

JUDY LIU

EDUCATION

Ph.D.	Civil Engineering	University of California at Berkeley	December 2000
M.S.	Civil Engineering	University of California at Berkeley	May 1996
B.A.E.	Architectural Engineering	Pennsylvania State University	May 1995

APPOINTMENTS

2015 – present	Professor, School of Civil and Construction Engineering, Oregon State University
2011 – 2012	Visiting Associate Professor, University of Maryland; Senior Research Fellow, National Institute of Standards and Technology
2010 – 2015	Associate Director, Bowen Laboratory, Purdue University
2007 – 2015	Associate Professor, School of Civil Engineering, Purdue University
2001 – 2007	Assistant Professor, School of Civil Engineering, Purdue University

HONORS AND AWARDS

- National Science Foundation Graduate Fellowship: 1995-1998.
- National Earthquake Hazards Reduction Program (NEHRP) Graduate Fellowship: *Sponsored by the Federal Emergency Management Agency and awarded by the Earthquake Engineering Research Institute, designed to foster the participation of an individual working toward the goals and practice of earthquake hazard mitigation, 1998.*
- ASCCS Young Member Award: *Best presentation at the 6th International Conference of the Association for International Cooperation and Research in Steel-Concrete Composite Structures, 2000.*
- Roy E. and Myrna G. Wansik Teaching Award: *Awarded based on student vote for excellence in teaching in Civil Engineering core courses, 2004, 2008.*
- American Institution of Steel Construction (AISC) Milek Fellowship: *Awarded with the intent of developing promising faculty and graduate degree level students for both academic and design careers in the structural steel industry while also promoting useful research, 2004 - 2008.*
- Outstanding Professor in Civil Engineering: *awarded by the Purdue Panhellenic Association, nominated by Phi Sigma Rho, 2007, 2008.*
- College of Engineering Advising Award: *The purpose of this award is to recognize excellence by faculty in the College of Engineering in the advising and mentoring of students, 2010.*
- UMD NIST-ARRA Senior Research Fellowship, awarded August 2010 for a Visiting Associate Professorship at the University of Maryland (UMD) and a position as a Senior Research Fellow at the National Institute of Standards and Technology (NIST), July 2011 – June 2012.
- Edmund M. Burke Outstanding Faculty Member: *Nominated and selected by the active members of Chi Epsilon, Civil Engineering Honor Society, presented annually to a professor in the School of Civil Engineering for contributions to the students and school, 2011.*
- Harold Munson Outstanding Teacher Award: *Awarded based on student vote for excellence in teaching in Civil Engineering, 2011.*

- American Institute of Steel Construction (AISC) Special Achievement Award: *For contributions toward improving structural steel education in universities through development and maintenance of web-enhanced teaching, contributions to the AISC Partners in Education committee, and through the Steel Educators' Tip Sheet newsletter, 2012, award presented April 2013.*
- College of Engineering Leadership Award: *The purpose of this award is to recognize excellence in faculty leadership that promotes a culture of improving the climate and environment for other faculty, staff, and students and that promotes diversity and inclusiveness in the College of Engineering, 2013.*
- Phi Sigma Rho Chapter Advisor Award: *This national award may be presented annually to recognize an outstanding alumnae advisor, faculty or other advisor of an active chapter of Phi Sigma Rho; the award is presented at the national convention, 2013, 2014, 2015.*
- IMPACT Fellow: *Selected for the Fall 2014 cohort for IMPACT – Instruction Matters: Purdue Academic Course Transformation. Participated Fall 2014 in the Faculty Learning Community (FLC), developed a course redesign plan, and implementing course redesign of CE470 (Structural Steel Design) in Spring 2015. IMPACT Fellows are awarded \$10,000 to fund course redesign and development.*

PROFESSIONAL SOCIETIES

- Earthquake Engineering Research Institute (EERI): 1998 – present
- American Society of Civil Engineers (ASCE): 2001 – present
Associate Editor, ASCE Journal of Structural Engineering, August 2007 – present
Disproportionate Collapse Mitigation Standard Committee, working to develop an ASCE/SEI standard for mitigation of disproportionate collapse potential, October 2012 – present
Disproportionate Collapse (Technical) Committee, May 2013 – present.
Journal of Structural Engineering liaison on Metals Technical Activities Committee, August 2011 – present; co-chair/organizer for Structures Congress 2012 workshop – Innovation in Design of Steel Structures: Research Needs for Global Competitiveness, August 2011 – May 2012
Committee on Composite Construction, 2003 – 2010, May 2013 - present; Secretary, April 2005 – 2007; Chair, August 2007 – September 2010
Committee on Compression and Flexural Members, 2002 – 2008; co-organizer/moderator, ASCE/SEI Structures Congress session on LRFD-Steel Bridges, 2006.
- American Institute of Steel Construction (AISC): 2002 – present
Partners in Education Committee, 2002 – present
Research Editor, AISC Engineering Journal, 2014 - present
- Network for Earthquake Engineering Simulation (NEES): 2004 – 2010
Education Outreach and Training (EOT) Committee, Fall 2005 – 2009; Chair, EOT Committee, January 2008 - 2009; REU Advisory Board, 2008 – 2010; 6th Annual Meeting Technical Program Committee Chair, December 2007 – June 2008. 7th Annual Meeting Technical Program Committee, November 2008 – June 2009.
- Transportation Research Board (TRB): *Committee AHD30 Structures Maintenance, 2006 – 2008.*
- National Council of Structural Engineers Associations (NCSEA): *Basic Education Committee, October 2013 – present.*

COURSES TAUGHT (LAST ~5 YEARS, NOT INCLUDING SABBATICAL LEAVE)

Year	Semester	Course No.	Course Title	Credit Hours	No. of Students	Percent Responsibility*
2010	Spring	CE270	Introductory Structural Mechanics	4	128	100
	Fall	CE479	Design Bldg. Comp. & Sys.	3	80	100
	Fall	CE591	Advanced Structural Steel Design	3	51	100
2011	Spring	CE470	Structural Steel Design	3	86	100
2012	Fall	CE479	Design Bldg. Comp. & Sys.	3	51	100
	Fall	CE697R	Seismic Design of Steel Structures	3	25	50
2013	Spring	CE270	Introductory Structural Mechanics	4	91	100
	Fall	CE591	Advanced Structural Steel Design	3	39	100
2014	Spring	CE470	Structural Steel Design	3	44	100
	Fall	CE479	Design Bldg. Comp. & Sys.	3	33	100
	Fall	CE697R	Seismic Design of Steel Structures	3	14	50
2015	Spring	CE470	Structural Steel Design	3	30	100

*Percent responsibility for lectures as well as all course materials for CE270 and CE470 laboratory sections; also included instruction in laboratory sections of CE470, and supervisory responsibility of teaching assistants in laboratory sections of CE270.

In addition (last ~5 years):

- CE290, Fall 2010, Fall 2009 – Gave the Structures Area guest lecture in this introductory civil engineering seminar course
- CE671 Spring 2010 – gave 2 guest lectures on “Post-Northridge Moment Connections: Strategies for Improved Performance”
- CE497 Spring 2011, Fall 2010, Spring 2010 – gave guest lecture on a integration of systems building case study in this Introduction to Architectural Engineering course
- CE350 Fall 2012—assisted the “Clean Cookstoves” project team with extra-credit proposal submittal (helped with sponsored programs forms only) to the U.S. Environmental Protection Agency
- CE597 Spring 2014 - Steel Slit Panel Frame Design, independent study, 1 student
- CE597 Spring 2014 - Bio-Inspired Steel Structures, independent study, 1 student
- CE597 Fall 2014 – Lessons from the Napa Valley Earthquake, independent study, 1 student
- ENGR103 Spring 2015 – substituted for first day, gave guest lecture “Why, What and How of Structural Engineering at Purdue University” in this seminar course, Think Big: Innovative Infrastructure that Changes the World.

