done and What Was Learned?* Editors: P. Phelps, M. Matera. The World Bank Press.
3. **Lallemant, D.**, Wong, S., Kiremidjian, A. (2014). A Framework for Modeling Future Urban Disaster Risk. In *Understanding Risk in an Evolving World: Emerging Best Practices in Natural Disaster Risk Assessment*. Editors: A. Simpson, S. Frazer. Global Facility for Disaster Reduction and Recovery.

Conference Papers:

1. **Lallemant, D.**, Kiremidjian, A. (2017) Accounting for Uncertainty in Earthquake Fragility Curves, 16th World Conference in Earthquake Engineering, Chile, Jan 9-13, 2017.
2. **Lallemant, D.** (2014). Waiting for the Big One: the Continued Earthquake Risk of Port-au-Prince, Haiti. *3rd International Conference on Urban Disaster Recovery*, Sept 28-Oct 1st. Boulder, CO.
3. **Lallemant, D.** (2014). Supporting and Informing the Process of Risk Arbitration in Post-Disaster Recovery. *3rd International Conference on Urban Disaster Recovery*, Sept 28-Oct 1st, 2014. Boulder, CO.

4. **Lallemant, D.**, Wong S., Morales K., Kiremidjian, A. (2014). A Framework and Case Study for Urban Seismic Risk Forecasting. *10th National Conference on Earthquake Engineering*, July 21-25 2014, Anchorage, Alaska.
5. **Lallemant, D.** (2014) Modeling Future Risk to Envision Paths towards Future Resilience. *Understanding Risk Conference*, London, June 2014.
6. **Lallemant, D.**, Kiremidjian, A. (2013). Rapid Post-Earthquake Damage Estimation using Remote-Sensing and Field-Based Damage Data Integration. *11th International Conference on Structural Safety & Reliability (ICOSSAR 2013)*, June 16-20, 2013. Columbia University New York, NY. In: Safety, Reliability, Risk and Life-Cycle Performance of Structures and Infrastructures. CRC Press, pp 3399–3406
7. Noh H., **Lallemant, D.**, Kiremidjian, A. (2013). Development of Empirical and Analytical Fragility Functions Using Gaussian Kernel Smoothing Methods. *11th International Conference on Structural Safety & Reliability (ICOSSAR 2013)*. June 16-20, 2013. Columbia University New York, NY.

Reports and Other Publications:

1. **Lallemant, D.**, Keiko, K., Nepal, G., Mainali, G. (2015). Nepal 2015 Earthquake Post Disaster Needs Assessment (PDNA)– Housing and Human Settlement Sector Report. *Government of Nepal National Planning Commission*. (The PDNA is a standard document produced following disaster and is the main strategic document for recovery planning).
2. **Lallemant, D.**, Kiremidjian, A. (2013). Fitting Fragility Functions to Empirical Data. *Global Earthquake Model (GEM) Report*.
3. Noh. H., Kiremidjian, A. **Lallemant, D.**, (2012). Issues Related to the Development of Empirical Fragility Functions. *Global Earthquake Model (GEM) Report*.
4. **Lallemant, D.** (2010), The State of Haiti following the 2010 Earthquake. *Berkeley Planning Journal*, 23(1).

Online Media

1. **ResilientUrbanism.org** – co-founder of a collaborative network of researchers from Stanford, UC Berkeley and University College London, researching and blogging about the impact of disasters on cities, their recovery process, and methods to build their resilience.
2. **resilience-science.org** – Personal academic website and blog.

Journal Papers In Preparation:

1. **Lallemant, D.**, Burton, H., Kiremidjian, A. Treatment of Uncertainty in Fragility Modeling.
2. **Lallemant, D.**, Kiremidjian, A., Rapid Post-Earthquake Damage Estimation using Remote-Sensing and Field-Based Damage Data Integration.
3. **Lallemant, D.**, Loth, C., Baker J., Kiremidjian, A. Spatial Correlation of Earthquake-Induced Damages and Impact on Regional Loss Estimation.
4. **Lallemant, D.** Kiremidjian, A. Integrated Cellular Automata and Markov Chain Model of Dynamic Urban Risk.
5. **Lallemant, D.** Waiting for the Big One: the Continued Earthquake Risk of Port-au-Prince, Haiti.

