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Education

2004-2008

Stanford University, CA

Doctor of Philosophy (**Ph.D.**) in Civil and Environmental Engineering. (CEE)

Ph.D. Dissertation Topic: "*Sidesway collapse of deteriorating structural systems under seismic excitations*"

Supervisor: Professor Helmut Krawinkler

2003-2004

Stanford University, CA

Master of Science (**MSc**) in Civil and Environmental Engineering. (CEE)

Advisor: Professor Gregory G. Deierlein

GPA: 4.03/4.00

1998-2003

National Technical University of Athens (NTUA), Greece

Diploma, M. Eng. in CEE with specialization in Structural Engineering

Thesis Topic: "*Advanced nonlinear techniques to investigate the effects of mass and stiffness irregularities on seismic demands of steel moment frames*"

Supervisor: Professor Charis J. Gantes

GPA: 9.11/10.00

Research Interests

Collapse Assessment of Structural Systems
Experimental Methods in Civil Engineering
Fracture and Fatigue of Steel Structures
Retrofit Techniques for Structural Systems
Performance-Based Design
Structural Reliability
Structural Health Monitoring
Sustainability and Structural Performance
Structural Performance Databases
Nonlinear Analysis

Appointments

- 2009 – present **Research Associate**, Stanford University, Stanford, CA, in Collaboration with Professor E. Miranda (PI) as part of the NSF NEESR-CR (award Number 0936633) project “Collapse Simulation of Multi-Story Buildings through Hybrid Testing”
- 2009 – present **Postdoctoral Researcher**, Kyoto University, Japan, Disaster Prevention Research Institute (DPRI), Division of Earthquake Resistant Structures
Supervision: Professor Masayoshi Nakashima (Kyoto University, E-Defense)
- 2008 – 2009 **Postdoctoral Researcher**, Stanford University, Stanford, CA
Supervision: Professor S. Billington (Stanford, CA), PI: Professor J. K. Wight (University of Michigan), Co-PIs: Professors G. J. Parra, S. El-Tawil (University of Michigan)
- 2008 – 2009 **Visiting Researcher**, University of California, Berkeley, CA
Design, plan and execution of state-of-the art hybrid simulation testing of retrofitted steel structures with ductile fiber reinforced concrete, as part of Network for Earthquake Engineering Simulation (NEES), in collaboration with Professors S. Billington, (Stanford, CA), Professor J. K. Wight (University of Michigan), Professor B. Stojadinovic (University of California, Berkeley)
- 2006 – 2007 **Visiting Researcher**, State University at Buffalo, Buffalo, New York (SUNY)
Planned, designed and conducted two shaking table collapse tests of a scale model of a 4-story steel structure at the NEES facility at University at Buffalo. The objective was to validate analytically and experimentally the collapse prediction of frame structures.
Supervision: Professor H. Krawinkler, Professor A. Whittaker
- 2004 – 2008 **Graduate Research Assistant**, Stanford University, Stanford, CA.
Supervision: Professor H. Krawinkler (Stanford, CA)

Honors/Awards

- 2009 – 2010 Japan Society for the Promotion of Science (**JSPS**) honorary fellowship to conduct research in Japan in the Disaster Prevention Research Institute (**DPRI**) in Kyoto University and Hyogo Earthquake Engineering Research Center (**E-Defense**) focusing on seismic capacity of high rise buildings and energy dissipation devices.
- 2008 – 2009 National Science Foundation (**NSF**) **Award** for Experimental Research in Earthquake Engineering to participate in a full scale 6-story earthquake test and damage inspection in world’s largest shaking table in Japan (E-Defense, National research institute for earth science and disaster prevent) for developing a performance-based seismic design philosophy for mid-rise wood construction
- 2005 - 2006 John A. Blume **Fellow** for Doctor of Philosophy, Stanford, CA (**First Recipient**)
- 2005 - 2006 **Medal and Award** for exemplary research in the area of earthquake engineering (awarded during 3rd conference on Mechanics and Solids, *Massachusetts Institute of Technology*)
- 2005 - 2006 **“John Argyris” Medal and Award** for best Diploma Thesis in the area of Earthquake Engineering from Greek Association of Computational Mechanics (awarded during 5th GRACM conference on computational mechanics, Cyprus)
- 2003 - 2004 Stanford University **Fellow** for Master of Science, Stanford, CA
- 2003 - 2004 Fulbright Scholar to pursue graduate studies in United States
- 1998 - 2003 **5 “Distinguished Performance” Awards** from Technical Chamber of Greece (Ranked among the top 3 students of NTUA for 5 consequent years)
- 1999 - 2003 **5 Scholarships** from the Greek Institution of National Scholarships (IKY) (top 1% in a class of 250 students in NTUA for 5 consequent years)
- 1999 - 2000 **6 “Distinguished Performance” Awards** from NTUA for exceptional performance in Mathematics