Short Courses / Workshops

Developing University Structural Steel Design Courses, August 5-6, 2015; July 30-31, 2014 – co-taught an AISC Educator Workshop, for architectural engineering and civil engineering faculty, on teaching structural steel design courses. Led sessions on designing a steel design course (e.g., course objectives, topics, and assessment), choosing a textbook, using hands-on demonstrations, and incorporating building case studies. Shared responsibility for development of the workshop, which also included sessions on creating a lecture series, philosophies on teaching and learning, and teaching structural steel behavior and stability.

COURSE EVALUATIONS (LAST ~5 YEARS, NOT INCLUDING SABBATICAL LEAVE)

The following section provides Quantitative Student Evaluation Data as obtained from the Purdue University Center for Instructional Excellence course reviews. The quantitative data in the table is the response to two core questions:

Q1) Overall, I would rate this instructor as:

Q2) Overall, I would rate this course as:

The reported mean scores below are on a 5.0 base with 5.0 as the highest and 1.0 as the lowest.

Semester	Course Title	Course No.	# Responses / # Enrolled	Course Score (Q2)	Instructor Score (Q1)	Dept.* Average
S10	Intro. Structural Mechanics	CE270	100 / 128	4.4	4.5	NA
F10	Design Bldg. Comp. & Sys.	CE479	68 / 80	3.9	4.3	4.1
F10	Adv. Structural Steel Design	CE591	48 / 51	4.6	4.7	4.5
S11	Structural Steel Design	CE470	75 / 86	4.5	4.8	4.2
F12	Design Bldg. Comp. & Sys.	CE479	48 / 51	4.3	4.5	4.3
F12	Seismic Design of Steel Str.	CE697	19 / 25	4.3	4.6	4.3
S13	Intro. Structural Mechanics	CE270	81 / 89	4.4	4.6	3.7
F13	Adv. Structural Steel Design	CE591	25 / 37	4.7	4.8	4.5
S14	Structural Steel Design	CE470	34 / 44	4.7	4.9	4.5
F14	Design Bldg. Comp. & Sys.	CE479	29 / 33	4.6	4.7	4.4
F14	Seismic Design of Steel Str.	CE697	10 / 14	4.8	4.5	4.6
S15	Structural Steel Design	CE470	24 / 30	4.6	4.8	4.4

* Average departmental scores were calculated as an average instructor score given a specific course level and semester. For example, all 400 level courses in a given semester were averaged to produce the average departmental score for the 400 level courses; NA – Not Available

PUBLICATIONS

Current graduate students among the authors are underlined. Past graduate students among the authors are double underlined. Joint students are *italicized* and either single or double underlined.

If multiple authors are listed, the primary contributor(s) is (are) designated by an asterisk*.

Articles in Refereed Archival Journals

1. Nanni, A.*, Nennering, J., Ash, K., and Liu, J.* (1997) "Experimental Bond Behavior of Hybrid Rods for Concrete Reinforcement," Structural Engineering and Mechanics, Vol. 5, No. 4, pp. 339-354.
2. Nanni, A.*, and Liu, J.* (1997) "Modeling of Bond Behavior of Hybrid Rods for Concrete Reinforcement," Structural Engineering and Mechanics, Vol. 5, No. 4, pp. 355-368.
3. Liu, J.* and Astanah-Asl, A. (2000) "Cyclic Testing of Simple Connections, Including Effects of the Slab," Journal of Structural Engineering, Vol. 126, No. 1, pp. 32-39.
4. Astanah-Asl, A., Liu, J.* and McMullin, K.M.* (2002) "Behavior and Design of Single Plate Shear Connections," Journal of Constructional Steel Research, Vol. 58, Issues 5-8, pp. 1121-1141.
5. Liu, J.* and Astanah-Asl, A. (2004) "Moment-Rotation Parameters for Composite Shear Tab Connections," ASCE Journal of Structural Engineering, Vol. 130, No. 9, pp. 1371 – 1380.
6. Phuvoravan, K.*, Chung, W.*, Liu, J., and Sotelino, E.D. (2004) "Simplified Live Load Distribution Factor Equation for Steel Girder Bridges," Transportation Research Record, No. 1892, Design of Structures 2004, pp. 88-97.
7. Chung, W.*, Liu, J. and Sotelino, E.D. (2005) "Influence of Secondary Elements and Deck Cracking on the Lateral Load Distribution of Girder Bridges," ASCE Journal of Bridge Engineering, Volume 11, Issue 2, pp. 178 – 187.

8. Chung, W.*, Phuvoravan, K.*, Liu, J. and Sotelino, E.D. (2005) "Applicability of the Simplified Load Distribution Factor Equation to PSC Girder Bridges," KSCE (Korean Society of Civil Engineers) Journal of Civil Engineering, Vol. 9, No.4, July 2005, pp. 313-319.
9. Wood, S.M.*, Akinci, N.O.*, Liu, J. and Bowman, M.D. (2006) "Analysis and Instrumentation of a Steel Bridge for Investigating the Effects of Superloads," Transportation Research Record, No. 1976, pp. 95-103.
10. Liu, J.*, Sabelli, R., Brockenbrough, R. and Fraser, T. (2007) "Expected Yield Stress and Tensile Strength Ratios for Determination of Expected Member Capacity in the 2005 AISC Seismic Provisions," AISC Engineering Journal, 1st Quarter, 2007, pp. 15-26.
11. Liu, J. and Karbhari, V.M. (2007) "Performance and Design of Fibre-Reinforced Polymer Composites at Cold Temperatures – Current Status and Future Needs," International Journal of Materials & Product Technology, Vol. 28, No. 1/2, pp. 1-7.
12. Gauthier, J.F.*, Whalen, T.M., and Liu, J. (2007) "Experimental Validation of the Higher Order Derivative Discontinuity Method for Damage Detection," first published online, Structural Control and Health Monitoring, April 2007, also March 2008, Vol. 15, Issue 2, pp. 143–161. DOI: 10.1002/stc.210
13. Akinci, N.O.*, Liu, J. and Bowman, M.D. (2008) "Parapet Strength and Contribution to Live Load Response for Superload Passages," ASCE Journal of Bridge Engineering, January/February 2008, Vol. 13, Issue 1, pp. 55-63.
14. Machado, M.*, Liu, J. and Sotelino, E.D. (2008) "Modeling Technique for Honeycomb FRP Deck Bridges via Finite Elements," ASCE Journal of Structural Engineering Special Issue dedicated to the 17th Analysis and Computation Conference, April 2008, Vol. 134, Issue 4, pp. 572-580.
15. Lombardi, N.J.*, and Liu, J. (2010) "Steel Hexagonal Honeycomb Core Equivalent Elastic Moduli for Bridge Deck Sandwich Panels," ASCE Journal of Aerospace Engineering, January 2010, Vol. 23, No.1, pp. 62-69.
16. Cortes, G.* and Liu, J. (2011) "Analysis and Design of Steel Slit Panel Frames (SSPFs) for Seismic Zones," AISC Engineering Journal, First Quarter 2011, 48(1), pp. 1-17.
17. Cortes, G.* and Liu, J. (2011) "Experimental Evaluation of Steel Slit Panel Frames for Seismic Resistance," Journal of Constructional Steel Research, 67(2), pp. 181-191. <http://dx.doi.org/10.1016/j.jcsr.2010.08.002>
18. Lombardi, N.J.*, and Liu, J. (2011) "Glass Fiber-Reinforced Polymer/Steel Hybrid Honeycomb Sandwich Concept for Bridge Deck Applications," Composite Structures, March 2011, Vol. 93, Issue 4, pp.1275-1283. <http://dx.doi.org/10.1016/j.compstruct.2010.10.007>
19. Higgins, C.*, Turan, O.T.*, Connor, R.J., and Liu, J. (2011) "A Unified Approach for LRFD Live Load Moments in Bridge Decks," ASCE Journal of Bridge Engineering, Volume 16, Issue 6, pp. 804 – 811.
20. Chi, H.* and Liu, J. (2012) "Seismic Behavior of Post-tensioned Column Base for Steel Self-Centering Moment Resisting Frame," Journal of Constructional Steel Research, Volume 78, pp. 117-130 <http://dx.doi.org/10.1016/j.jcsr.2012.07.005>
21. Surovek, A.E., and Liu, J. (2013) "Innovation in Steel Design: Rethinking the Research Paradigm," Vol. 139, Issue 6, pp. 865-868. [http://dx.doi.org/10.1061/\(ASCE\)ST.1943-541X.0000708](http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0000708)
22. Akinci, N.O.*, Liu, J. and Bowman, M.D. (2013) "Spring Analogy to predict the 3-D Live Load Response of Slab-on-Girder Bridges," Engineering Structures, Vol. 56, November 2013, pp. 1049-1057 <http://dx.doi.org/10.1016/j.engstruct.2013.06.025>
23. Liu, J. (2015) "Steel Structures Research Update: Resilient Steel Plate Shear Walls," invited submission for the AISC Engineering Journal, 2nd Quarter, 2015, pp. 165-173.