Invited Keynotes and Plenary Talks

1. **Lallemant, D.** (2016). “Disrupting Disaster - Choosing the Risk Trajectory of our Cities.” *Disrupted Balance – Society at Risk*. Dec 2016. Institute Para Limes, NTU, Singapore.
2. **Lallemant, D.** (2016). “From Building-Level Risk to Human and Infrastructure Systems Resilience.” Keynote Presentation. *Inaugural Quakecore Annual Meeting*, Aug 31-Sept 2nd, 2016, Taupo, New Zealand.
3. **Lallemant, D.** (2014). “Supporting and Informing the Process of Risk Arbitration in Post-Disaster Recovery.” Plenary Talk. *Third International Conference on Urban Disaster Recovery*, Sept 28-Oct 1st, 2014. Boulder Colorado.

4. **Lallemant, D.** (2010). “Uses of Information Technology Products for Disaster Response & Recovery”, Keynote Presentation. Annual Workshop - *Information Products Laboratory for Emergency Response*, Nov 12, 2010, Rochester Institute of Technology, Rochester, NY.

Invited Seminars and Talks

1. Stanford University, Smart Cities Seminar, Aug 31st, 2016
2. Princeton University, Department of Civil and Environmental Engineering, Nov 13th 2015.
3. SATSummit workshop on Earth Observation for Development, Washington DC, Nov. 9th 2015.
4. MIT, Urban Risk Lab, Nov 6th 2015.
5. University of Colorado Boulder, Understanding Risk Workshop, Boulder CO, Oct. 23-25, 2015.
6. EPICENTER workshop on decision-making in disasters, San Francisco, CA, July 17th 2015.
7. The Role of Structural Engineers in Sustainable Development and Poverty Reduction, ASCE Structures Congress, Portland OR, April 25th 2015.
8. National Building Museum Designing for Disaster exhibit, Feb 2nd 2015, Washington DC.
9. Global Disaster Preparedness Center, Washington DC, Jan 27th 2015.
10. Christchurch Recovery Lessons Learned Workshop, Christchurch, New Zealand, Jan 14th 2015.
11. 3rd International Conference on Urban Disaster Recovery, U.C. Boulder, Sept 28-Oct 1st 2014.
12. NSF workshop - Resilient Infrastructure for Sustainable Communities, Washington DC, June 9th 2014.
13. Understanding Risk Conference, London, June 1-4, 2014.
14. United States Geological Survey, Golden, CO, Apr. 14th 2014.
15. Google, Geospatial Technologies for Disaster Risk Reduction, Menlo Park, CA, Dec 18th 2013.
16. California Seismic Safety Commission, Sacramento, CA, Nov. 14th 2013.
17. Global Earthquake Model Foundation, Pavia, Italy, Feb 10th 2013.
18. University of California Berkeley, Bechtel Center, Nov 14th 2012
19. Stanford University, EERI Northern California Chapter Lecture, CA, Oct 17th 2012.
20. Workshop on Global Vulnerability Estimation Methods. Lisbon, Portugal, September 23rd, 2012.
21. EERI Annual Meeting, Memphis, Tennessee, April 10-13th 2012.
22. 9th International Workshop on Remote Sensing for Disaster Response, Stanford CA, Sept. 15th 2011.
23. Global Platform for Disaster Risk Reduction, Geneva, Switzerland, May 10-13, 2011.
24. Rochester Institute of Technology, Rochester, NY, Nov 12, 2010.
25. World Bank Sustainable Development Sector Annual Meeting, Washington DC, June 30th 2010.
26. MIT, Dept. of Civil and Environmental Engineering, Cambridge, MA, June 29th, 2010.
27. EERI workshop on Remote Sensing Based Damage Assessment, Oakland, CA, May 4th 2010.
28. World Bank Global Facility for Disaster Response and Recovery, March 11th 2010.
29. Smart Geometries Conference, Munich, Germany, June 6-7th 2008.

Research Collaborations:

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| <p>Google Earth Engine
<i>Novel Technologies for Earthquake Risk Modeling</i></p> <ul style="list-style-type: none"> • Proposed and received funding for research collaboration with Google Earth Engine team. • Investigating use of novel spatial analysis technologies for rapid and large-scale disaster risk modeling. | <p>Mountain View, CA</p> | <p>2014-Present</p> |
| <p>World Bank & Global Facility for Disaster Reduction and Recovery
<i>Modeling Future Risk to Envision Paths towards Future Resilience</i></p> <ul style="list-style-type: none"> • Formed research collaboration with GFDRR’s Innovation Lab in order to develop and test novel methods for urban disaster risk modeling and risk reduction policy analysis. | <p>Washington, DC</p> | <p>2012-2015</p> |
| <p>United States Geological Survey
<i>Urban and Regional Earthquake Risk Scenario Development</i></p> <ul style="list-style-type: none"> • Collaborated with the Prompt Assessment of Global Earthquakes for Response (PAGER) team led by Dr. David Wald, in order to expand the USGS toolset for urban and regional earthquake scenario analysis. • Investigating geostatistical methods to improve ground-motion field predictions and uncertainty from combined ground-motion recordings and prediction models, to be used for real-time “shakemap” development. | <p>Golden, CO</p> | <p>2014-Present</p> |

- Spent a 3-week exchange at USGS' National Earthquake Information Center in Golden, Colorado to conduct research with the PAGER team.

