Henri P. Gavin
Professor and W.H. Garnder Jr. Chair
Department of Civil and Environmental Engineering
Duke University
Durham, North Carolina 27708–0287

Education

Ph.D.	Civil Engineering	The University of Michigan	1994
	Electrorheological Dampers for Structural Vibration Suppression,		advisor: R.D. Hanson
M.Eng.	Civil Engineering	The University of Michigan	1988
B.S.E.	Civil Engineering	Princeton University	1986

Professional Experience

Professor and W.H. Gardner Jr. Chair 2021— *present*
Department of Civil and Environmental Engineering, Duke University

Professor 2016— *present*
Department of Civil and Environmental Engineering, Duke University

Professor (secondary appointment) 2016— *present*
Department of Mechanical Engineering and Materials Science, Duke University

Associate Professor 2002—2016
Department of Civil and Environmental Engineering, Duke University

Associate Professor (secondary appointment) 2012—2016
Department of Mechanical Engineering and Materials Science, Duke University

Assistant Professor 1995—2002
Department of Civil and Environmental Engineering, Duke University

Research Fellow 1994—1995
Department of Civil and Environmental Engineering, University of Michigan

Research Assistant 1991—1994
Department of Civil and Environmental Engineering, University of Michigan

Honors and Awards

Bass Connections Award for Excellence in Collaborative Leadership	2023
Yoh Family Associate Professor (Bass Chair)	2013
Earl I. Brown II Outstanding Civil Engineering Faculty Award	2013
President's Award, New Zealand Society for Earthquake Engineering	2010
Alumni Distinguished Undergraduate Teaching Award (ADUTA), Duke University	2008
ASEE Southeast Mid-Career Teaching Award	2007
W.H. Gardner Associate Professor (Bass Chair)	2006
Klein Family teaching award	2006
ASCE Walter L. Huber Civil Engineering Research Prize	2005
Japan Society for the Promotion of Science, fellowship	2002
National Academy of Engineering, Frontiers in Engineering, participant	1998
Packard Foundation Grant, finalist	1997
NSF CAREER Award	1996
Junior Faculty Enhancement Award, Oak Ridge Associated Universities	1996
Bailey, Steele & Mildred Tuition Fellowship, The University of Michigan	1991
Elected to associate membership of Sigma Xi, Princeton University	1986

Funding

- Lau, R.E. and Gavin, H.P.
  "Earthquake Early Warning for the Kathmandu Valley," $60,000
  Duke University Bass Connections. (PI: 50%) 2020, 2022, 2023, 2025

- Zhang, B.Y. and Gavin, H.P.
  "Relaxed Constraints in Gauss's Principle for High Speed, Large Scale $60,000
  Multi-Agent Network Dynamics and Control," ARO-STIR 2020-2022
  (advisor 20%)

- Rinker, J.M., and Gavin, H.P.
  "A nonstationary desktop turbulence simulator for wind energy applications," $38,000
  DOE: Science Graduate Student Research & National Renewable Energy Lab 2015
  (advisor: 20%)

- Gavin, H.P.
  "Rolling Isolation Systems to Protect Building Contents from Earthquakes," $240,113
  NSF: Civil, Mechanical and Manufacturing Innovation (CMMI) (PI: 100%) 2014-2017

- Ferrari, S., Gavin, H.P. and Albertson, J.
  "Collaborative Research: A Distributed Approximate Dynamic Programming
  Approach for Robust Adaptive Control of Multiscale Dynamical Systems," $232,950
  NSF: Electrical, Communications and Cyber Systems (ECCS) (Co-PI: 10%) 2014-2017

- Gavin, H.P.
  "Long Term Seismic Monitoring of the Christchurch Women's Hospital," $169,910
  NSF: Civil, Mechanical and Manufacturing Innovation (CMMI) (PI: 80%) 2012-2015

- Gavin, H.P.
  "Seismic Monitoring of the Christchurch Women's Hospital," $44,470
  NSF: Civil, Mechanical and Manufacturing Innovation (CMMI) (PI: 80%) 2011-2012

- Gavin, H.P.
  "Risk-Based Design of Seismic Isolation for Critical Facilities," $236,759
  NSF: Civil, Mechanical and Manufacturing Innovation (CMMI) (PI: 100%) 2009-2013

- Gavin, H.P.
  "Passive Damping in Isolation Systems for Critical Facilities," $69,712
  NSF: Civil, Mechanical and Manufacturing Innovation (CMMI) (PI: 100%) 2007-2010

- Gavin, H.P. and Clark, R.L.
  "Seminar Series for the Center for Applied Control," $10,000
  Lord Foundation of North Carolina (PI: 80%) 2002-2005

- Gavin, H.P., and Zaicenco, A.
  "Reliability of Advanced Base-Isolation for the Protection of Critical Facilities
  from Earthquake Hazards," $53,856
  Civilian Research & Development Foundation (PI: 60%) 2002-2004

- Laursen, T.A., Gavin, H.P., and Virgin, L.N.,
  "Numerical and Experimental Models of Dry Friction Damping
  in Aeroelastic Structures," $210,106
  Air Force Office for Scientific Research (AFOSR) (co-PI: 30%) 2002-2005

- Gavin, H.P., Dolbow, J.E., Clark, R.L., Dowell, E.H., and Laursen, T.A.,
  "WEAVE: Web-based Educational framework for Analysis, Visualization,
  and Experimentation," $349,385
  NSF: Course, Curriculum, and Laboratory Improvement (PI: 80%) 2002-2005

- Gavin, H.P.,
  "Large-scale Hybrid Semi-active/Passive Base Isolation," $221,040
  NSF: US/Japan Program on Earthquake Disaster Mitigation (PI: 100%) 1999-2003

- Gavin, H.P. and J.E. Dolbow,
  "WEAVE: Web-based Educational framework for Analysis, Visualization, and Experimentation," $23,500
  Duke University Center for Instructional Technology, (PI: 80%) 2001-2002

- Gavin, H.P. and J.E. Dolbow,
  "Instructional Network for Visualization, Analysis and Remote Experimentation," $10,000
  Duke University President's Fund for Educational Intiatives, (PI: 80%) 2001-2002

- Gavin, H.P.,
  "Suppressing Wing-Store Flutter using Magneto-Rheological Materials," $60,000
  Lord Foundation of North Carolina (PI: 50%) 1999-2002

- Gavin, H.P.,
  "Digital Signal Conditioning, Virtual Instrumentation, and Digital Data Acquisition for CE 281: Experimental Systems," $15,040
  Lord Foundation of North Carolina (PI: 100%) 1999-2000

- Gavin, H.P.,
  "Renovation of Room 053, Engineering Annex for a Seismic Vibration Laboratory," $14,500
  Lord Foundation of North Carolina (PI: 100%) 1997-1998

- Gavin, H.P.,
  "Seismic Response Suppression Using Smart Materials," $10,000
  Oak Ridge Associated Universities, Junior Faculty Enhancement Award (PI: 100%) 1996-1997

- Gavin, H.P.,
  "Seismic Response Suppression Using Materials with Controllable Stiffness and Damping," $286,624
  NSF: Faculty Early Career Development (CAREER) (PI: 100%) 1996-2001
  (including $17,500 industry support from Ford Motor Corporation)

- Gavin, H.P.,
  "Engineering Research Equipment: Seismic Response Control Laboratory," $58,857
  NSF: Engineering Research Equipment, (PI: 100%) 1996-1997
  (including $20,600 cost share)

(The information in parenthesis indicates my role in the grant (Principal Investigator, co-Principal Investigator, or advisor) and my percent contribution to the work.)