Awarded Research Proposals

2009 – 2012 **NSF NEESR-CR Proposal 0936633, Award \$1.2Million:** “Collapse Simulation of Multi-Story Buildings through Hybrid Testing”, E. Miranda, **D. G. Lignos**, H. Krawinkler (Stanford University), R. Medina (University of New Hampshire), G. Mosqueda (State University of New York at Buffalo), B. Fell (Sacramento State), *through* George E. Brown, Jr. Network for Earthquake Engineering Simulation (NEES) Division of Civil, Mechanical, and Manufacturing Innovation Directorate for Engineering Suite 545 National Science Foundation.

Research Projects

Stanford University

2009- present **“ATC-76-6: Development of Simplified Methods for Quantification of Building System Performance Applicable For Engineering Practice”**. The objective of the project is to develop simplified methods and models that incorporate shear and flexural behavior of structural systems for quantification of structural performance. The primary goal is to provide to engineering community tools applicable in practice. Worked with Professor H. Krawinkler as part of NEHRP Consultants Joint Venture, NIST-funded Earthquake Structural and Engineering Research Contract-Applied Technology Council.

2008- present **“Design, Evaluation and Testing of a Ductile Fiber-Reinforced Concrete Infill Panel System for Seismic Retrofitting of Steel Frames”**. The objective of this NEES-SG project is to evaluate the seismic performance of precast high performance fiber-reinforced concrete infill panels that are easily installed in a bay or number of bays of existing or new steel frames. The new retrofit system has been compared analytically with other standard retrofit systems such as buckling restraint braces and viscous dampers. Work with Professor **Sarah L. Billington**.

2008 - 2010 **“ATC-76-1: Quantification of Building System Performance and Response Parameters”**. The objective of this project is to develop building system performance and response parameters (R , C_d , Ω_0) for the linear design methods traditionally used in current building codes for special moment resisting frames. Worked with Professor **H. Krawinkler** and Professor **F. Zareian**, as part of NEHRP Consultants Joint Venture, NIST-funded Earthquake Structural and Engineering Research Contract-Applied Technology Council.

2008 - 2009 **“ATC-72: Development of Guidelines on Modeling and Acceptance Criteria for Seismic Design and Analysis of Tall Buildings”**. Development of modeling recommendations for steel and reinforced concrete elements in support to collapse assessment of deteriorating structural systems. Worked with Professor **H. Krawinkler**, as part of Applied Technology Council (ATC)-72 project.

2006 – 2007 **“Collapse Predictions of a Shaking Table Collapse Test of a Full Scale 4-Story Steel Structure”**. Analytical modeling development and collapse predictions for a three dimensional shaking table collapse test of a full scale 4-story steel structure conducted on the E-Defense shaking table in the Hyogo Earthquake Engineering Research Center in Japan. Worked with Professors **H. Krawinkler** and **F. Zareian**.

2006 – 2007 **“Cyclic and Monotonic Component Tests for Deterioration Modeling”**. Planned designed and conducted more than 50 cyclic and monotonic component tests at the John A. Blume Earthquake laboratory at Stanford University in order to investigate under the effect of cyclic and monotonic loading on component deterioration and validate analytical models. Worked with Professor **H. Krawinkler**.

2006 – 2007 **“Fragility Assessment of Reduced Beam Section Moment Connections”**. Developed damage states (Yielding, Local Buckling and Fracture) to evaluate cyclic response of reduced beam section steel moment connections. Worked with Professor **E. Miranda**.