24. Francisco, T.* and Liu, J. (2015) "Experimental Characterization of the Composite Slab Subjected to Simulated Column Removal Loading," ASCE Journal of Structural Engineering, in press, [http://dx.doi.org/10.1061/\(ASCE\)ST.1943-541X.0001351](http://dx.doi.org/10.1061/(ASCE)ST.1943-541X.0001351)

Articles Submitted to Refereed Archival Journals

1. Francisco, T.* and Liu, J. (2014) "Computational Application of Experimental Results from Column Removal Component Tests of the Composite Slab," submitted to ASCE Journal of Structural Engineering, December 2014; revised technical paper submitted April 2015.
2. Fischer, E.C.*, Liu, J., Varma, A.H. (2015) "Investigation of cylindrical steel tank damage during earthquakes: Lessons learned and mitigation opportunities," submitted to the ASCE Practice Periodical on Structural Design and Construction, June 2015.
3. Liu, J. (2015) "Steel Structures Research Update: System Behavior and Collapse Assessment of Braced Frames," invited submission for the AISC Engineering Journal, 4th Quarter, July 2015.

Articles in Preparation for Refereed Archival Journals

1. Chi, H.* and Liu, J. (2015) "Seismic Design and Evaluation of Posttensioned Column Base Connections for Self-Centering Steel Moment Resisting Frames," to be submitted to ASCE Journal of Structural Engineering, October 2015.
2. Mizzen, D.*, Liu, J., Connor, R., Higgins, C. (2015) "Experimental Evaluation of Orthotropic Stiffness Ratios for Estimation of Live Load Moments in Bridge Decks," to be submitted to ASCE Journal of Bridge Engineering, October 2015.

Refereed Conference or Symposium Papers

1. Phuvoravan, K., Chung, W.*, Liu, J, and Sotelino, E.D. (2004) "Simplified Live Load Distribution Factor Equation for Steel Girder Bridges," Transportation Research Board Annual Meeting, Presentation to Sub-Committee for Methods of Analyzing Steel Bridges, Washington, D.C., January 11-15, 2004.
2. Whalen, T.M., Gauthier, J.F.*, and Liu, J. (2004) "A New Methodology for Nondestructive Evaluation and Rating of Bridges," Proceedings, American Control Conference, Boston, MA, June 30 – July 2, 2004, pp. 4195 – 4200.
3. Akinci, N.O.*, Liu, J. and Bowman, M.D. (2005) "Effects of Parapets on Live-Load Response of Bridges Subjected to Superloads," Transportation Research Board Annual Meeting, Presentation to Sub-Committee for Methods of Analyzing Steel Bridges, Washington, D.C., January 10-14, 2005.
4. Wood, S.M.*, Akinci, N.O.*, Liu, J. and Bowman, M.D. (2006) "Analysis and Instrumentation of a Steel Bridge for Investigating the Effects of Superloads," presented at Transportation Research Board Annual Meeting, Washington, D.C., January 22 – 26, 2006.
5. Machado, M.*, Liu, J. and Sotelino, E.D. (2006) "Modeling Technique for Honeycomb FRP Deck Bridges via Finite Elements," presented at the 2006 ASCE Structures Congress, 17th Analysis & Computation Specialty Conference, St. Louis, MO, May 18 – 21 , 2006.
6. Gauthier, J.F.*, Whalen, T., and Liu, J. (2006) "Experimental Damage Identification Using the Higher Order Derivative Discontinuity Method," presented at the 2006 ASCE Structures Congress, 17th Analysis & Computation Specialty Conference, St. Louis, MO, May 18 – 21, 2006.

Other Publications

(Includes conference abstracts; government, university or industrial reports (non-refereed); publications in popular press/magazines)

1. Liu, J.* and Astaneh-Asl, A. (2000) "Cyclic Tests on Simple Connections Including Effects of the Slab," SAC Background Report, SAC/BD-00/03, SAC Joint Venture, Richmond, CA, 186 pages. <http://bit.ly/HujszO>
2. Liu, J. (2003) "Examination of Expected Yield and Tensile Strength Ratios," Report to the American Institute of Steel Construction, Chicago, Illinois, July 2003, Addendum, September 2003, 55 pages.
3. Liu, J. (2004) "Eccentrically Loaded Weld Group Tables," Report to the American Institute of Steel Construction, Chicago, Illinois, May 2004, 12 pages.
4. Chung, W.*, Phuvoravan, K.*, Liu, J, and Sotelino, E.D. (2004) "Simplified Live Load Distribution Factor for Use in LRF Design," Joint Transportation Research Program, Report No. FHWA/IN/JTRP-2004/20, June 2004.
5. Liu, J. (2005) "Revitalize Educator Web Group for Web-Enhanced Teaching of Structural Steel Design," Report to the American Institute of Steel Construction, Chicago, Illinois, January 2005, 25 pages.
6. McCloskey, D.*, and Liu, J. (2005) "Steel Panel – Dual Systems for Lateral Resistance of Steel Frame Buildings: Progress Report," Report to the American Institute of Steel Construction, Chicago, Illinois, March 2005, 33 pages.
7. Chi, H. and Liu, J.* (2005) "Development of Post-Tensioned Column Bases for Self-Centering Steel Moment Frames," Proceedings, U.S.-Taiwan Workshop on Self-Centering Structural Systems, Taipei, Taiwan, June 6-7, 2005, Report No.: NCREE-05-004, pp. 21 – 22.
8. Sause, R.*, Ricles, J., Garlock, M., VanMarcke, E., Peh, L.S., and Liu, J. (2005) "Self-Centering Seismic-Resistant Steel Frame Systems: Overview of Past and Current Research," Proceedings, U.S.-Taiwan Workshop on Self-Centering Structural Systems, Taipei, Taiwan, June 6-7, 2005, Report No.: NCREE-05-004, pp. 1 – 3.
9. McCloskey, D.*, and Liu, J. (2006) "Steel Panel Systems for Lateral Resistance of Steel Frame Buildings: Progress Report," Report to the American Institute of Steel Construction, Chicago, Illinois, March 2006, 29 pages.
10. Cortes, G.* and Liu, J. (2006) "Parametric Study on Steel Slit Panels and Initial Gravity Load Effects," Report to the American Institute of Steel Construction, Chicago, Illinois, September 2006, 13 pages.
11. Chi, H.* and Liu, J. (2006) "Design and Detailing of Post-Tensioned Column Bases," Proceedings, U.S.-Taiwan Workshop on Self-Centering Structural Systems, Taipei, Taiwan, October 14, 2006, 2 pages.
12. Garlock, M., Liu, J. and King, A. (2006) "Construction Details for Self-Centering Moment Resisting Frame Floor Diaphragms," Proceedings, U.S.-Taiwan Workshop on Self-Centering Structural Systems, Taipei, Taiwan, October 14, 2006, 3 pages.
13. Cortes, G.* and Liu, J. (2007) "Steel Slit Panels (SSP) Progress Update and Preliminary Test Plan," Report to the American Institute of Steel Construction, Chicago, Illinois, February 2007, 16 pages.
14. Liu, J. (2007) "Web-Enhanced Teaching (WET) Tools for Steel Educators," STRUCTURE Magazine, NCSEA/CASE/SEI, April 2007, pp. 50-51.
15. Cortes, G.* and Liu, J. (2007) "Steel Slit Panels (SSP): Progress Report," Report to the American Institute of Steel Construction, Chicago, Illinois, November 2007, 24 pages.
16. Liu, J. (2008) "AISC 13th ed. Eccentrically Loaded Weld Group Tables," Report to the American Institute of Steel Construction, Chicago, Illinois, January 2008, 11 pages.