Publications

Refereed Journal Publications

1. Zhang, B.Y., and Gavin, H.P. "Unified position-attitude control of a nonlinear quadrotor swarm," *IEEE/CAA Journal of Automatica Sinica* 9(5), 922-925 (2022) doi:10.1109/JAS.2022.105569
2. Zhang, B.Y., and Gavin, H.P. "Gauss's Principle With Inequality Constraints for Multiagent Navigation and Control," *IEEE Transactions on Automatic Control,* 67(2): 810-823 (2022) doi:10.1109/TAC.2021.3059677
3. Huang, L., Micolier, A., Gavin, H.P., and Jolliet, O., "Modeling chemical releases from building materials: The search for extended validity domain and parsimony," *Building Simulation,* 14(4) 1277-1293 (2021) doi:10.1007/s12273-020-0739-6
4. Zéhil, G.P., and Gavin, H.P., "Rolling Resistance of a Hard Sphere on Rubber Sheets: Limitations of Linear Viscoelastic Modeling and Influence of Nonlinearities," *Inernational Journal of Applied Mechanics,* 11(7): AR 1950066 (2019) doi:10.1142/S1758825119500662
5. Zéhil, G.P. and Gavin, H.P. "The Effect of Boundary Condition Variations on the Rolling Resistance of a Hard Sphere on Rubber Sheets," *Inernational Journal of Applied Mechanics,* 11(5): AR 1950043 (2019) doi:10.1142/S1758825119500431
6. Tehrani, M.H., Harvey, P.S., Gavin, H.P., and Mirza, A.M., "Inelastic condensed dynamic models for estimating seismic demands for buildings," *Engineering Structures,* 177: 616-629 (2018) doi:10.1016/j.engstruct.2018.07.083
7. Kuang, A. Sridhar, A., Garven, J. Gutschmidt, S., Rodgers, G.W., Chase, J., Gavin, H.P., Nigbor, R.L., and MacRae, G.A., "Christchurch Women's Hospital: Performance Analysis of the Base-Isolation System during the Series of Canterbury Earthquakes, 2011-2012," *Journal of Performance of Constructed Facilities,* 30(4): AR 04015096 (2016) doi:10.1061/(ASCE)CF.1943-5509.0000846
8. Rinker, J.M., Gavin, H.P., Clifton, A., Veers, P.S., Kilcher, L.F., "Temporal Coherence: A Model for Non-stationarity in Natural and Simulated Wind Records," *Boundary-Layer Meterology,* 159(2): 373-389 (2016) doi:10.1007/s10546-015-0121-x
9. Harvey, P.S. and Gavin, H.P., "Assessment of a rolling isolation system using reduced order structural models, " *Engineering Structures,* 99: 708-725 (2015) doi:10.1016/j.engstruct.2015.05.022
10. Harvey, P.S., Jr., and Gavin, H.P., "Truly isotropic biaxial hysteresis with arbitrary knee sharpness," *Earthquake Engineering & Structural Dynamics*, 43(13):2051-2057 (2014) doi:10.1002/eqe.2436
11. Harvey, P.S., Jr., Zéhil, G.P., and Gavin, H.P., "Experimental validation of a simplified model for rolling isolation systems," *Earthquake Engineering & Structural Dynamics*, 43(7):1067-1088 (2014) doi:10.1002/eqe.2387
12. Harvey, P.S., Jr., and Gavin, H.P., "Double rolling isolation systems: A mathematical model and experimental validation," *Int'l J. Nonlinear Mechanics,* 61:80-92 (2014) doi:10.1016/j.ijnonlinmec.2014.01.011
13. Harvey, P.S., Jr., and Gavin, H.P., Scruggs, J.T., and Rinker, J.M., "Determining the physical limits on semi-active control performance: a tutorial," *Structural Control & Health Monitoring*, 21(5):803-816 (2014) doi:10.1002/stc.1602
14. Zéhil, G.P., and Gavin, H.P., "Two and three-dimensional boundary element formulations of compressible isotropic, transversely isotropic and orthotropic viscoelastic layers of arbitrary thickness, applied to the rolling resistance of rigid cylinders and spheres," *European J. Mechanics A-Solids,* 44:175-187 (2014) doi:10.1016/j.euromechsol.2013.10.015
15. Sridhar, A., Kuang, A., Garven, J., Gutschmidt, S., Chase, J.G., Gavin, H.P., Nigbor, R.L., Rodgers, G.W., MacRae, G.A., "Christchurch Women's Hospital: Analysis of Measured Earthquake Data during the 2011-2012 Christchurch Earthquakes," *Earthquake Spectra,* 30(1-SI):383-400 (2014) doi:10.1193/021513EQS027M
16. Harvey, P.S., Jr., and Gavin, H.P., "Assessing the Accuracy of Vision-Based Accelerometry," *Experimental Mechanics,* 54(2):273-277 (2014) doi:10.1007/s11340-013-9783-9
17. Zéhil, G.P., and Gavin, H.P., "Rolling resistance of a rigid sphere with viscoelastic coatings," *Int'l J. of Solids and Structures,* 51:(3-4):822-838 (2014) doi:10.1016/j.ijsolstr.2013.11.009
    •*Dr. Zéhil awarded the 2014 Utku Paper Award by the CEE Dept.*
18. Harvey, P.S., Jr., Wiebe, R., and Gavin, H.P., "On the chaotic response of a nonlinear rolling isolation system," *Physica D- Nonlinear Phenomena* 256:36-42 (2013) doi:10.1016/j.physd.2013.04.013