- 2005 – 2007 **“CUREE-KAJIMA: Contributions to Collapse Prediction for Frame Structures”**. Worked on the investigation of factors leading to progressive collapse of structural systems under earthquake excitations. Worked with Professor **H. Krawinkler** and **Kajima Corporations** as part of the CUREE-Kajima Joint Research Program, Phase VI)
- 2005 – 2007 **“Development of Databases for Deterioration Modeling of Structural Components”**. Designed and developed three databases for steel structural members, reinforced concrete members and tubular steel sections. More than 600 specimens were collected and input in the databases. The focus was the development of relationships to model deterioration of components in support to collapse assessment of structural systems. All three structural component databases will be posted online by NEES and will be available to public (worked with Professor **H. Krawinkler**, **Kajima Corporation** CUREE Joint Research Program, Phase VI also collaborated with Professors **M. Nakashima**, **M. Fardis**, **C. Uang**)
- 2005 – 2006 **“ATC-63: Issues Affecting the R-Factor Determination of Autoclaved Aerated Concrete (AAC) Buildings”**. Establishment of a recommended methodology for reliable quantification of building system performance (R , C_d , Ω_0) and response parameters for use in seismic design. The specific task was the investigation of issues for development of seismic provisions of AAC lateral load resisting systems. Worked with Professors **H. Krawinkler**, **F. Zareian** as part of Applied Technology Council (ATC) – 63 project)
- 2005 – 2006 **“Evaluation of New Base Isolation Devices”**. Experimental evaluation and validation of a new base isolation device with a use of shaking table tests. Worked with **Gregory P. Luth & Associates, Inc.**
- 2003 – 2004 **“Evaluation of Modal Pushover Analysis Using Irregular Generic Frames”** Worked on significance of sources of structural irregularities on seismic response of moment frames based on modal pushover analysis. Worked with Professor **H. Krawinkler**.
- 2003 – 2004 **“System Reliability of Steel Structures based on Interstory Drift and Direct Loss Demands”**. Worked on system reliability of structural systems under seismic excitations including loss estimation approaches in order to suggest cost effective retrofitting techniques of structural systems. Worked with Professor **C. Menun**.

National Technical University of Athens (NTUA)

- 2002 – 2003 **“Effects of Near Fault Ground Motions on Seismic Demands of Steel Structures”** Worked on investigation of strengthening techniques for steel structures subjected to near fault ground motions. Worked with Professor **C. J. Gantes**.
- 2002 – 2003 **“Development of Simplified Models for Structural Stability of Steel Structures”** Worked on evaluation of stability of arc and shell structures based on simplified models, using the Dynamic Approach. Worked with Professor **C. J. Gantes**.

Professional Experience - Consulting

- 2008 – 2009 **“Seismic R (q)-factor determination for the structural design of the new 40.000 seat soccer stadium of Panathinaikos F.C in Votanikos, Greece”**. In collaboration with Kologiannis and Associates and Professor Charis J. Gantes (National Technical University of Athens) (<http://www.stadiumguide.com/paoathensarena.htm>)

Teaching

Stanford University, Department of Civil and Environmental Engineering

- Autumn 2009 **CEE 385 – “Performance-Based Earthquake Engineering”** (Co-Instructor)

- Teaching weekly and develop material and tools distributed to class for analytical simulation, modeling, testing and loss estimation of deteriorating structural systems. The 5-hr lecture series is offered to *Ph.D.* and 2nd year *MS* students (*Class is coordinated by Professor H. Krawinkler*)
- Autumn 2008 **CEE 385 – “Performance-Based Earthquake Engineering”** (Teaching Associate)
Voluntarily assisted in teaching weekly and developed material and tools distributed to class for analytical simulation, modeling, testing and loss estimation of structural systems. The 5-hr lecture series that was offered for a first time was taught to *Ph.D.* and 2nd year *MS* students (*Class was offered by Professor H. Krawinkler*)
- Fall 2008 **CEE 285 - “Design of Structural Systems for Buildings”** (Teaching Assistant)
Assisted in teaching weekly and developed material distributed to class for a 7-hr lecture series of graduate course dealing with basic design concepts, performance criteria, loading, methods of design, types of structural systems, behavior under gravity and lateral loads (*Class was offered by Professor H. Krawinkler*)
- Fall 2006 **CEE 286 – “Advanced Structural Design”** (Teaching Assistant)
Voluntarily assisted in teaching weekly 4-hr lecture series of graduate course dealing with strength of elements, plastic analysis, plate theory and steel connections (*Class was offered by Professor H. Krawinkler*)
- Fall 2004 **CEE 181 – “Design of Steel Structures”** (Teaching Assistant)
Assisted in teaching weekly and developed material distributed to class for a senior-level undergraduate elective course for general engineering students dealing with design of steel structures (*Class was offered by Professor G. Deierlein*)