17. Cortes, G.* and Liu, J. (2008) "Steel Slit Panels (SSP): Progress Report," Report to the American Institute of Steel Construction, Chicago, Illinois, March 2008, 102 pages.
18. Liu, J. (2011) "Behavior and Design of Steel Slit Panel Frames for Seismic Resistance," Modern Steel Construction, AISC, preview for presentation at the NASCC 2011, April 2011, p.40.
19. Rodriguez-Vera, R. E.*, Lombardi, N. J.*, Machado, M. A.*, Liu, J. and Sotelino, E. D. (2011) Fiber Reinforced Polymer Bridge Decks. Publication FHWA/IN/JTRP-2011/04. Joint Transportation Research Program, Indiana Department of Transportation and Purdue University, West Lafayette, Indiana, 2011. doi: 10.5703/1288284314242
20. Connor, R.J., Liu, J., and Higgins, C. (2011) "Bridge Deck Design Criteria and Testing Procedures," Report to the National Cooperative Highway Research Program, Transportation Research Board of the National Academies, Project No. 10-72, West Lafayette, IN, 2011, 272 pages.
21. Surovek, A., and Liu, J. (2012) "Innovation in Design of Steel Structures: Research Needs for Global Competitiveness," Modern Steel Construction, AISC, preview for presentation at the NASCC 2012, April 2012, pp. 56-57.
22. Lloyd, J.*, Hebdon, M., and Liu, J. (2012) "Practical Design Considerations for Steel Slit Panel Frames," Report to the American Institute of Steel Construction, Chicago, Illinois, August 2012, 96 pages.
23. Surovek, A., and Liu, J. (2012) "Looking Toward the Future," Modern Steel Construction, AISC, October 2012, pp. 56-59.
24. Lai, Z.*, Varma, A.H., Connor, R.J., Liu, J. "Retrofit Analysis of Steel Built-Up Members for Bottom Chords of Bayonne Bridge," Bowen Laboratory Research Report, No. 2013-02, West Lafayette, IN, June 3, 2013.
25. Liu, J. (2013) "Updates to Expected Yield and Tensile Strength Ratios," Report to the American Institute of Steel Construction, Chicago, IL, November 2013, 40 pages.
26. Cortes, C.* and Liu, J. (2014) "Framing Strategies for Robustness in Steel Buildings," Progress Report to the American Institute of Steel Construction, Chicago, IL, January 2014, 47 pages.
27. Cortes, C.* and Liu, J. (2014) "Framing Strategies for Robustness in Steel Buildings," Progress Report to the American Institute of Steel Construction, Chicago, IL, August 2014, 87 pages.
28. Fischer, E.* , Liu, J. and Varma, A. (2015) "Lessons learned from the Napa Valley Earthquake: A case study," accepted November 2014 for publication in March 2015 issue of STRUCTURE Magazine, NCSEA/CASE/SEI.
29. Cortes, C.* and Liu, J. (2015) "Framing Strategies for Robustness in Steel Buildings," Final Report to the American Institute of Steel Construction, Chicago, IL, August 2015, 212 pages.

Contributed Conference/Symposium Presentations

(Notes: includes papers from conference proceedings)

1. Liu, J.* and Astaneh-Asl, A. (1998) "Behavior of Simple Connections in Frames Subject to Large Lateral Deflections," Proceedings, World Structural Engineering Congress, ASCE, San Francisco, CA, July, Computer File, Paper T158-5, 8 pages.
2. Liu, J.* and Astaneh-Asl, A. (1998) "Experimental Studies of Seismic Behavior of Shear Connections with Floor Slabs," Proceedings, SSRC Annual Technical Session & Meetings, Atlanta, GA, pp. 113 - 125.
3. Liu, J.* and Astaneh-Asl, A. (1999) "Cyclic Behavior of Steel Shear Connections Including Floor Slab," Proceedings, 8th Canadian Conference on Earthquake Engineering, Vancouver, B.C., February, pp. 251 - 256.
4. Liu, J.* and Astaneh-Asl, A. (2000) "Poster: Seismic Behavior and Design of Steel Shear Connections with Floor Slab," Proceedings, 12th World Conference on Earthquake Engineering, New Zealand, January, CD file no. 1829, 8 pages.

5. Liu, J.* and Astaneh-Asl, A. (2000) "Cyclic Testing on Simple Connections, Including Slab Effects," Proceedings, North American Steel Construction Conference, Las Vegas, NV, pp. 2-1 – 2-20.
6. Liu, J.* and Astaneh-Asl, A. (2000) "Cyclic Behavior of Steel Shear Connections with Floor Slab," Proceedings, 6th ASCCS International Conference on Steel-Concrete Composite Structures, Los Angeles, CA, March, pp. 745-752.
7. Astaneh-Asl, A.* and Liu, J. (2000) "Contributions of Shear Connections to Seismic Resistance of Steel Structures," Proceedings, The Fifth Conference on Tall Buildings in Seismic Regions, Los Angeles, May 5-6, 8 pages.
8. Liu, J.* and Astaneh-Asl, A. (2000) "Cyclic Behavior and Seismic Design of Steel Shear Connections," Proceedings, International Workshop on Connections in Steel Structures IV, Roanoke, VA, October, pp. 148 - 158.
9. Liu, J. (2001) "Concepts for Modeling of Partially-Restrained Connections for Performance-Based Design," Proceedings, US-Japan Seminar on Advanced Stability and Seismicity Concepts for Performance-Based Design of Steel and Composite Structures, Kyoto, Japan, July 23-26, 19 pages.
10. Liu, J.* and Astaneh-Asl, A. (2002) "Poster: Application of Moment-Rotation Models of Simple Connections to the Lateral Resistance of Steel Structures," Proceedings, 12th European Conference on Earthquake Engineering, London, England, September 9-13, CD file no. 387, 10 pages.
11. Liu, J. (2003) "Case-Study: Incorporating AISC's Web-Enhanced Teaching Materials," Steel Educator News, American Institute of Steel Construction, Chicago, Illinois, October 2003, 2 pages.
12. Firat, G.* and Liu, J. (2004) "Poster: Improving the Dynamic Response of Steel Structures with Perimeter Moment Resisting Frames by Utilizing the Lateral Resistance of Interior Frames," Proceedings, 13th World Conference on Earthquake Engineering, Vancouver, B.C., August 1-6, 2004, CD file no. 285, 11 pages.
13. Liu, J., Editor (2004) "NSF Workshop on Performance and Design of Fiber Reinforced Polymer Composites at Very Cold Temperatures," Proceedings, Fairbanks, Alaska, August 13-14, 2004, 34 pages.
14. Gauthier, J.F.*, Whalen, T., and Liu, J. (2005) "Identification of Localized Structural Damage Using Higher Order Derivative Discontinuities," Proceedings, Paper no. 174, McMat2005: 2005 Joint ASME/ASCE/SES Conference on Mechanics and Materials, Baton Rouge, Louisiana, June 1 - 3, 2005, 6 pages.
15. Lombardi, N.*, Rodriguez, R.*, Liu, J., and Sotelino, E.D., (2006) "Fiber-Reinforced Polymer Decks for Bridge Rehabilitation – A Case Study," 2006 ASCE Structures Congress, St. Louis, MO, May 18 – 21, 2006, 8 pages.
16. Akinci, N.O.*, Liu, J., and Bowman, M.D., (2006) "A Simple Method to Predict the 3-D Live Load Response of Slab-on-Girder Bridges," 2006 ASCE Structures Congress, St. Louis, MO, May 18 – 21, 2006, 4 pages.
17. Chi, H.* and Liu, J. (2006) "Response of Self-Centering Steel Moment Resisting Frames with Post-tensioned Column Bases Under Seismic Loading," *Proceedings*, 4th International Conference on Earthquake Engineering (4th ICEE), Taipei, Taiwan, October 12 – 13, 2006, Paper No. 89, 8 pages.
18. Liu, J. and Karbhari, V.M., eds. (2007) "Performance and Design of FRP Composites at Cold Temperatures," Inderscience Publishers, Olney, United Kingdom, Special Issue, International Journal of Materials & Product Technology, Vol. 28, No. 1 / 2, 224 pages. <http://bit.ly/1b2p1At>
19. Machado, M.*, Liu, J. and Sotelino, E.D. (2006) "Simplified Finite Element Model for Honeycomb Fiber Reinforced Polymer Deck-on-Steel Girder Bridge Structures," FRP International, The Official