19. Harvey, P.S., Jr., and Gavin, H.P., "The nonholonomic and chaotic nature of a rolling isolation system," *J. Sound and Vibration*, 332(14):3535-3551 (2013) doi:10.1016/j.jsv.2013.01.036
20. Zéhil, G.P., and Gavin, H.P., "Three-dimensional boundary element formulation of an incompressible viscoelastic layer of finite thickness applied to the rolling resistance of a rigid sphere," *International J. Solids and Structures,* 50(6):833-842 (2013) doi:10.1016/j.ijsolstr.2012.11.020
21. Zéhil, G.P., and Gavin, H.P., "Simple algorithms for solving steady-state frictional rolling contact problems in two and three dimensions," *International J. Solids and Structures,* 50(6):843-852 (2013) doi:10.1016/j.ijsolstr.2012.11.021
22. Zéhil, G.P., and Gavin, H.P., "Simplified approaches to viscoelastic rolling resistance," *International J. Solids and Structures,* 50(6):853-62 (2013) doi:10.1016/j.ijsolstr.2012.09.025
23. Zéhil, G.P., and Gavin, H.P., "Unified constitutive modeling of rubber-like materials under diverse loading conditions," *Int'l J. of Engineering Science,* 62:90-105 (2013) doi:10.1016/j.ijengsci.2012.09.002
24. Harvey, P.S., Jr., Gavin, H.P., and Scruggs, J.T., "Optimal performance of constrained control systems," *Smart Materials and Structures,* 21(8): #085001 (2012) doi:10.1088/0964-1726/21/8/085001
25. Cassidy, I.L., Scruggs, J.T., Behrens, S., and Gavin, H.P., "Design and experimental characterization of an electromagnetic transducer for large-scale vibratory energy harvesting applications, *J. Intelligent Material Systems and Structures*, 22(7):2009-2024 (2011) doi:10.1177/1045389X11421824
•*Dr. Cassidy awarded the 2011 Utku Paper Award by the CEE Dept.*
26. Song, J-K, and Gavin H.P., "Effect of hysteretic smoothness on inelastic response spectra with constant-ductility," *Earthquake Engineering & Structural Dynamics,* 40(7):771-788 (2011) doi:10.1002/eqe.1058
27. Dickinson, B.W., and Gavin, H.P., " A parametric statistical generalization of uniform hazard earthquake ground motions," *J. Structural Engineering,* 137(3):410-422 (2011) doi:10.1061/(ASCE)ST.1943-541X.0000330
28. Gavin, H.P. and B.W. Dickinson, "Simulation of uniform hazard earthquake ground motions," *J. Structural Engineering,* 137(3):423-432 (2011) doi:10.1061/(ASCE)ST.1943-541X.0000331
29. Gavin, H.P., and Wilkinson, G., "Preliminary Observations of the Effects of the 2010 Darfield Earthquake on the Base-Isolated Christchurch Women's Hospital," *Bulletin of the New Zealand Society for Earthquake Engineering,* 43(4):360-367 (2010) http://www.nzsee.org.nz/db/SpecialIssue/43(4)0360.pdf
30. Kam, W.Y., Pampanin, S., Dhakal, R., Gavin, H.P., and Roedar, C., "Seismic Performance of Reinforced Concrete Buildings in the 2010 Darfield (Canterbury) Earthquake," *Bulletin of the New Zealand Society for Earthquake Engineering,* 43(4):340-350 (2010) http://www.nzsee.org.nz/db/SpecialIssue/43(4)0340.pdf
31. Anagnostopoulou, M., Bruneau, M., and Gavin, H.P., "Performance of Churches During the Darfield Earthquake of September 04, 2010," *Bulletin of the New Zealand Society for Earthquake Engineering,* 43(4):374-381 (2010) http://www.nzsee.org.nz/db/SpecialIssue/43(4)0340.pdf
32. Gavin, H.P. and Yau, S.-C., "High Order Limit State Functions in the Response Surface Method for Structural Reliability Analysis," *Structural Safety*, 30(2):162-179 (2008) doi:10.1016/j.strusafe.2006.10.003
33. Gavin H.P., and Zaicenco, A., "Performance and reliability of semi-active equipment isolation," *J. Sound and Vibration,* 306(1-2):74-90 (2007) doi:10.1016/j.jsv.2007.05.039
34. Gavin, H.P., Aldemir, U. and Alhan, C., "Optimal control: Basis for performance comparison of passive and semiactive isolation systems," *J. Engineering Mechanics,* 132(7):705-713 (2006) doi:10.1061/(ASCE)0733-9399(2006)132:7(705)
35. Narasimhan, S., Nagarajaiah, S., Johnson, E.A., and Gavin, H.P., "Smart base-isolated benchmark building. Part I: problem definition," *J. Structural Control & Health Monitoring,* 13(1-2):573-588 (2006) doi:10.1002/stc.99

36. Aldemir, U. and Gavin, H.P., "Optimal semiactive control of structures with isolated base," *International Applied Mechanics,* 42(2):235-240 (2006) doi:10.1007/s10778-006-0082-3

37. Gavin, H.P., and Alhan, C., "Reliability Of Base-Isolation For The Protection Of Critical Facilities From Earthquake Hazards," *Engineering Structures,* 27(9):1435-1449 (2005) doi:10.1016/j.engstruct.2005.04.007

38. Gavin, H.P. and Aldemir U. "Optimal control of earthquake response using semiactive isolation," *J. Engineering Mechanics,* 131(8):769-776 (2005) doi:10.1061/(ASCE)0733-9399(2005)131:8(769)

39. Gavin, H.P. and Alhan, C., "Guidelines for Low-Transmissibility Semi-Active Vibration Isolation," *Smart Structures and Materials*, 14(2):297-306 (2005) doi:10.1088/0964-1726/14/2/001

40. Shiraishi, T., Morishita. S., Gavin, H.P., "Estimation of Equivalent Permeability in Magnetorheological Fluid Considering Cluster Formation of Particles," *J. Applied Mechanics,* 71(2):201-207 (2004) doi:10.1115/1.1667530

41. Tang, D.M., Gavin, H.P., Dowell, E.H. "Study of airfoil gust response alleviation using an electromagnetic dry friction damper. Part 1: Theory," *J. Sound and Vibration,* 269(3-5):853-874 (2004) doi:10.1016/S0022-460X(03)00180-9

42. Tang, D.M., Gavin, H.P., Dowell, E.H., "Study of airfoil gust response alleviation using an electromagnetic dry friction damper. Part 2: Experiment," *J. Sound and Vibration,* 269(3-5):875-897 (2004) doi:10.1016/S0022-460X(03)00181-0

43. Alhan, C., and Gavin, H., "A parametric study of linear and non-linear passively damped seismic isolation systems for buildings," *Engineering Structures,* 26(4):485-497 (2004) doi:10.1016/j.engstruct.2003.11.004

44. Gavin, H., Alhan, C., and Oka, N., "Fault Tolerance of Semi-Active Seismic Isolation," *J. Structural Engineering,* 129(7):922-932 (2003) doi:10.1061/(ASCE)0733-9445(2003)129:7(922)

45. Kabala, Z.J., El-Sayegh, H.K., Kazezyilmaz-Alhan, C.M. and Gavin, H.P., "Sensitivity analysis of the no-crossflow transient model for the transient flowmeter test," *Stochastic Environmental Research & Risk Assessment,* 16(6): 399-424 (2002) doi:10.1007/s00477-002-0113-5

46. Nichols, J.M., Virgin, L.N., and Gavin, H.P., "Damping Estimates from Experimental Nonlinear Time-Series," *J. Sound and Vibration,* vol. 246, no. 5 (Oct. 2001) pp. 815–827. doi:10.1006/jsvi.2001.3653

47. Gavin, H.P., "Annular Poiseuille flow of ER and MR materials," *J. Rheology,* 45(4):983-994 (2001) doi:10.1122/1.1378029

48. Gavin, H.P., "Multi-duct ER dampers," *J. Intelligent Material Systems and Structures,* 12(5): 353-366 (2001) doi:10.1106/8398-U3X9-DHK9-K304

49. Gavin, H.P., "Control of Seismically-Excited Vibration using Electrorheological Materials and Lyapunov Methods," *IEEE Transactions On Control Systems Technology,* 9(1):27-36 (2001) doi:10.1109/87.896743

50. Gavin, H.P. and Reilly, K.J., "Submerged Funicular Arches," *J. Structural Engineering,* vol. 126, no. 5, (2000) pp. 627–630. doi:10.1061/(ASCE)0733-9445(2000)126:5(627)

51. Gavin, H.P., "Design method for high-force electrorheological dampers," *Smart Materials and Structures,* 7(5):664–673 (1998) doi:10.1088/0964-1726/7/5/010

52. Gavin, H.P., Morales, R., and Reilly, K.J., "Drift-free integrators," *Review of Scientific Instruments,* 69(5):2171-2175 (1998) doi:10.1063/1.1148918

53. Gavin, H.P., "The Effect of Particle Concentration Inhomogeneities on the Steady Flow of Electro- and Magneto-Rheological Materials," *J. Non-Newtonian Fluid Mechanics,* 71(3):165-182 (1997) doi:10.1016/S0377-0257(97)00010-4