Book Chapters

1. **Lignos, D. G.**, Krawinkler, H., Whittaker, A. S. (2010). “Experimental and Analytical Collapse Assessment of Steel Moment-Resisting Frames”, Book Chapter in “Computational Methods in Applied Sciences”, *European Community on Computational Methods in Applied Sciences*, Vol. 3, Published by Springer, NY.
2. Krawinkler, H., **Lignos, D. G.**, (2009). “How to Predict the Probability of Collapse of Non-Ductile Building Structures”, Book Chapter in “Seismic Risk Assessment and Retrofitting”, *Geotechnical, Geological, and Earthquake Engineering*, Vol. 10, Published by Springer, NY.
3. Krawinkler, H., Zareian, F., **Lignos, D. G.**, Ibarra L. F. (2009). “Significance of Modeling Deterioration in Structural Components for Predicting the Collapse Potential of Structures under Earthquake Excitations”, Book Chapter in “Performance-Based Earthquake Engineering”, Published by Springer, NY.

Refereed Journal Publications

4. **Lignos, D. G.**, Kolios, D., Miranda, E., (2010). “Fragility Assessment of Reduced Beam Section Moment Connections”, *ASCE Journal of Structural Engineering*, (accepted for publication).
5. Zareian, F., Krawinkler, H., Ibarra L. F., **Lignos, D. G.** (2009). “Basic Concepts and Performance Measures in Prediction of Collapse of Buildings under Earthquake Ground Motions”, *The Structural Design of Tall and Special Buildings Journal*, Vol. 19 (1-2), 167-181.
6. **Lignos, D. G.**, Krawinkler, H., Whittaker, A. S., (2009). “Prediction and Validation of Sidesway Collapse of Two Scale Models of a 4-Story Steel Moment Frame”, *Earthquake Engineering and Structural Dynamics* (Accepted for publication)
7. **Lignos, D. G.**, Krawinkler, H., (2009). “Deterioration Modeling of Steel Beams and Columns in Support to Collapse Prediction of Steel Moment Frames”, (Submitted to ASCE, *Journal of Structural Engineering*, under review)

8. Noh, H. Y., Nair, K. K., **Lignos, D. G.**, Kiremidjian, A., (2009). “On the Use of Wavelet Based Damage Sensitive Features for Structural Damage Diagnosis using Strong Motion Data”, (Submitted to *ASCE Journal of Structural Engineering*, under review)
9. Shafei, B., Zareian, F., **Lignos, D. G.** (2009). “A Simplified Method for Collapse Capacity Assessment of Structural Systems”, (Submitted to *Engineering Structures Journal*, under review)
10. **Lignos, D. G.**, Krawinkler, H., (2009). “Relationships for Deterioration Modeling of Tubular Steel Sections under Varying Axial Load for Collapse Assessment of Steel Frames”, (Submitted to *Journal of Constructional Steel Research*)

Refereed Journal Publications in Preparation

11. **Lignos, D. G.**, Krawinkler, H. (2009). “Yield and Tensile Strength Ratios of W-Steel Sections: Expected Values and Correlations for Reliability Analysis of Steel Moment Connections”, (In Preparation to be submitted in AISC (American Institute of Steel Construction) *Engineering Journal*).
12. **Lignos, D. G.**, Miranda, E., (2009). “Simplified Methods for Performance Evaluation of Steel Structures based on Fragility Assessment of Steel Moment Connections”, (Draft paper has been completed: To be submitted in *ASCE Journal of Structural Engineering*).
13. **Lignos, D. G.**, Miranda, E., (2009). “Estimation of Ground Motion Response based on Blind System Identification”, (Draft paper has been completed: To be submitted in *Journal of Earthquake Engineering and Structural Dynamics*).
14. **Lignos, D. G.**, Hunt, C. M., Krebs, A., Billington, S., (2009). “A Performance – based Earthquake Engineering Assessment of Retrofitted Steel Frames with Ductile Concrete Infill Panels Compared to Traditional Buckling Restraint Braces and Conventional Dampers”, (Draft paper has been completed: to be submitted in *Journal of Earthquake Engineering and Structural Dynamics*).
15. **Lignos, D. G.**, Krawinkler H., Whittaker A. S. (2009). “Lessons learnt from Recent Earthquake Simulator Collapse Tests of Steel Moment Frame Structures”, (In preparation to be submitted in *Journal of Earthquake Engineering*).
16. Noh, H. Y., **Lignos, D. G.**, Nair, K.K., Kiremidjian, A. S. (2009). “Development of Fragility Functions for Structural Systems Using Wavelet based Damage Sensitive Features for Performance Based Earthquake Engineering Assessment”, (In preparation to be submitted in *Journal of Earthquake Engineering and Structural Dynamics*).