Newsletter of the International Institute of FRP in Construction (IIFC), Ontario, Canada, Volume 3, Issue 3, September 2006, pp. 3-4. <http://www.iifc-hq.org/news/>

20. Whalen, T.M.*, Gauthier, J.F., and Liu, J. (2006) "Application of the Higher Order Derivative Discontinuity Method to the I-40 Bridge Damage Detection Problem," 4th World Conference on Structural Control and Monitoring, San Diego, CA, July 11-13, 2006, Paper no. 4WCSCM-138, 8 pages.
21. Chung, W.*, Sotelino, E.D., and Liu, J. (2007) "Effects of Diaphragms and Parapets on the Live Load Distribution of Steel Girder Bridges," Pacific Structural Steel Conference, Wairakei, New Zealand, March 13 – 16, 2007, Paper No. 36, 5 pages.
22. Chi, H.*, Liu, J., and Garlock, M. (2008) "Design and Analytical Validation of Post-tensioned Column Bases," 2008 ASCE Structures Congress, Vancouver, BC, April 24-26, 2008, 6 pages.
23. Cortes, G.*, and Liu, J. (2008) "Poster: Analytical Investigation of Steel Slit Panels for Lateral Resistance of Steel Frame Buildings," 2008 ASCE Structures Congress, Vancouver, BC, April 24-26, 2008, 4 pages.
24. Rodriguez-Vera, R.*, Lombardi, N., and Liu, J. (2008) "Poster: Performance Evaluation of a Mechanically Fastened Fiber Reinforced Polymer Deck," 2008 ASCE Structures Congress, Vancouver, BC, April 24-26, 2008, 7 pages.
25. Chi, H.* and Liu, J. (2008) "Post-tensioned Column Bases for Self-Centering Moment Resisting Frames," Connections VI, International Workshop on Connections in Steel Structures 2008, Chicago, IL, June 23-25, 2008, 10 pages.
26. Cortes, G.*, and Liu, J. (2008) "Steel Slit Panel Configurations," 14th World Conference on Earthquake Engineering, Beijing, China, October 12-16, 2008, 8 pages.
27. Cortes, G.*, and Liu, J. (2009) "Lateral Resistance Using Steel Slit Panel Frames (SSPFs)," 2009 ASCE Structures Congress, Austin, TX, April 29-May 2, 5 pages.
28. Chi, H.* and Liu, J. (2010) "Experimental Investigation of Post-Tensioned Column Base Connection," 4th International Conference on Steel & Composite Structures, Sydney, Australia, July 21-23, 2010, 6 pages.
29. Hebdon, M.*, Liu, J., and Lloyd, J. (2012) "Practical Design Considerations for Steel Slit Panel Frames," 2012 ASCE Structures Congress, Chicago, IL, March 29-31, 2012, 9 pages.
30. Weigand, J.M.*, Meissner, J.E.*, Francisco, T.*, Berman, J.W., Fahnestock, L.A., and Liu, J. (2012) "Overview of AISC/NSF Structural Integrity Research and Preliminary Results," 2012 ASCE Structures Congress, Chicago, IL, March 29-31, 2012, 12 pages.
31. Chi, H.* and Liu, J. (2012) "Design and Behavior of Post-tensioned Column Bases for Self-Centering Moment Resisting Frames," Connections VII, International Workshop on Connections in Steel Structures 2012, Timisoara, Romania, May 30 – June 2, 2012, 10 pages.
32. Liu, J.*, Main, J., and Sadek, F. (2012) "Modeling of Double-Angle Shear Connections for Evaluation of Structural Robustness," ASCE Congress on Forensic Engineering, San Francisco, CA, October 31 – November 3, 2012, 10 pages. *[Note: before it was submitted to ASCE, this National Institute of Standards and Technology (NIST) paper was required to undergo 4 independent, technical reviews; one reviewer must be from outside of the Structures division at NIST.]*
33. Main, J.* and Liu, J. (2013) "Robustness of Prototype Steel Frame Buildings against Column Loss: Assessment and Comparisons," 2013 ASCE Structures Congress, Pittsburgh, PA, May 2-4, 2013, 12 pages. *[Note: before it was submitted to ASCE, this National Institute of Standards and Technology (NIST) paper was required to undergo 4 independent, technical reviews; one reviewer must be from outside of the Structures division at NIST.]*
34. Weigand, J.M.*, Francisco, T.*, Johnson, E.S., Fahnestock, L.A., Liu, J. and Berman, J.W. (2013) "Large-Scale Experimental Evaluation of Steel Gravity Framing Structural Integrity," 2013 ASCE Structures Congress, Pittsburgh, PA, May 2-4, 2013, 11 pages.

35. Johnson, E.S.*, Weigand, J.M., Francisco, T., Fahnestock, L.A., Liu, J. and Berman, J.W. (2014) "Large-Scale Testing of a Steel-Concrete Composite Floor System Under Column Loss Scenarios," 2014 ASCE Structures Congress, Boston, MA, April 3-5, 2014, 10 pages.
36. Francisco, T.*, Weigand, J.M.*, Johnson, E.S., Fahnestock, L.A., Liu, J. and Berman, J.W. (2014) "Experimental Characterization of Composite Slab Collapse Resistance for Steel Gravity Frames," 2014 ASCE Structures Congress, Boston, MA, April 3-5, 2014, 12 pages.
37. Cortes, G.*, Liu, J. and Francisco, T. (2015) "Framing Strategies for Robustness in Steel Buildings," 2015 ASCE Structures Congress, Portland, OR, April 23-25, 2015.
38. Francisco, T.* and Liu, J. (2015) "Construction and Anchorage Considerations for Steel-Concrete Composite Floor Systems," 2015 ASCE Structures Congress, Portland, OR, April 23-25, 2015.
39. Main, J.*, Weigand, J.*, Johnson E., Francisco, T., Liu, J., Berman, J., and Fahnestock, F. (2015) "Analysis of a Large-Scale Composite Floor System Test under Column Loss Scenarios," 2015 ASCE Structures Congress, Portland, OR, April 23-25, 2015.