Global Earthquake Model (GEM) Pavia, Italy 2012-Present

Modeling Physical Vulnerability

- Member of the global physical vulnerability consortium.
- Contributed to the development of guidelines for developing fragility curves from empirical and analytical data.

Red Cross Wellington, New Zealand 2014-2015

Disaster Recovery

- Conducted research with the Red Cross on the earthquake recovery process of Christchurch, New Zealand.
- Co-authored a handbook on leadership in post-disaster recovery: Lallemand, D., McNaughton, E., Wills, J. (2015), "Leading in Disaster Recovery - A Companion through the Chaos." Red Cross Global Disaster Preparedness Center. DOI: 10.13140/2.1.4764.3689
This handbook reflects my own experience working and living in post-disaster Haiti for two years following the 2010 earthquake, as well as over 100 interviews conducted over the past 3 years of people from around the world who have worked in disaster recovery.

Teaching Experience:

Stanford University Stanford, CA Fall 2016, Fall, Winter, Spring 2017

Lecturer – Disaster Resilience Research Graduate Seminar (CEE308)

- Developed and taught a graduate seminar exploring current topics and leading research in disaster risk modeling and resilience science.

Stanford University Stanford, CA Fall 2016

Lecturer – Disaster Risk and International Development (CEE209B)

- Developed and taught a graduate course on disaster risk management and how it relates to international development theory, history and current practice.

UME Graduate School Pavia, Italy Winter 2013, Winter 2012

Main Instructor – Understanding and Managing Extremes Graduate Program

- Developed and taught a graduate course on urban risk modeling and post-disaster recovery and reconstruction.
- Developed 40 hours of lectures and practical exercises, now a standard for the Risk and Emergency Management graduate degree. (<http://www.umeschool.it/rem/teaching-body/david-lallemand/>)

Stanford University Stanford, CA Fall 2013

Graduate Instructor – Fundamentals of Modeling (EESS-211)

- Course for PhD students in the Department of Environmental and Earth Systems Science, focused on applications of statistical models for environmental modeling using R statistical language.
- Worked with McArthur award winning professor David Lobell to advise and supervise student projects.

Stanford University Stanford, CA Winter 2012

Graduate Instructor – Understanding Hazards, Quantifying Risk, Increasing Resilience in Highly Urbanized Regions

- Co-developed a brand new class focused on urban risk assessment and reduction.
- Assisted students in collecting and analyzing data to produce multi-hazard risk assessments of case study cities.

U.C. Berkeley Berkeley, CA Spring 2009, Fall 2010

GSI (Graduate Student Instructor) – Civil Engineering Materials (Graduate Level, CEE Dept.)

- Ran discussions, exam reviews and labs sessions for a graduate class on high-performance materials.

U.C. Berkeley Berkeley, CA Fall 2010

Volunteer GSI (Graduate Student Instructor) – Arch150: Introduction to Structures (Architecture Dept.)

- Volunteered as teaching assistant in Berkeley's architecture department, hosting office hours and supervising student projects in structures.

Pratt Institute Graduate School

Brooklyn, NY

Spring 2008

Adjunct Assistant Professor -- History of Structural Art (Graduate Level)

- Co-designed and co-taught a class for 20 graduate students, examining the history of structural art, the great structural designers and their methods.

Related Professional Experience:

The World Bank

Kathmandu, Nepal

April-June 2015

Disaster Risk Management Consultant

- Led the housing sector Post-Disaster Needs Assessment (PDNA).
- Developed rapid disaster impact reports using predictive modeling and statistical analysis tools.
- Developed early strategy for response and recovery. Worked with the Government of Nepal, UN Shelter Cluster and partner donor agencies to develop and align recovery strategies.
- Provided technical assistance to the Government of Nepal on safe reconstruction standards.

Global Facility for Disaster Reduction and Recovery

Washington, DC

2013-2014

Steering Committee – Disaster Recovery Framework

- Part of the steering committee evaluating the recovery process following the 2010 Earthquake in Haiti.
- Focused on issues of disaster risk reduction during recovery, as part of a larger effort to produce a Disaster Recovery Framework for the World Bank, the United Nations Development Program and the European Union.