54. Gavin, H.P., Hanson, R.D., and Filisko, F.E., "Electrorheological Dampers I: Analysis and Design," *J. Applied Mechanics*, 63(3):669-675 (1996) doi:10.1115/1.2823348

55. Gavin, H.P., Hanson, R.D., and Filisko, F.E., "Electrorheological Dampers II: Testing and Modeling," *J. Applied Mechanics*, 63(3):676-682 (1996) doi:10.1115/1.2823349

56. Gavin, H.P., "Bicycle Wheel Spoke Patterns and Spoke Fatigue," *J. Engineering Mechanics*, 112(8):736-742 (1996) doi:10.1061/(ASCE)0733-9399(1996)122:8(736)

Refereed Book Chapters

1. Scruggs, J.T., and Gavin, H.P., "Earthquake Response Control for Civil Structures," *Controls Handbook, 2nd edition*, Ch. 30, pp. 30.1 - 30.26, CRC Press, 2010. doi:10.1201/b10382-38

2. Gavin, H.P., "Implementation and Modeling of a Semi-Active Control System," in *Condition Monitoring of Materials and Structures,* ed. F. Ansari, ASCE Press, Reston VA, 2000, pp. 202–217. doi:10.1061/40495(302)16

Technical Reports

1. Mary Comerio *et al. The M 6.3 Christchurch, New Zealand Earthquake of February 22, 2011* EERI Speecial Earthquake Report - May 2011.

2. Mary Comerio *et al. The Mw 7.1 Darfield (Canterbury), New Zealand Earthquake of September 4, 2010* EERI Speecial Earthquake Report - November 2010.

3. Chen, I-H., Gavin, H.P., and Hanson, R.D., *Summary Report on Semi-Active Base Isolation Control,* UMCEE Technical Report 94–38 (Ann Arbor: University of Michigan, Dept. Civil and Environmental Engineering, Dec 1994).

4. Gavin H.P. and Hanson, R.D., *Electrorheological Dampers for Structural Vibration Suppression,* UMCEE Technical Report 94–35 (Ann Arbor: University of Michigan, Dept. Civil and Environmental Engineering, Dec 1994).

5. Gavin H.P., Yuan, S., Grossman, J., Pekelis, E., and Jacob, K., *Low-level Dynamic Characteristics of Four Tall Flat-Plate Buildings in New York City*, NCEER Technical Report 92–0034 (Buffalo: National Center for Earthquake Engineering Research, 28 Dec 1992) (reviewed)

6. Ghanem, R.G. and Gavin, H.P, *Experimental Verification of a Number of Parameter Estimation Routines*, NCEER Technical Report 91–0024 (Buffalo: National Center for Earthquake Engineering Research, 18 Sep 1991) (reviewed)

Invited Conference Papers and Presentations

1. Gavin, H.P., "Synthetic Ground Motions for Seismic Hazard Analysis," *ASCE-EMI-PMC Conference,* 18-20 Jun 2012, Univ. Notre Dame. (abstract only)

2. Zéhil, G.P., and Gavin, H.P., "Full Three-Dimensional Model for Rolling Resistance: Hard Sphere on Viscoelastic Foundation of Finite Thickness," *ASCE-EMI-PMC Conference,* 18-20 Jun 2012, Univ. Notre Dame. (abstract only)

3. Harvey P.S., Gavin H.P., "Performance Limits Imposed by Semi-Active Damping Constraints," *Proc. 11th World Conference on Seismic Isolation, Energy Dissipation and Active Vibration Control of Structures,* 17-21 Nov 2009, Guangzhou, China.

4. Gavin. H.P., and Zaicenco, A., "Reliability of Semi-Active Isolation Against Seismic Impact," *International Symposium on Earthquake Engineering Commemorating the Tenth Anniversary of the 1995 Kobe Earthquake* 12-16 Jan 2005, Awaji Island, Kobe Japan.

5. Nelson, G., and Gavin, H.P., "Optimal Semi-Active Control of Landing Gears," *Proc. of ACTIVE 2004, INTER-NOISE and NOISE-CON Congress and Conference Proceedings* 9: 1074-1081. 20-22 Sep 2004, Williamsburg, VA.

6. Gavin, H.P., Thurston, J., Fujitani, H., and Minowa, C. "Damper Force Ranges, Ground Motion Pulse Periods, and Semi-Active Isolation of Large Civil Structures," *Proc. ACTIVE 2004, INTER-NOISE and NOISE-CON Congress and Conference Proceedings* 9: 582-589. 20-22 Sep 2004, Williamsburg VA.

7. Gavin H.P. and Zaicenco, A. "Reliability of semi-active control devices to seismic impact," *Proc. ISAS-/CITSA 2004: International Conference on Cybernetics and Information Technologies, Systems and Applications and 10th International Conference on Information Systems Analysis and Synthesis* vol. 4, pp. 168-173. 21-25 Jul 2004, Orlando, FL, ed. Chu, H.W., Aguilar, J., Rolland, J. et al.

8. Narasimhan, S., Nagarajaiah, S., Johnson, E.A., Gavin, H.P., "Smart Base Isolated Building Benchmark Problem," *Proc. 2004 ASCE Structures Congress*, 24-26 May 2004, Nashville TN. doi:10.1061/40700(2004)147

9. Gavin, H.P. and Alhan, C., "Parametric Analysis of Passive Damping in Base Isolation," *Proc. 2004 ASCE Structures Congress*, 24-26 May 2004, Nashville TN. doi:10.1061/40700%282004%29146

10. Gavin, H.P., Thurston, J.A., Minowa, C., and Fujitani, H., "Effects of Damper Force Ranges and Ground Motion Pulse Periods on the Performance of Semi-Active Isolation Systems," *Proc. 2003 ASME PVP Conference* Cleveland OH, 20-24 Jul 2003.

11. Alhan, C., and Gavin, H.P. "Parametric Analysis of Passive Damping in Base Isolation," *Proc. 16th ASCE Engineering Mechanics Conference,* Seattle WA, 16-18 Jul 2003.

12. Gavin, H.P., Thurston, J., Singer, A., Fujitani, H., and Minowa, C., "Effects of Damper Force Ranges and Ground Motion Pulse Periods on the Performance of Semi-Active Isolation Systems," *Proc. of the Workshop on Smart Structural Systems,* Building Research Institute, 18-19 Oct 2002, Tsukuba, Japan.

13. Gavin, H.P. and Alhan, C., "Interstory Drift Amplification and Damping in Passive Isolation Systems," *Proc. Seventh U.S. National Conference on Earthquake Engineering,* 21-25 Jul 2002, Boston, MA. (reviewed)

14. Gavin, H.P. and Alhan, C., "Control of torsionally asymmetric structures," *Proc. of the American Control Conference,* pp. 2475–2480. 8-10 May 2002, Anchorage, AK. (reviewed)

15. Gavin, H.P., Hoagg, J., and Dobossy, M., "Optimal Design of MR Dampers," *Proc. U.S.-Japan Workshop on Smart Structures for Improved Seismic Performance in Urban Regions,* 14 Aug 2001, Seattle WA, ed. K. Kawashima, B.F. Spencer, and Y. Suzuki, pp. 225–236.

16. Gavin, H.P. and Aldemir, U., "Behavior and Response of Auto-Adaptive Seismic Isolation," *Proc. 3rd U.S.-Japan Cooperative Research Program in Urban Earthquake Disaster Mitigation,* 15–16 Aug 2001, Seattle WA, ed. S. Otani and M.A. Sozen, pp. 120–128.