Invited Publications and Conference/Symposium Presentations

1. Liu, J. (2001) "Concepts for Modeling of Partially-Restrained Connections for Performance-Based Design," US-Japan Seminar on Advanced Stability and Seismicity Concepts for Performance-Based Design of Steel and Composite Structures, Kyoto, Japan, July 23-26, 2001.
2. Liu, J. (2003) "Before and After AISC-WET: A Web-Enhanced Teaching Case Study," Educators Session, North American Steel Construction Conference (NASCC), Baltimore, MD, April 2-5, 2003.
3. Liu, J. (2005) "Development of Post-Tensioned Column Bases for Self-Centering Steel Moment Frames," U.S.-Taiwan Workshop on Self-Centering Structural Systems, Taipei, Taiwan, June 6-7, 2005.
4. Liu, J. (2006) "AISC Web Enhanced Teaching (WET) Tools for Educators," Educators Session, North American Steel Construction Conference (NASCC), San Antonio, TX, February 8 – 11, 2006.
5. Liu, J. (2008) "Seismic Resistant Steel-Frame Buildings," Central Fabricators Association, Chicago, IL, November 11, 2008.
6. Liu, J. (2011) "Behavior and Design of Steel Slit Panel Frames for Seismic Resistance," North American Steel Construction Conference (NASCC), Pittsburgh, PA, May 11-14, 2011.

Invited Colloquium/Seminar Series Presentations.

1. Liu, J. (2005) "Alternative Systems for Seismic-Resistant Steel Frame Buildings," Pennsylvania State University, University Park, PA, March 28, 2005.
2. Liu, J. (2005) "Post-Tensioned Column Bases for Self-Centering Steel Moment Frames," Lehigh University, Bethlehem, PA, September 29, 2005.
3. Liu, J. (2012) "Steel Slit Panel Frames for Sustainable Seismic Design," Georgia Institute of Technology, Atlanta, GA, February 21, 2012.
4. Liu, J. (2014) "Steel Slit Panel Frames for Sustainable Seismic Design," University of Cincinnati, Cincinnati, OH, February 21, 2014.
5. Liu, J. (2014) "The Role of the Composite Slab in the Structural Integrity of Steel Gravity Framing Systems," University of Nebraska, Omaha, NE, September 25, 2014.
6. Liu, J. (2014) "Post-tensioned Column Bases for Self-Centering Moment Resisting Frames," University of Michigan, Ann Arbor, MI, October 16, 2014.

INVOLVEMENT IN GRADUATE RESEARCH

Completed Theses and Dissertations Chaired

Name	Degree	Graduation Date	Name of Co-Chair	Title
Scott M. Wood	MSCE	12/04	Mark D. Bowman	Effects of Superload Trucks on a Steel Girder Highway Bridge
Javier F. Gauthier	Ph.D.	8/05	Timothy M. Whalen	The Higher Order Derivative Discontinuity Damage Identification Method for Nondestructive Evaluation and Rating of Bridges
Gunseli Yeliz Firat	Ph.D.	8/06	~	Effect of Bolted Frames on the Earthquake Resistance of Structural Steel Buildings
Marcelo Machado	Ph.D.	8/06	Elisa D. Sotelino [#]	Alternative Serviceability Criterion for Honeycomb FRP Deck-to-Steel Girder Bridges
Daniel McCloskey	MSCE	8/06	~	Steel Panels for Lateral Resistance of Steel Buildings
Necip Onder Akinci	Ph.D.	9/06	Mark D. Bowman	Investigation of Superload Effects on Steel and Prestressed Concrete Slab-on-Girder Bridges
Andrew King	MSCE	5/07	~	Design of Collector Elements for Steel Self-Centering Moment Resisting Frames
Nicolas Lombardi	Ph.D.	5/08	Elisa D. Sotelino*	Hybrid Steel - Fiber Reinforced Polymer Bridge Deck Panels
Gustavo Cortes	Ph.D.	5/09	~	Steel Slit Panel Frames for Lateral Resistance of Buildings
Brian Hammond	MSCE	5/09	Robert Connor	Bridge Deck Performance Engineering Testing Procedures
Hoseok Chi	Ph.D.	5/09	~	Development of Post-tensioned Column Based Connection for Self-Centering Seismic Resistant Steel Frame
David Mizzen	MSCE	5/11	Robert Connor	Development of Subassembly Test Methods for Evaluation of Prefabricated Bridge Decks
Curtis J. Schroeder	MSCE	5/11	Robert Connor	Behavior of Large-scale Composite Partially-filled Steel Grid Decks
Timothy Francisco	Ph.D.	8/14	~	Structural Integrity of the Composite Slab in Steel Gravity Framing Systems

[#] continued to act as co-chair after departure from Purdue University December 2004

*Co-chair until January 2006; on sabbatical 2004, departed Purdue University December 2004.

Current Theses and Dissertations Chaired

Name	Degree	Anticipated Graduation Date	Name of Co-Chair	Title
Rachel Chicchi	Ph.D.	5/17	Amit Varma	Robustness and Structural Performance under Multi-Hazards

Other Graduate Committee Service: 12 Ph.D., 5 MSCE, 28 non-thesis MSCE committees (chaired 13 non-thesis MSCE committees) since 2011.

INVOLVEMENT IN UNDERGRADUATE RESEARCH AND SPECIAL PROJECTS

Dates	Name	Research/Special Topic Area
6/03 – 8/03	Sze Ki Wong	Design, Construction, and Live Load Distribution Factors on Prestressed Concrete Girder Bridges (co-advised with E.D. Sotelino, Joint Transportation Research Program (JTRP) Summer Intern)
6/04 – 5/05	Seung-Kun Oh	Project to Revitalize Educator Web Group for Web-Enhanced Teaching of Structural Steel
10/04 – 12/04	Erik Sandved	Project to Revitalize Educator Web Group for Web-Enhanced Teaching of Structural Steel
5/06 – 8/06	Jerry Carter	Development of Component Tests to Validate Acoustic Emission Method for Performance Evaluation of Fiber-Reinforced Polymer (FRP) Bridge Decks [Summer Undergraduate Research Fellowship (SURF) Program]
5/08 – 8/08	Jerry Carter	Evaluation of Mechanically Fastened Fiber Reinforced Polymer Bridge Deck [Summer Undergraduate Research Fellowship (SURF) Program]
Spring 08	Parag Rastogi	Honors Contract project on a diagrid building (St. Mary Axe) in London; applying CE270 concepts to analysis of diagrids as compared to conventional braced frame structures; exploring sustainable design concepts
Spring 08	Karen Jatkowski	Honors Contract project on the Ambassador Bridge (Detroit); applying CE270 concepts (and AASHTO loads) to analysis of the main suspension cables and towers
Spring 08	Kyle Moelker	Honors Contract project on the George Washington Bridge; applying CE270 concepts (and AASHTO loads) to analysis of the main suspension cables and towers
Spring 10	Matthew Fenton	Honors Contract project on the Millau Viaduct; applying CE270 concepts to its analysis
Spring 10	Nathan Boltz	Honors Contract project on the Grand Canyon Skywalk; applying CE270 concepts to its analysis
Spring 10	Emma Bart	Behavior of Steel Grid Bridge Decks (Exchange student from Australia)
Spring 11	Arief Purnoko	Honors Contract project on structural steel design of a low-rise steel moment frame building; applying CE470 course material
Spring 11	Francisco Bonachera	Honors Contract project on design of an elevated walkway between CIVL and ARMS in structural steel; applying CE470 course material
5/11-12/11	Matthew Fenton	Study of Floor Slab Metal Deck Sidelap Connections for Evaluation of Structural Integrity of Steel Gravity Framing Systems [Summer Undergraduate Research Fellowship (SURF) Program and CE499 Undergrad. Research]
5/12 – 12/12	Ernesto Camerena	Finite Element Evaluation of Robustness of Steel Buildings [SURF Program and CE499 Undergraduate Research]
Spring 2013	Jacob Bubalo	Honors Contract project on Golden Gate Bridge; applying CE270 material, learning structural analysis software, examining effects of different loadings on main suspension span
Spring 2013	Jenee Christensen	Honors Contract project on Golden Gate Bridge; applying CE270 material, examining main suspension span, deck girders
Spring 2013	Lanxi Liu	Honors Contract project on Willis (Sears) Tower; applying CE270
Spring 2013	Alana Wilbee	Honors Contract project on Revolution Tower in Panama; CE270
Spring 2013	Bochen Zhang	Honors Contract project on Bird's Nest (Olympic Stadium); CE270