Refereed Conference Publications

17. **Lignos, D. G.**, Krawinkler, H. (2010). “A Steel Database for Component Deterioration of Tubular Hollow Square Steel Columns under Varying Axial Load for Collapse Assessment of Steel Structures under Earthquakes”, *Proceedings 7th International Conference on Urban Earthquake Engineering (7CUEE)*, Tokyo, Japan March 3rd - 5th, 2010
18. **Lignos, D. G.**, Billington, S. L. (2010). “Hybrid Testing of a Retrofitted Steel Moment Resisting Frame with Infill Panels”, *Proceedings 9th US National and 10th Canadian Conference on Earthquake Engineering: Reaching Beyond Borders*, July 25-29, Toronto, Canada, 2010
19. Noh, H. Y., **Lignos, D. G.**, Nair, K., Kiremidjian, A., (2010). “Development of Fragility Functions for Buildings Based on Wavelet Coefficient Energies”, *Proceedings 9th US National and 10th Canadian Conference on Earthquake Engineering: Reaching Beyond Borders*, July 25-29, Toronto, Canada, 2010
20. **Lignos, D. G.**, Laura, E., Krawinkler, H. (2010). “Effect of Composite Action on Collapse Capacity of Steel Moment Frames under Cyclic Loading”, *Proceedings 14th European Conference On Earthquake Engineering (14ECE)*, Skopje, August 30th – September 3rd, 2010

21. Zareian, D. G., **Lignos, D. G.**, Krawinkler, H. (2010). “Seismic Design Modification Factors for Steel SMRFs for Uniform Collapse Safety”, *Proceedings 14th European Conference On Earthquake Engineering (14ECEE)*, Skopje, August 30th – September 3rd, 2010
22. **Lignos, D. G.**, Krawinkler, H., Whittaker, A., (2009). “Contributions to Collapse Prediction of Steel Moment Frames Through Recent Earthquake Simulator Collapse Tests”, *Proceedings 3rd International Conference on Advances in Experimental Structural Engineering*, October 15-16, San Francisco, CA, 2009
23. **Lignos, D. G.**, Hunt, C. M., Krebs, A., Billington, S., (2009). “Comparison of Retrofitting Techniques for Existing Steel Moment Resisting Frames”, *Proceedings ATC&SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures*, December 9-11, San Francisco, CA, 2009
24. **Lignos, D. G.**, Krawinkler, H., Zareian, F. (2009). “Modeling of Component Deterioration for Collapse Prediction of Steel Frames”, *Proceedings of 6th International Conference on Behavior of Steel Structures in Seismic Areas, STESSA 2009*, Philadelphia, Pennsylvania, USA
25. Noh, H. Y., **Lignos, D. G.**, Nair, K., Kiremidjian, A., (2009). “Application of Wavelet Coefficient Energies of Stationary and Non-stationary Response Signals for Structural Damage Diagnosis”, *Proceedings 7th International Workshop on Structural Health Monitoring*, Stanford, CA, September 9-11, 2009
26. **Lignos, D. G.**, Krawinkler, H., Whittaker, A., (2008). “Shaking Table Collapse Tests of a 4 – Story Steel Moment Frame”, *Proceedings 14th World Conference in Earthquake Engineering* Beijing, China, October 12-17, 2008
27. **Lignos, D. G.**, Zareian, F., Krawinkler, H., (2008). “Reliability of a 4-Story Steel Moment Resisting Frame against Collapse Due to Seismic Excitations”, *Proceedings ASCE Structures Congress*, Vancouver, BC, Canada, SEI institute, 2008
28. **Lignos, D. G.**, Krawinkler, H., Whittaker, S. A., (2008). “Collapse Tests of Two Scale Models of a Steel Frame Structure”, *Proceedings 6th NEES (Network for Earthquake Engineering Simulation) Annual Meeting*, Portland, Oregon, June 18th – 20th, 2008
29. **Lignos, D. G.**, Krawinkler, H., Whittaker, S. A., (2008). “Analytical and Experimental Prediction of Sidesway Collapse of Steel Frames”, *Proceedings 6th National Conference of Steel Structures*, Ioannina, Greece, October 2nd – 4th, 2009
30. **Lignos, D. G.**, Krawinkler, H., (2007). “A Database in Support of Modeling of Component Deterioration for Collapse Prediction of Steel Frame Structures”, *Proceedings ASCE Structures Congress*, Long Beach CA, SEI institute, 2007
31. **Lignos, D. G.**, Krawinkler, H., Gantes, C. J., (2006). “Seismic Demands for Frames with Strength and Stiffness Irregularities Based on MPA”, *Proceedings 5th International Conference on Behavior of Steel Structures in Seismic Areas, STESSA 2006*, Yokohama Japan
32. **Lignos, D. G.**, Gantes, C. J., (2005). “Modal Pushover Analysis as a Tool for Practical Design of Structures”, *Proceedings 3rd conference on Mechanics and Solids*, MIT, paper 008
33. **Lignos, D. G.**, Stergiou, E.C., Gantes, C. J., (2005). “Structural Reliability of Steel Structures Based on Interstory Drift and Direct Loss Demands”, *Proceedings 5th GRACM conference on computational mechanics*, Cyprus
34. **Lignos, D. G.**, Gantes, C. J., (2005). “Design Considerations for the Effects of Near Fault Ground Motions on Steel Structures”, *Proceedings 5th national conference on steel structures*, Xanthi, Greece
35. **Lignos, D. G.**, Gantes, C. J., (2005). “Seismic Demands for Steel-Braced Frames with Stiffness Irregularities Based on Modal Pushover Analysis”, *Proceedings 4th European workshop on seismic behavior of irregular and complex structures*, Thessalonica, Greece