The World Bank

Port-au-Prince, Haiti

2010 –2011

Disaster Risk Management Consultant

- Developed and coordinated the Haiti building damage assessment initiative (400,000 buildings evaluated) aimed at preventing further deaths and injuries, as well as to create base-line information products to plan and implement recovery projects. CNN World News Coverage on <http://tinyurl.com/2acvd8b>.
- Led the working group of the Haitian Ministry of Public Works to create disaster resilient construction norms and guidelines.

Buro Happold

New York, NY

July 2007 – July 2008

Graduate Engineer & Designer

- First young engineer part of Buro Happold's High-Performance Structures Group, dedicated to new technologies, non-standard materials, computationally driven solutions and numerically controlled fabrication processes.
- Developed the structural solution to one of the office's most high profile project: the National September 11 Museum located at Ground Zero in Manhattan. Created a 3D computational tool to generate 360,000 different possible configurations, and test them for user defined efficiency criteria.

University Service:

Stanford Urban Resilience Initiative (SURI)

Co-founder of Stanford's Urban Resilience Initiative (<http://urbanresilience.stanford.edu/>)

2015-Present

- Co-founded a new initiative at Stanford focused on research and design of technologies that will meaningfully improve the resilience of communities to natural disasters. The nascent and growing multi-disciplinary network works at the intersection of natural sciences, statistics, engineering and policy in order to tackle one of the major global challenge of the next century: how will we ensure that our human environments—increasingly urban, complex, interconnected—cope with and even thrive in the face of natural perils.
- Convened faculty, external partners and students in order to discuss, develop and launch the new initiative.
- Secured two research grants, supporting several PhD students on SURI projects.
- Co-developed new multidisciplinary courses on resilience science.

- Organized several workshops, seminars and other events to bring together and expand the SURI community.

Financing Resilience Workshop

Co-Organizer

- Convened leading experts from the private, public and academic sector to discuss and workshop new innovative mechanisms for financing risk reduction projects and programs. (April 2017)

Artathon on Disaster and Climate Risk of the Bay Area

Co-Organizer

- Led an initiative bringing together artists, scientists and engineers to develop new understandings of risk and risk communication through art. Pieces exhibited at a local gallery and Stanford. (May 2017)

Third International Conference on Urban Disaster Recovery

Member of the Organizing Committee

- Member of the organizing committee for an international conference in Boulder, Colorado held on Sept 28th-Oct 1st.
- Reviewed conference themes, author abstracts and general organization of the conference.

Earthquake Engineering Research Institute

President of the Earthquake Engineering Research Institute Stanford chapter, 2013

Languages: French (native), English (native), Thai (intermediate spoken).

Membership: Earthquake Engineering Research Institute (EERI), Society of Risk Analysis (SRA), San Francisco Planning and Urban Research Association (SPUR), American Society of Photogrammetry and Remote Sensing (ASPRS), Urban Humanitarian Response Portal.

References:

Anne Kiremidjian

Professor, Stanford University
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Jack Baker

Professor, Stanford University
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Gregory Deierlein

Professor, Stanford University
Director, John. A. Blume Earthquake Engineering Center
ggd@stanford.edu

Haresh Shah

Professor Emeritus, Stanford University
Chairman of Board of Trustees, Nanyang Technological University
Founder, Risk Management Solutions
haresh.shah@rms.com

Mary Comerio

Professor, University of California at Berkeley
mcomerio@berkeley.edu

Francis Ghesquiere

Manager, World Bank's Disaster Risk Management Practice Group
Director, Global Facility for Disaster Reduction and Recovery

fghesquiere@worldbank.org

Mary-Lou Zoback

Member, Disaster Roundtable at the National Academy of Sciences
Consulting Professor, Stanford University
marylouz@stanford.edu

Elizabeth McNaughton

Executive Director, Canterbury Earthquake Recovery Lessons Learned
Department of the Prime Ministry and Cabinet, New Zealand
elizabeth.mcnaughton@dpmc.govt.nz

Brian Tucker

Founder and President of Geohazards International
McArthur Fellow
tucker@geohaz.org

David Wald

Research Scientist, United States Geological Survey (USGS)
Geophysics faculty, Colorado School of Mines
wald@usgs.gov

Reinhard Goethert

Research Faculty, Massachusetts Institute of Technology
Director, Special Interest Group in Urban Settlements (SIGUS)
rkg@mit.edu