RESEARCH GRANTS

Dates	Sponsor	Topic	Amount	Co PI's, % Resp., etc.
1/01*-6/03	Joint Transportation Research Program	Simplified Wheel Load Distribution for Use in LRFD Design	\$180,000	E. Sotelino 50% - Liu
6/02-5/03	Purdue Research Foundation	Design Guidelines for the Contribution of Gravity Frames to the Lateral Resistance of Steel Frame Buildings	\$13,140	100% - Liu
6/03-11/05	Federal Highway Administration	Innovative Bridge Research and Construction Program: FRP Bridge Deck	\$475,000 (\$165,000 Purdue)	E. Sotelino 50% - Liu
1/03-6/05	Joint Transportation Research Program	Long-Term Effects of Super Heavy-Weight Loads on Bridge Superstructures	\$240,000	M. Bowman 50% - Liu
5/03-9/03	American Institute of Steel Construction	Expected Yield and Tensile Strength Ratios	\$5,000	100% - Liu
6/03-5/04	Purdue Research Foundation	Design Guidelines for the Contribution of Gravity Frames to the Lateral Resistance of Steel Frame Buildings (renewal)	\$13,263	100% - Liu
6/04-5/05	Purdue Research Foundation	Characterization of Non-Structural Elements for Health Monitoring of Steel Moment Frame Buildings	\$13,342	100% - Liu
6/04-6/05	National Science Foundation	Workshop on Performance and Design of Fiber Reinforced Polymer (FRP) Composites at Very Cold Temperatures	\$25,000	100% - Liu
5/04-12/04	American Institute of Steel Construction	Project to Revitalize Educator Web Group for Web Enhanced Teaching of Structural Steel	\$4684	100% - Liu
8/04-7/08	American Institute of Steel Construction	Steel Panel – Dual Systems for Lateral Resistance of Steel Frame Buildings	\$119,406 + CE match \$97,768	100% - Liu
10/04-9/09	National Science Foundation	NEESR-SG: Self-Centering Damage-Free Seismic-Resistant Steel Frame Systems (with Lehigh and Princeton Universities \$2,000,000 total)	\$304,000 to Purdue + CE match \$56,783	100% - Liu
8/05-7/07 ext.3/11	Joint Transportation Research Program	Evaluation of Fiber Reinforced Polymer (FRP) Bridge Deck Panels	\$150,000 + \$29,000 extension	100% - Liu
8/05 – 7/06	Purdue Research Foundation	Characterization of Non-Structural Elements for Health Monitoring of Steel Moment Frame Buildings	\$13,342	100% - Liu
9/06 – 8/09 ext.2/12	National Cooperative Highway Research Program	Bridge Deck Design Criteria and Testing Procedures (with Oregon State)	\$499,836 (\$369,836 to Purdue)	R. Connor 30% - Liu
8/06 - 7/07	Purdue Research Foundation	Development of Steel Slit Panels for Lateral Resistance of Steel Frame Buildings	\$14,040	100% - Liu
8/10-7/13	National Science Foundation	Collaborative Research: Structural Integrity of Steel Gravity Framing Systems (with U. Washington, U. Illinois)	\$375,000 (\$100,000 to Purdue)	100% - Liu
8/10-7/13	American Institute of Steel Construction	Supplement to Collaborative Research: Structural Integrity of Steel Gravity Framing Systems (NSF)	\$20,000	100% - Liu
8/11-10/12	American Institute of Steel Construction	Practical Design Considerations for Steel Slit Panel Frames	\$25,000	100% - Liu

* replaced Graham Archer as co-PI in August 2002

Continued on next page

RESEARCH GRANTS, CONT'D

Dates	Sponsor	Topic	Amount	Co PI's, % Resp., etc.
9/12 – 6/13	HDR, Inc.	Strengthened Built-up Steel Columns	\$85,371	R. Connor, A. Varma, 18% - Liu
8/13 – 8/15	American Institute of Steel Construction	Framing Strategies for Robustness in Steel Buildings (with LeTourneau University)	\$66,000 (\$23,309 to Purdue)	100% - Liu

SERVICE**Major committee assignments in the Department, School, and/or University.**

- Freshman Engineering Curriculum Committee, 2002 – 2004.
- Martha Dicks Stevens Fellowship Committee, 2002 – 2004, *Chair, Spring 2004*
- Large-Scale Laboratory Faculty Search Committee, 2002 – 2004.
- University Visual Arts Committee, 2002 - 2005, *Secretary, 2003 – 2005.*
- Earth and Atmospheric Sciences Faculty Search Committee, Oct 2003 – May 2004.
- Civil Engineering Honors Program Committee, 2005 – 2015.
- Civil Engineering Undergraduate Curriculum Committee, 2005 – 2007.
- Civil Engineering Graduate Committee, Fall 2006 – Summer 2010.
- College of Engineering Associate Dean for Research Search Committee, Summer 2007.
- Architectural Engineering Faculty Search Committee, *Chair*, Fall 2007 – Summer 2008.
- Investigation Committee, Allegation of Research Misconduct, Office of Vice President for Research, May 2010 – August 2010.
- Civil Engineering Faculty Governance Committee, representative for the Structures group, September 2012 – October 2014.

Administrative duties at Purdue

- Advising undergraduate Structures area students, 2002 - 2015.
- Advising Civil Engineering Honors students, 2006 -2015.
- Advising the majority of the non-thesis Masters Structures area students, Spring 2007 to Fall 2010; continued to advise a number of non-thesis Masters Structures area students, 2010 – 2015.
- Academic Advisor for Phi Sigma Rho, Engineering Sorority, Fall 2007 to Spring 2015, informally while on sabbatical leave 2011-2012, in particular, advising sisters who are on academic probation, with a minimum of 2 meetings per semester on probation.
- Associate Director, Robert L. and Terry L. Bowen Laboratory for Large-Scale Civil Engineering Research, 2010-2015.
- Beering Scholar Mentor, mentoring a Beering Scholar, one of two to ten students awarded out of a pool of the top 80 – 100 high school seniors who had been admitted to Purdue by the first week in December, August 2012 – 2015.
- Advisor, Ross Reserve Living Building Challenge, provide feedback on structural aspects of the project, 2012 – 2015.
- Advisor, ASCE Steel Bridge, co-advising steel bridge team, 2014 – 2015.