17. Aldemir, U. and H.P. Gavin, "Auto-Adaptive Seismic Isolation," *Proc. 2001 Structures Congress,* 21–23 May 2001, Washington, DC, ed. S.S. Sunder, ASCE Press, (cd-rom).

18. Gavin, H.P., and Chompucot, C., "Multi-duct electrorheological dampers," *Proc. SPIE, 8th Annual International Symposium on Smart Structures and Materials,* vol. 4330, pp. 273-280, 3-8 Mar 2001, Newport Beach, CA. ed. S.C. Liu. doi:10.1117/12.434118

19. Gavin, H.P. and M. Dobossy, "Optimal Design of an MR Device," *Proc. SPIE, 8th Annual International Symposium on Smart Structures and Materials,* 3–8 Mar 2001, Newport Beach, CA, ed. S.C. Liu. doi:10.1117/12.434127

20. Gavin, H.P., Dobossy, M., and Lamberton, J., "Designing and Testing Devices for Semi-Active Structural Control," *Proc. 3rd International Workshop on Structural Control,* 6-8 Jul 2000, Paris, France, ed. F. Casciati and G. Magonette, World Scientific, pp. 255-262. doi:10.1142/9789812811707_0023 (reviewed)

21. Gavin, H.P., Lee, H., and Aldemir, U., "Optimal Semi-Active Control," *Proc. 2nd European Conference on Structural Control,* 3-6 Jul 2000, Paris, France, in press.

22. Gavin, H.P. and Cheng, S., "Semi-Active Mass Damper for Wind Excited Structures," *Proc. 2nd European Conference on Structural Control,* 3-6 Jul 2000, Paris, France, in press.

23. Gavin, H.P. and Hoang, D., "Testing of High-Force ER Dampers," *Proc. 2000 Structures Congress,* 8–10 May 2000, Philadelphia PA, ed. M. Elgaaly. doi:10.1061/40492(2000)5

24. Doke, N.S. and H.P. Gavin, "Non-proportional damping and semi-active control," *Proc. 17th International Modal Analysis Conference*, 8–11 Feb 1999, Orlando, FL, ed. A.L. Wicks and D.J. DeMichele, SPIE vol. 3727, Society for Experimental Mechaincs, pp. 431–436.

25. Gavin, H.P. and N.S. Doke, "Resonance suppression through variable stiffness and damping mechanisms ," *Proc. SPIE, 6th Annual International Symposium on Smart Structures and Materials,* 1–5 Mar 1999, Newport Beach, CA, ed. S.C. Liu, SPIE vol. 3671, pp. 43–53. doi:10.1117/12.348688

26. Gavin, H.P. and N.S. Doke, "Variable Property Devices for Structural Control," *Proc. 1999 Structures Congress,* 18–21 Apr 1999, New Orleans LA, ed. Avent, R.R., and M. Alawady, M., ASCE Press, pp. 866–869.

27. Gavin, H.P., "Structural Control Using Variable Stiffness Materials," *Proc. Structural Engineering World Conference,* 19–23 Jul 1998, San Francisco, CA.

28. Gavin, H.P. and Hanson, R.D., "Seismic Protection using ER Damping Walls," *Proc. 2nd World Conference on Structural Control,* 28 Jun – 1 Jul 1998, Kyoto, Japan, ed. T. Kobori, K. Seto, Y. Inoue, H. Iemura, and A. Nishitani, John Wiley, pp. 1183–1190.

29. Gavin, H.P., "Sizing ER devices for Lyapunov-Based Control of a Base-Excited Structure," *Proc. 2nd US-China Symposium / Workshop on Recent Developments and Future Trends of Computational Mechanics in Structural Engineering,* 25–28 May 1998, Dalian, PRC, ed. F.Y. Cheng and Y. Gu, Elsevier, pp. 207–220. (reviewed)

30. Gavin, H.P., "Resonance Suppression Using ER Materials," *Proc. 12th ASCE Engineering Mechanics Conference,* 17–20 May 1998, San Diego, CA, ed. J.E. Luco and H. Murakami, ASCE Press, (cd-rom).

31. Gavin, H.P. and Hoang, D., "Construction of multi-duct electrorheological dampers," *Proc. SPIE, 5th Annual International Symposium on Smart Structures and Materials,* 2–5 Mar 1998, San Diego, CA, ed. L.P. Davis, SPIE vol. 3327, pp. 214–225. doi:10.1117/12.310685

32. Gavin, H.P., "Lyapunov-Based Control of a Base-Excited Structure," *Proc. SPIE, 5th Annual International Symposium on Smart Structures and Materials,* 2–5 Mar 1998, San Diego, CA, ed. S.C. Liu, SPIE vol. 3325, pp. 12–22. doi:10.1117/12.310606

33. Gavin, H.P., "Structural Control Reserach in the United States, 1996–1998," *Proc. US-Japan Workshop on Advanced Technologies to Mitigate Earthquake Disaster,* Disaster Prevention Research Institute, Kyoto, Japan, 20–21 Feb 1998 (abstract only)

34. Gavin, H.P., "ER Material Models and Vibration Control," *Proc. 11th Symposium on Structural Dynamics,* 12-14 May 1997, Blacksburg VA, ed. L. Meirovitch, VPI Press, pp. 121–130.

35. Gavin, H.P., "High Force Electrorheological Damper Designs," *Proc. 2nd International Workshop on Structural Control,* 18–21 Dec 1996, Hong Kong, ed. J-C Chen, HKUST, pp. 186–197.

36. Gavin, H.P., "Phase Separation and the Dynamic Range of Electro- and Magneto-Rheological Devices," *Proc. 1st US/Japan Workshop on Smart Structures and Materials,* 13–15 Nov 1996, College Park, MD, ed. D.J. Pines (abstract only)

Contributed Conference Papers and Presentations

1. Zhang, B.Y. and Gavin, H.P., "Computationally Efficient Tracking Control of Differential Drive Wheeled Mobile Robots," *Proceedings of the American Control Conference,* May 31 - June 2, 2023. 891-896 (2023)

2. Zhang, B.Y. and Gavin, H.P., "Decentralized unified position-attitude control of nonlinear uavs, " *2022 61st IEEE 61st Conference on Decision and Control* (CDC), 5214-5219 (2022)

3. Zhang, B.Y. and Gavin, H.P., "Unified position-attitude control of a nonlinear quadrotor swarm," *Proceedings of the American Control Conference,* June 8-10, 2022. 4030-4035

4. Zhang, B.Y. and Gavin, H.P., "Natural Deadlock Resolution for Multi-agent Multi-Swarm Navigation," *2021 60th IEEE Conference on Decision and Control* (CDC), 5958-5963 (2021)

5. Zhang, B.Y. and Gavin, H.P., "Unified Position and Attitude Control of A Fully Nonlinear Quadrotor," *Proceedings of the American Control Conference,* May 25-28, 2021. 1064-1069 (2021)

6. Kelly, K.C., and Gavin, H.P., "Nonholonomically Constrained Dynamics of Rolling Isolation Systems," *34th IMAC Conference and Exposition on Structural Dynamics,* Jan 25-28, 2016, Orlando, FL, 339-346 (2016) doi:10.1007/978-3-319-29739-2_31

7. Yin, B., and Gavin, H.P., "Inelastic Base Shear Reconstruction from Sparse Acceleration Measurements of Buildings," *34th IMAC Conference and Exposition on Structural Dynamics,* Jan 25-28, 201t, Orlando, FL, 339-346 (2016) doi:10.1007/978-3-319-29751-4_17

8. Rinker, J.M. and Gavin, H.P., "Subspace Identification of a 5 MW Reference Wind Turbine," *33rd IMAC Conference and Exposition on Structural Dynamics,* Feb 02-05, 2015, Orlando, FL, 23-29 (2015) doi:10.1007/978-3-319-15251-6_3

9. Rinker, J.M., and Gavin, H.P., "Subspace Identification of a 5 MW reference wind turbine," *Proc. International Modal Analysis Conference XXXIII* 2-5 Feb 2015, Orlando FL.