Invited Papers in Referred Conference Publications

36. **Lignos, D. G.**, Zareian, F., Krawinkler H. (2010). "A Steel Component Database for Deterioration Modeling of Steel Beams with RBS under Cyclic Loading," *Proceedings ASCE Structures Congress, Orlando Florida, May 12-15, 2010* (Invited paper in session: Limit state evaluation of steel framed structures using the ATC 63 methodology)
37. Zareian, F., **Lignos, D. G.**, Krawinkler, H. (2010). "Evaluation of Seismic Collapse Performance of Steel Special Moment Resisting Frames Using the ATC-63 Methodology", *Proceedings ASCE Structures Congress, Orlando Florida, May 12-15, 2010* (Invited paper in session: Limit state evaluation of steel framed structures using the ATC 63 methodology)
38. Miranda, E., **Lignos, D. G.** (2009). "Estimation of Seismic Performance of Existing Steel Moment Resisting Frame Buildings by Using Continuous Models," *Proceedings ATC&SEI Conference on Improving the Seismic Performance of Existing Buildings and Other Structures*, December 9-11, San Francisco, CA, 2009. (Invited paper in session: Improving the seismic performance of existing structures through monitoring)
39. Krawinkler, H. Zareian, F., **Lignos, D. G.**, Ibarra, L. F. (2009). "Prediction of Collapse of Structures Under Earthquake Excitations", *Proceedings COMPDYN09* Rhodes, Greece, June 22-24, 2009 (Invited paper and keynote lecture)
40. **Lignos, D. G.**, Krawinkler, H., and Whittaker, A. S., (2009). "Collapse Assessment of a 4-story Steel Moment-resisting Frame", *Proceedings COMPDYN09*, Rhodes, Greece, June 22-24, 2009 (Invited paper in Progress and Challenges in Collapse Prediction, mini-symposium)
41. Zareian, F., **Lignos, D. G.**, Krawinkler, H. (2009). "Quantification of Modeling Uncertainties for Collapse Assessment of Structural Systems under Seismic Excitations," *Proceedings COMPDYN09* Rhodes, Greece, June 22-24, 2009 (Invited paper in Progress and Challenges in Collapse Prediction, mini-symposium)
42. Zareian, F., Krawinkler, H., **Lignos, D. G.**, Ibarra, L. O., (2008). "Predicting Collapse of Frame and Wall Structures", *Significant Accomplishments and Future Directions in Earthquake Engineering - In Memory of Professor Takuji Kobori. Proceedings 14th World Conference in Earthquake Engineering* Beijing, China. (Invited paper)
43. Krawinkler, H., **Lignos, D. G.**, (2007). "How to Predict and Reduce the Probability of Collapse of Non-Ductile Building Structures", *Proceedings International Workshop On Measures for the Prevention of Total Collapse of Existing Low-Rise Structures*, November 19-20, Istanbul Technical University, Istanbul, Turkey (Invited paper)