Service to government or professional organization

- Web-Enhanced Teaching of Structural Steel Design, American Institute of Steel Construction (AISC), *May 2004 to present*, production of a monthly e-mail newsletter, the *Steel Educators' Tip Sheet*, and a website, *Tools and Tips for Steel Educators*, with tips and teaching aids for steel educators. The website was converted to the AISC Educator Forum in 2014.
- Student Primer for the ASCE 7-10 document, Reviewer, *2013 – present*, Minimum Design Loads for Buildings and Other Structures, led by Dr. Roberto Leon, of Virginia Tech. Service has included review of the Primer at different stages of development, and conference calls to discuss feedback on scope, organization, and content.
- Faculty Survey Subcommittee, Chair, American Institute of Steel Construction, *April – October 2011*, chaired a subcommittee responsible for conducting a survey of steel educators and their use of AISC teaching aids.
- National Student Steel Bridge Competition, *Spring 2009 – Spring 2010*, assisted with the National Student Steel Bridge Competition (NSSBC), hosted by Purdue University on May 28-29, 2010. The NSSBC is an annual, joint event for American Society of Civil Engineers (ASCE) and the American Institute of Steel Construction (AISC).
- T.R. Higgins Award Jury, American Institute of Steel Construction, *2009, 2010*, served on the jury (invited) for the 2009 and 2010 T.R. Higgins Lectureship Award. This award recognizes an outstanding lecturer and author whose technical paper(s) is(are) considered “an outstanding contribution to the engineering literature on fabricated structural steel.” The 6-member jury includes researchers, practitioners, and fabricators.
- EERI Student Paper Competition, Reviewer, *2004, 2010*, reviewed ten undergraduate and graduate student papers on a variety of topics on earthquake engineering.
- Project Oversight Committee, American Institute of Steel Construction, *Summer 2007 – Spring 2009*, served on a project oversight committee for an educational project funded by the American Institute of Steel Construction (AISC) and led by Dr. Scott Civjan at the University of Massachusetts Amherst.
- Reviewer, National Science Foundation, *2002 – present*, including Distinguished Teaching Scholar (DTS) award, the Course, Curriculum, and Laboratory Improvement (CCLI) program, the Broadening Participation Research Initiation Grants in Engineering (BRIGE) program, the Network for Earthquake Engineering Simulation Research (NEESR), and other programs within the Division of Civil, Mechanical and Manufacturing Innovation (CMMI) including Hazard Mitigation and Structural Engineering (HMSE).
- Scientific Committee, *2008*, 14th World Conference on Earthquake Engineering (Beijing, China, October 2008)
- International Advisory Committee and Organizing Committee, *2009*, International Conference on the Behavior of Steel Structures in Seismic Areas (STESSA), Philadelphia, PA.
- International Scientific Committee, *2009*, 9th International Conference on Steel Concrete Composite and Hybrid Structures (ASCCS), Leeds, England.
- International Scientific Committee, *2010*, 4th International Conference on Steel & Composite Structures (ICSCS), Sydney, Australia.
- International Scientific Committee, *2011*, 5th International Conference on Steel & Composite Structures (ICSCS), Seoul, Korea.
- Organizing Committee, *2011*, “A Workshop on the Architecture and Engineering of Sustainable Buildings,” Istanbul, Turkey, sponsored by National Science Foundation.
- International Advisory Committee, *2012*, International Conference on the Behavior of Steel Structures in Seismic Areas (STESSA), Santiago, Chile.

- International Scientific Committee, 2012, International Conference on Steel Concrete Composite and Hybrid Structures (ASCCS), Singapore.
- Scientific Organizing Committee, 2015, First International Conference on Steel Structures in Tehran, Iran, February 2015.

OUTREACH ACTIVITIES

- ASCE Bridge Bust, *February 28, 2003, February 22, 2002, February 23, 2001* – Served as a judge, evaluating balsa wood bridges constructed by local high school students on structural concept, aesthetics, and load efficiency.
- Women in Engineering Preview Day, *October 3, 2005, October 4, 2004, October 15, 2001* – Gave a presentation on opportunities in structural engineering to female high school students considering majoring in Engineering at Purdue University.
- Middle School MINDS, *November 4, 2006, November 19, 2005* – Introduced middle school students to earthquake engineering concepts with a slide show, a small shaking table, other hands-on activities, and a building contest; students were challenged to build earthquake-resistant 3-story buildings using cardstock and tape; *November 15, 2003* – Introduced 7th and 8th graders to earthquake engineering concepts, such as natural frequency, resonance, and lateral resisting frames, using modeling clay, florists' wire, craft sticks, string, and cardboard; *November 10, 2001* – Introduced 7th and 8th graders to structural engineering through hands-on exercises with craft sticks, string, and paper. Concepts such as tension and compression were demonstrated. The students were challenged to make their own paper bridges and see how much load their bridges could support.
- Fundamentals of Engineering Review Session for ASCE: Statics, *Spring 2014, Fall 2013, Mechanics of Materials, Fall 2014, Spring 2010, Fall 2005, Fall 2002.*
- Family Day, School of Civil Engineering, *September 6, 2003* – Conducted a demonstration on earthquakes and structures using small shaking table.
- Purdue Student Engineering Foundation's Engineering Expo, *April 8, 2004* – Delivered keynote presentation on "Superstructures: Engineering Marvels" to high school students participating in a day-long, "learn by doing" program about engineering.
- Wabash Area Lifetime Learning Association (WALLA) Mini-Course, *October 17, 2007* – Presented on the Pacific Coast Highway, with a focus on arch bridges; led a hands-on activity using paper, cardstock, tape, and string to demonstrate form and stiffness of arch bridges as well as typical overpass bridges; *November 7, 2005* – Presented on Tokyo Sky City; led a hands-on activity using cardstock, tape, string, and washers to demonstrate the concept of a tuned mass damper for controlling lateral deformations in tall buildings; *March 30, 2005* – Presented on Retro-Tech Engineering (The Chinese Rainbow Bridge); led a discussion based on a video showing the physical recreation of a bridge from a painting from the Song Dynasty; engaged the audience with a hands-on activity in which they recreated their own "Rainbow Bridges" with straws and twist ties; *October 18, 2004* – Presented on Collapse Due to Extreme Force (Explosions and Earthquakes); led a discussion based on a video summarizing the Alfred Murrah Federal Building collapse in Oklahoma City, the Cypress Freeway collapse, damage due to the Kobe Earthquake, and others; engaged the audience with hands-on demonstrations designed to reinforce concepts presented in the video. WALLA is a non-profit educational association for those 50 and older.
- Purdue Horizons, *July 14, 2004* – Gave a presentation to undergraduate, underrepresented minority engineering students on graduate school and career opportunities in structural engineering.

- Engineering Summer Preview (ESP) Days, *July 18, 2005* – Gave a presentation on structural engineering to high school students considering majoring in Engineering at Purdue University; included hands-on exercises with paper structures.
- Women in Engineering Preview Day, *April 10, 2006* – Gave a presentation about opportunities in civil engineering to female high school students considering majoring in Engineering at Purdue University; covered topics normally presented by Civil Engineering Undergraduate Office staff, including academic areas, typical curriculum, civil engineering laboratories, and extra-curricular activities.
- Architectural Engineering at Purdue, CESAC Shop Talks & Snacks, *April 11, 2008* – presented an introduction to Architectural Engineering and the new Architectural Engineering emphasis area planned for Civil Engineering.
- Juniors Exploring Engineering at Purdue, Women in Engineering Program (WIEP), *April 8, 2013* – welcomed and joined visiting students and their parents for a luncheon; answered their questions about Engineering (and college, in general) at this Spring recruiting event.

CONSULTING

Dr. Liu has investigated a number of design manual topics for the American Institute of Steel Construction (AISC). These topics have included recommended values for expected yield and tensile strength ratios for seismic code provisions and the validity of design tables for eccentrically-loaded weld groups. Annual time has ranged from 2 weeks to 1 month per year.

Expected yield and tensile strength ratios were incorporated in the 2005 Seismic Design Provisions for Structural Steel Buildings. Design of structural steel building systems for high-seismic applications must satisfy these provisions, which are referenced by national building codes. A paper on development of the ratios and related commentary was published in the *AISC Engineering Journal*. Dr. Liu continued to correspond with AISC on this topic during preparation of the 2010 Seismic Design Provisions, and has been working on updates for preparation of the 2016 Seismic Design Provisions. Dr. Liu has analyzed new data for hollow structural sections (HSS), as well as for steel reinforcing bars for steel-concrete composite construction.

Meanwhile, certain portions of the design tables for eccentrically-loaded weld groups were modified based on Dr. Liu's work. These modifications appeared in the AISC Steel Construction Manual, 13th edition. Dr. Liu also conducted additional studies on other aspects of the 13th edition tables. This manual includes standard steel shape tables, design aids, and the specification for structural steel buildings.

LICENSES, REGISTRATIONS, CERTIFICATES

1995 Engineering In Training (Pennsylvania)