10. Gavin, H.P., Yin, B., Nigbor, B., Rodgers, G., "Kinematic Soil Structure Interaction in the Base-Isolated Christchurch Wome's Hospital," *EERI Geotech & Liquefaction Workshop* 12 Sep 2014, UC San Diego. (presentation only)

11. Gavin, H.P., Nigbor, R., Rodgers, G., and Coar, M., "System Identification of the Base-Isolated Christchurch Wome's Hospital," *Mechanics for Sustainable and Resilient Systems, 2014 EMI*, 5-8 Aug 2014, McMaster Univ., Hamilton ON (abstract only)

12. Harvey, P.S., Gavin, H.P., and Zéhil, G.P., "Experimental Verification of a Rolling Isolation System," *Proc. 10 US National Conference on Earthquake Engineering,* 21-25 Jul 2014, Anchorage AK https://nees.org/resources/12343

13. Gavin, H.P., Gutschmidt, S., Rodgers, G., Coar, M., and Nigbor, R., "Seismic Response of the Christchurch Women's Hospital on 23 Dec 2011," *Proc. 10 US National Conference on Earthquake Engineering,* 21-25 Jul 2014, Anchorage AK https://nees.org/resources/12335

14. Rinker, J.M., and Gavin, H.P., "Including SN-curve uncertainty in fatigue reliability analyses of wind turbines," *Model Validation and Uncertainty Quantification, Volume 3, Conference Proc. of the Society for Experimental Mechanics Series 2014*, 3-6 Feb 2014, Orlando FL, pp. 375-381. doi:10.1007/978-3-319-04552-8_37

15. Zéhil, G.P., and Gavin, H.P., "New Three Dimensional Boundary Element Formulation of a Viscoelastic Layer of Finite Thickness Applied to the Rolling Resistance of a Rigid Sphere," *12th U.S. National Congress on Computational Mechanics,* 21-24 Jul 2013, Raleigh NC (abstract only)

16. Gavin, H.P., Nigbor, B., Uma, SR., Gutschmidt, S., Rodgers, G., Farrell, R., Schroeder, A., Coar, M., Harvey, P.S., and Yin. B., "Seismic Monitoring and Analysis of the Christchurch Women's Hospital," *Quake Summit,* 6-8 Aug 2013, Univ. Nevada, Reno NV. (abstract only)

17. Harvey, P.S., Scruggs, J.T., and Gavin, H.P., "A Dual Method for Determining the Performance Limits of a Semiactively Constrained Control System," *Proc. American Control Conference,* pp. 1549-1554, 27-28 Jun 2012. Montreal, Canada (reviewed)

18. Gavin, H.P., and Nigbor R.L., "Performance of the Base-Isolated Christchurch Women's Hospital in the Sep. 4 2010 Darfield Earthquake and the Feb. 22 2011 Christchurch Earthquake," *Proc. 20th Analysis and Computation Specialty Conference* 29-31 Mar 2012, Chicago IL doi:10.1061/9780784412374.049

19. Harvey, P.S. and Gavin, H.P., "Approximate Solutions to Nonlinearly-Constrained Optimal Control Problems," *Proc. American Control Conference,* pp. 3122-3128, 29 Jun - 01 Jul 2011 San Fransisco CA (reviewed)

20. Gavin, H.P., and Harvey, P.S., "Modeling of Rolling Equipment Isolation Systems," *Proc. Engineering Mechanics Institute Conference*, 2–4 Jun 2011, Boston MA, (abstract only)

21. Harvey, P.S, and H.P. Gavin, "Performance Limits Imposed by Semi-Active Damping Constraints," *Proc. American Control Conference 2010*, pp. 732-737, 30 Jun - 02 Jul 2010, Baltimore MD (reviewed)

22. Gavin, H.P., and Hoagg, J.B., "Control Objectives for Seismic Simulators," *Proc. American Control Conference 2009,* pp. 3932-3937 , 10-12 Jun 2009, St Louis, MO (reviewed)

23. Gavin, H.P., "Earthquake Hazard Reduction for Critical Facilities," NEES 7th Annual Meeting, Honolulu, HA, 26 Jun 2009 (abstract only)

24. Zaicenco, A., Gavin, H.P., and Dickinson, B.W., "A Parametric Model Combining Gabor Wavelet and Stochastic Component for the Aug 30 1986 Vranca Earthquake" *Harmonization of Seismic Hazard in Vrancea Zone: with Special Emphasis on Seismic Risk Reduction,* NATO Science for Peace Project Harmonization of Seismic Hazard and Risk Reduction in Countries Influenced by Vrancea Earthquakes, May 20, 2008 Chisinau, Moldova, p. 63-83.

25. Gavin, H.P. "Ground Motion Models for Performance-Based Design of Damping for Equipment Isolation," NEES 6th Annual Meeting, 18-20 Jun 2008, Portland, OR. (abstract only)

26. Gavin, H.P. "Earthquake Hazard Reduction for Critical Facilities," NEES 5th Annual Meeting, Salt Lake 19-21 Jun 2007. City, UT. (abstract only)

27. Gavin, H.P. "Servo-Controller Tuning for Coherent Behavior In Hydraulic Actuators," 2007 Engineering Mechanics Conference, 3-6 Jun 2007. Blacksburg VA. (abstract only)

28. Gavin, H.P. and Jamieson, H.V., "Experimental Verification of High Strengh Composite Tubes," 2006 Engineering Mechanics Conference, 25-30 Jun 2006, Boulder CO. (abstract only)

29. Gavin, H.P., Phulé, P., and Jones, A., "Design Optimization of MR Devices," *Proc. 3rd World Conference on Structural Control,* 4–7 Apr 2002, Como, Italy.

30. Virgin, L.N, Aldemir, U., Gavin, H.P., Nichols, J.M., and Plaut, R.H., "An investigation of a rocking-sliding block." *Proc. 18th Biennial Conference on Mechanical Vibration and Noise,* 9–12 Sep 2001, Pittsburgh PA.

31. Gavin, H.P. and Aldemir, U., "Optimal Semi-Active Isolation," *Proc. 2001 Mechanics and Materials Conference,* 27-29 Jun 2001, San Diego, CA. (abstract only)

32. Gavin, H.P. and Dobossy, M., "Design, Testing, and Modeling of ER and MR Devices," *Proc. 2001 Mechanics and Materials Conference,* 27-29 Jun 2001, San Diego, CA. (abstract only)

33. Gavin, H. and Aldemir, U., "Comparison of Semi-Active Dampers in Seismic Isolation," *Proc. Structures Congress 2001* 21-23 May 2001, Washington DC. doi:10.1061/40558(2001)116

34. Gavin, H.P., "Implementation and Modeling of a Semi-Active Control System," *Proc. EM-2000, ASCE Engineering Mechanics Conference,* 21–24 May 2000, Austin, TX. ed. J.L. Tassoulas, ASCE Press, (cd-rom).