Technical Reports in Press

44. **Lignos, D. G.** (2010). "Interactive Interface for Incremental Dynamic Analysis: Theory and Example Applications Manual, Version 1.1.5", Department of Civil and Environmental Engineering, Stanford University, CA, March, 2010
45. Krebs, A., D., **Lignos, D. G.**, Billington, S. L., (2009). "Comparison of Alternative Seismic Retrofit Techniques for Steel Moment Resisting Frames", Department of Civil and Environmental Engineering, Stanford University, CA, March, 2009
46. **Lignos, D. G.**, (2008). "Sidesway Collapse of Deteriorating Structural Systems under Seismic Excitations," *Ph.D. Dissertation*, Department of Civil Engineering, Stanford University, Stanford, CA
47. Hubult, E., **Lignos, D. G.**, Krawinkler, H. (2008). "Assessing Potential of Adobe Walls Reinforced with Polymer Mesh," *Undergraduate Honors Thesis*, Department of Civil Engineering, Stanford University, Stanford CA, June, 2008
48. Hunt, C. M., **Lignos, D. G.**, Billington, S. L., (2008). "Evaluation of Energy Absorbent Infill Panels for Seismic Retrofit through OpenSees Simulation", Department of Civil Engineering, Stanford University, Stanford, CA, June, 2008

49. **Lignos, D. G.**, Krawinkler, H., (2007). “Contributions to Collapse Prediction for Frame Structures”, Kajima-CUREE Joint Research Program, Phase VI: Investigation of Factors Leading to Progressive Collapse of Structures. Category 2 Analysis of Structural Component Failure
50. Krawinkler, H., Zareian, F., Haas, K., **Lignos, D. G.**, (2006). “Issues Affecting the R-Factor Determination of Autoclaved Aerated Concrete (AAC) Buildings,” Part of the Applied Technology Council (ATC-63) project on Quantification of Building System Performance and Response Parameters
51. **Lignos, D. G.**, Gantes, C. J., (2003). “Advanced nonlinear techniques to investigate the effects of mass and stiffness irregularities on seismic demands of steel moment frames”, *Diploma Thesis*, Laboratory of Metal Structures, National Technical University of Athens (NTUA)

Invited and Plenary Talks

52. **Lignos, D. G.**, (2009). “State of Knowledge on Collapse Assessment of Structural Systems”, McGill University, Canada, Department of Civil & Environmental Engineering, May, 29th, 2009 (Invited Talk)
53. **Lignos, D. G.**, (2008). “State of Knowledge on Collapse Assessment of Frame Structures”, University of Cyprus, Civil and Environmental Engineering, Seminar Series: “The Engineer in Society”, December 17th 2008 (Invited Talk)
54. **Lignos, D. G.**, (2008). “Sidesway Collapse of Deteriorating Structural Systems under Seismic Excitations”, National Technical University of Athens (NTUA), Laboratory of Metal Structures, October 8th 2008 (Invited Talk)
55. **Lignos, D. G.**, Krawinkler H., (2008). “Collapse Tests of Two Scale Models of a Steel Frame Structure”, 6th NEES (*Network for Earthquake Engineering Simulation*) Annual Meeting, Portland, Oregon, June 18th – 20th, 2008 (Plenary Talk)
56. **Lignos, D. G.**, (2008). “Analytical and Experimental Prediction of Sidesway Collapse of Deteriorating Structural Systems”, Structural Engineers Association of Southern California (SEAONC), San Francisco, CA May 19th 2008 (Invited Talk)
57. **Lignos, D. G.**, (2008). “Contributions to Collapse Prediction of Frame Structures: Accomplishments, Future Implications and Directions”, Ecole Polytechnique Fédérale de Lausanne (EPFL), Research Seminar, Lausanne, Switzerland, April 10th 2008 (Invited Talk)
58. **Lignos, D. G.**, (2008). “Contributions to Collapse Prediction of Frame Structures: Accomplishments, Future Implications and Directions”, University of Massachusetts at Amherst, Research Seminar, March 5th 2008 (Invited Talk)
59. **Lignos, D. G.**, (2007). “Sidesway Collapse of Deteriorating Structural Systems under Seismic Excitations,” University at Buffalo NY, MCEER, NEES Research Seminar, July 20th 2007 (Invited Talk)
60. **Lignos, D. G.**, Krawinkler H., (2006). “A Database for Modeling Deterioration in Beams and Columns Subjected to Cyclic Bending Moments,” 4th NEES (*Network for Earthquake Engineering Simulation*) Annual Meeting, Washington DC, June 18th-20th, 2006 (Plenary Talk)