35. Gavin, H.P., "Variable Stiffness and Damping for Structural Control," *Proc. 13th ASCE Engineering Mechanics Conference,* 14-16 Jun 1999, Baltimore MD. ed. N. Jones and R. Ghanem, ASCE Press, (cd-rom).

36. Baltimore, C.V. and Gavin, H.P., "Field-flow Orientation Effects in MR Devices," *Proc. 2nd World Conference on Structural Control,* 28 Jun - 1 Jul 1998, Kyoto, Japan, ed. T. Kobori, K. Seto, Y. Inoue, H. Iemura, and A. Nishitani, John Wiley, pp. 1871–1878.

37. Gavin, H.P., Jamieson, H.V., and Batt, D.P., "A Shaking Table for Experimental Dynamics and Control," *Proc. 12th ASCE Engineering Mechanics Conference,* 17–20 May 1998, San Diego, CA. ed. J.E. Luco and H. Murakami, ASCE Press, (cd-rom).

38. Baltimore, C.V. and Gavin, H.P., "The Effect of Magnetic Field Orientation On Magnetorheological Materials," *Proc. 6th U.S. National Conference on Earthquake Engineering,* 31 May – 4 Jun 1998, Seattle WA. ed. J.F. Stanton and W.P. Grant, EERI, (cd-rom) (reviewed)

39. Gavin, H.P., "Energy-Based Stiffness Control For Hysteretic Structures," *Proc. 6th U.S. National Conference on Earthquake Engineering,* 31 May – 4 Jun 1998, Seattle WA, ed. J.F. Stanton and W.P. Grant, EERI, (cd-rom) (reviewed)

40. Gavin, H.P., Hanson, R.D., and McClamroch, N.H., "Control of Structures Using Electrorheological Dampers," *11th World Conference on Earthquake Engineering,* 23–28 Jun 1996, Acapulco, Mexico, ed. Sociedad Mexicana de Ingeniería Sísmica, A.C., Elsevier, paper no. 272.

41. McClamroch N.H. and Gavin,H.P., "Electrorheological dampers and semi-active structural control," *Proc. 34th IEEE Conference on Decision and Control*, Dec 13-15, 1995 New Orleans, LA, pp. 3528-3533.

42. McClamroch, N.H. and Gavin, H.P., "Closed Loop Structural Control using Electrorheological Dampers," *Proc. 1995 American Control Conference,* (reviewed) 21–23 Jun 1995, Seattle, WA, ed. M. Tomizuka, ACC Press, pp. 4173–4177.

43. Gavin, H.P. and Hanson, R.D., "Electrorheological Devices with Annular Electrodes," *Proc. 10th ASCE Engineering Mechanics Conference* 21–24 May 1995, Boulder, CO, ed. S. Sture, ASCE Press, pp. 1231–1234.

44. Gavin, H.P., Hose, Y.D., and Hanson, R.D., "Design and Control of Electrorheological Dampers," *Proc. First World Conference on Structural Control* 3–5 Aug 1994, Pasadena, CA, ed. A. Chassiakos, IASC, pp. WP3-83–WP3-92.

45. McClamroch, N.H. and H.P. Gavin, Ortiz, D.S., and Hanson, R.D., "Electroheological Dampers and Semi-Active Structural Control," Proc. 33rd IEEE Conference on Decision and Control, Dec 14-16, 1994, Lake Buena Vista FL, pp. 97-102

46. Gavin, H.P. and Hanson, R.D., "Characterization of an Electrorheological Active Member," *Proc. Fifth U.S. Nationl Conference on Earthquake Engineering* 10–14 Jul 1994, Chicago, IL.

47. Gavin, H.P. and Hanson, R.D., "Characterization of an ER Active Member," *Proc. 1994 Structures Congress,* 24–28 Apr 1994, Atlanta, GA, ed. N.C. Baker and B.J. Goodno, ASCE Press, pp. 863–868.

48. Gavin, H.P., Ortiz, D.S., and Hanson, R.D., "Testing and Modeling of a Proto-type ER Damper for Seismic Structural Response Control," *Proc. Int'l Workshop on Structural Control* 5–7 Aug 1993, Honolulu, HI, ed. G.W. Housner and S.F. Masri, USC Publication No. CE-9311, pp. 166–180.

49. Gavin, H.P., Ortiz, D.S., and Hanson, R.D., "Use of ER Fluid Dampers for Reduction of Seismic Structural Response," *Proc. UJNR Workshop on Smart Structures and High Performance Materials and Systems* 14–15 May 1993, Building Research Institute, Tsukuba, Japan.

50. Gavin, H.P. and Hanson, R.D., "Utilization of Active Members to Control the Dynamic Response of Structures," *Proc. US/China/Japan Trilateral Workshop on Structural Control*, 5–7 Oct 1992, Shanghai, China, ed. L. Fan, T. Kobori, T.T. Soong, and Z. Xu, pp. 277–286.

51. Shinozuka, M., Ghanem, R.G., and Gavin, H.P., "Recursive system identification in earthquake engineering," *Proc. 10th World Conference on Earthquake Engineering*, 19–24 Jul 1992, Madrid, Spain, ed. A.L. Arroyo, A.A. Balkema Pub., pp. 2737–2742.

Invited Lectures

1. Gavin, H.P., "Base Shear Reconstruction," Civil and Environmental Engineering, University of Notre Dame, 28 Feb 2020.

2. Gavin, H.P., "Seismic Monitoring and Analysis of the Christchurch Women's Hospital," NEES webinar, 15 Apr 2014.

3. Gavin, H.P., "Seismic Isolation for Critical Infrastructure and Contents," Civil and Environmental Engineering, The University of Michigan, 30 Nov 2012.

4. Gavin, H.P., "Catastrophic Failures," *Catastrophes and Consequences: The Campaign for Safe Buildings,* 4-5 Nov 2011, Yale School of Architecture, New Haven CT

5. Gavin, H.P., "Synthetic Ground Motions for Seismic Hazard Analysis," Civil and Environmental Engineering, University of South Carolina, 19 Aug 2011.

6. Gavin, H.P., "Synthetic, Spectrum-Compatible Earthquake Ground Motions," Civil and Natural Resources Engineering, University of Canterbury, Christchurch NZ, 20 Aug 2010.

7. Gavin, H.P., "Sustainability Activities at Duke," *Smarter Planet Joint Research Exchange Day,* 20 Nov 2009, IBM T.J. Watson Research Center, Hawthorne NY.

8. Gavin, H.P., "Seismic Hazard Analysis for Equipment Isolation Systems," 6 Jan 2009, FM Global, Norwood, MA.

9. Gavin, H.P., "Optimal Design of MR Dampers and
Associated Semi-Active Isolation," Department of Structural Engineering, University of California – San Diego. 7 Feb 2005.

10. Gavin, H.P., "Magnetorheological Devices and Controllable Vibration Isolation," Department of Mechanical and Aerospace Engineering, North Carolina State University, 10 Oct 2002.

11. Gavin, H.P., "Controllable Vibration Isolation," Graduate Seminar Series, Department of Civil and Environmental Engineering, Duke University, 18 Sep 2002.

12. Gavin, H.P., "Electro-rheological and Magneto-rheological Devices: Design, Modeling and Application to Vibration Isolation," Rheology Research Center, University of Wisconsin, 8 Feb 2002.