Student Research Supervision

Ph.D. Degree

Laura Eads, Stanford University, CA (2009, till now)

Position: Ph.D. Student, Stanford University, CA

Nathan, Edward Canney, Stanford University, CA (2009, till now)

Position: Ph.D. Student, Stanford University, CA

M.S. Degree

Patton, Steven, Stanford University, CA (2005)
Position: Structural Engineer, Nabih Youssef & Associates Inc.
Ahuja Yash, Stanford University, CA (2006)
Position: Structural Engineer, United Arab Emirates
Soriano, Guillermo, Stanford University, CA (2006)
Position: Structural Engineer, Walter P. Moore
Weiner Richard, Stanford University, CA (2008)
Position: Structural Engineer, Weidlinger Associates Inc.
Carlos Molina Hunt, Stanford University, CA (2008, 2009)
Position: MS Student, Stanford University, CA
Andrew D. Krebs, Stanford University, CA (2008, 2009)
Position: MS Student, Stanford University, CA
Christopher Putman, Stanford University, CA (2009, 2010)
Position: Structural Engineer, Oakland, CA

Bachelor's Degree

Yavor, Yotov, Stanford, University, CA, Summer Intern (2006)
Position: Structural Engineer, Bridgefarmer & Associates, Inc.
Chiew Karhim, State University at Buffalo, Buffalo, NY (REU Program) (2007)
Position: MS Student, State University at Buffalo, Buffalo, NY
Alborn, Matthew, State University at Buffalo, NY (REU Program) (2007)
Position: MS Student, Rutgers University, NJ
Norlund, Melissa, State University at Buffalo, NY (REU Program) (2007)
Position: MS Student, University of Patras, Greece and University of Pavia, Italy
Hug, Kelley, Stanford, University, CA, Summer Intern (2009)
Position: Bachelor's Student, Stanford University, CA
Castillo, Fernando, Stanford, University, CA, Summer Intern (2009)
Position: Bachelor's Student, Stanford University, CA

Professional Memberships

Architectural Institute of Japan
American Society of Civil Engineers (ASCE), *Associate Member*
American Concrete Institute (ACI)
American Institute of Steel Construction INC (AISC)
Earthquake Engineering Research Institute (EERI)
Network for Earthquake Engineering Simulation (NEES)
National Information Center of Earthquake Engineering (NICEE)
United States Geological Survey (USGS)
Canadian Association for Earthquake Engineering
Hellenic Society of Civil Engineers

Referee Work - Official Reviewer in Engineering Journals

ASCE, Journal of Structural Engineering
Earthquake Engineering and Structural Dynamics
Journal of Structures and Buildings

Referee Work in Earthquake Engineering Conferences

9th US National and 10th Canadian Conference on Earthquake Engineering, Reaching Beyond Borders, Toronto, Canada, July, 25-29, 2010

3rd International Conference on Advances on Experimental Structural Engineering (3AESE), San Francisco, 15-16, 2009, CA.

Software Development

2007 – 2009

IIDAP, Version 1.1.5: “Interactive Interface for Incremental Dynamic Analysis Procedure”, Nonlinear dynamic analysis software that includes all recent deterioration models and is able to conduct incremental dynamic analysis for single degree of freedom systems utilizing different sets of ground motions and alternative state of the art scaling techniques. The program is able to develop fragility functions for different damage states given a hazard level, collapse spectra and other capabilities. Available for free, by request only. *Copyright Protected.*

Used from graduate students at Stanford University in the following graduate classes:

CEE 385: “Performance-Based Earthquake Engineering”, (Offered by H. Krawinkler)

CEE 288: “Earthquake Hazard and Risk Analysis”, (Offered by A. Kiremidjian)

Skills

Languages: Native Greek, fluent in written and spoken English

High level of computer knowledge (Java, C++, FORTRAN, Visual Basic Applications (VBA), MySQL, php, html, MATLAB, DADiSP, ABAQUS, ANSYS, NASTRAN, Solidworks, AutoCAD) and Structural Engineering Software Packages (SAP, ETABS, RAM Perform CSI)