13. Gavin, H.P., "Smart Materials and Structures," Tutorial Workshop organized by R. Moheimani and accepted for the 40th IEEE Conference on Decision and Control, Orlando, FL. 4–7 Dec 2001.

14. Gavin, H.P., "Auto-Adaptive Seismic Isolation," Civil Engineering, University of Minnesota, 13 Apr 2001.

15. Gavin, H.P., "Electro- and Magnto-Rheological Materials: Mechanisms and Applications," Physics, Duke University. 29 Mar 2001.

16. Gavin, H.P., "Semi-Active and Passive Base Isolation," Civil Engineering, Tokyo Institute of Technology, 18 Jul 2000.

17. Gavin, H.P., "Seismic Response Suppression Using Materials with Controllable Stiffness and Damping," NSF-CERF Collaborations Forum, Washington D.C., 10 Nov 1998.

18. Gavin, H.P., "ER Materials for Controllable Damping Devices," Civil Engineering, University of California — Irvine, 22 May 1998.

19. Gavin, H.P., "Experiments to Determine Field Orientation Effects on MR Material Behavior," Lord Corporation Research Center, Cary NC, 6 Aug 1997.

Teaching

Courses Taught

				U	G	I	C	D
2023	F+S	Bass Cnx.	Kathmandu Earthquake Early Warning	9				
2023	S	CEE 201L.	Uncertainty, Design & Optimization	20		4.0	3.7	3.1
2022	F	Bass Cnx.	Kathmandu Earthquake Early Warning	8				
2022	S	CEE 201L.	Uncertainty, Design & Optimization	21		4.2	4.2	3.6
2021	F+S	Bass Cnx.	Kathmandu Earthquake Early Warning	10	2			
2021	S	EGR 201.L	Solid Mechanics	49		3.5	3.5	
2020	F	CEE 541.	Structural Dynamics	1	5	4.6	4.2	
2020	S	CEE 201L.	Uncertainty, Design & Optimization	20		4.4	4.3	
2020	S	CEE 629.	System Identification		3			
2020	F	Bass Cnx.	Kathmandu Earthquake Early Warning	10	2			
2019	F	EGR 305.	Engineering Systems Optimization & Economics	16		3.7	3.0	
2019	S	CEE 629.	System Identification		5	5.0	5.0	
2018	F	CEE 541.	Structural Dynamics		13	4.5	4.3	
2018	S	EGR 201.L	Solid Mechanics	47				
2017	F	CEE 629.	System Identification		14	4.5	5.0	
2017	S	EGR 201.L	Solid Mechanics	55				
2016	F	CEE 541.	Structural Dynamics	2	2			
2016	S	CEE 201L.	Uncertainty, Design & Optimization	14		4.0	4.0	3.0
2015	F	CEE 629.	System Identification		5	4.5	5.0	
2015	F	EGR 305.	Engineering Systems Optimization & Economics	18		3.3	2.9	
2015	S	CEE 201L.	Uncertainty, Design & Optimization	18		4.9	4.8	3.79
2014	F	CEE 541.	Structural Dynamics		6	5.00	5.00	3.67
2014	S	CEE 201L.	Uncertainty, Design & Optimization	13		4.80	4.20	3.64
2013	F	CEE 690.04	System Identification		5	5.00	5.00	4.50
2012	F	CEE 421L.	Matrix Structural Analysis	13		4.91	4.73	3.82
2012	F	CEE 541.	Structural Dynamics	1	6	4.43	4.29	4.00
2012	S	CE 130L.	Uncertainty, Design & Optimization	27		4.37	3.95	4.11
2011	F	CE 131L.	Matrix Structural Analysis	34		4.81	4.38	4.00
2011	F	CE 399.	Linear Systems Theory		1			
2011	S	CE 399.	Risk and Reliability Analysis		4	5.00	5.00	4.00
2011	S	CE 130L.	Uncertainty, Design & Optimization	41		4.60	4.37	3.67
2010	S	CE 283.	Structural Dynamics	1	7	4.50	4.17	4.00

cont'd ...

				U	G	I	C	D
2009	F	CE 131L.	Matrix Structural Analysis	13		4.85	4.62	3.46
2009	F	CE 399.	Risk and Reliability Analysis		3	4.00	3.00	3.00
2009	S	CE 281.	Experimental Systems		9	4.50	3.75	3.00
2009	S	CE 130L.	Uncertainty, Design & Optimization	33		4.66	4.59	4.18
2008	S	CE 130L.	Structural Design & Optimization	38		4.63	4.41	4.11
2008	S	EGR 75L.	Solid Mechanics	34		4.06	4.10	3.57
2007	F	CE 283.	Structural Dynamics		5	4.20	4.60	3.60
2006	F	CE 131L.	Matrix Structural Analysis	19		4.74	4.26	3.84
2006	S	CE 130L.	Structural Design & Optimization	25		4.64	4.41	3.68
2005	F	CE 281.	Experimental Systems		4	4.75	3.75	4.25
2005	S	CE 399.	Risk and Reliability Analysis		2	5.00	4.50	3.00
2005	S	CE 130L.	Structural Design & Optimization	24		4.67	4.40	3.93
2004	F	CE 131L.	Matrix Structural Analysis	32		4.66	4.34	3.59
2004	S	CE 130L.	Structural Design & Optimization	21		4.68	4.50	3.80
2003	F	CE 263.	Multivariable Control		11	4.00	4.00	3.67
2003	S	CE 200.	Engineering Data Analysis		14	3.25	3.17	3.08
2003	S	CE 130L.	Structural Design & Optimization	26		4.77	4.37	3.86
2002	F	CE 131L.	Theory of Structures	9		4.63	4.38	4.00
2002	F	CE 399.	Risk and Reliability Analysis		1	5.00	5.00	
2002	S	CE 130L.	Structural Design and Optimization	12		4.56	4.11	4.33
2002	S	CE 281.	Experimental Systems		11	4.00	4.00	4.18
2001	F	CE 263.	Multivariable Control		4	4.75	4.50	3.75
2001	S	CE 283.	Structural Dynamics		4	4.40	4.20	3.80
2001	S	CE 130L.	Introduction to Design	19		4.27	4.06	3.80
2000	F	CE 281.	Experimental Systems		13	3.85	4.15	4.38
2000	S	CE 130L.	Introduction to Design	27		4.26	3.96	4.00
1999	S	CE 281.	Experimental Systems	1	8	4.64	4.55	3.70
1998	F	CE 263.	Multivariable Control		8	3.00	3.50	4.00
1998	F	CE 131L.	Theory of Structures	20		4.53	4.44	4.41
1998	S	CE 131L.	Theory of Structures	8		4.14	4.14	4.43
1998	S	CE 265.	Rheology		4	5.00	4.00	3.00
1997	F	CE 131L.	Theory of Structures	31		4.37	4.15	4.48
1997	S	CE 263.	Multivariable Control		8	4.20	4.30	4.30
1996	F	EGR 75L.	Solid Mechanics	47		4.26	4.22	3.85
1996	S	CE 265.	Limit Analysis of Structures		4	4.67	4.50	4.33
1995	F	EGR 75L.	Solid Mechanics	42		2.59	3.49	4.00

Graduate Student Theses and Dissertations

1. Zhang, Boyang, "Control through Constraint," Ph.D. Dissertation, 2023.
2. Schmidt, Rebecca, "Stability and Accuracy of Discrete-Time High Pass Filters with Application to Geophone Deconvolution," M.S. Thesis, 2022.
3. McManus, Michael, "Vertical Isolation Systems," M.S. Thesis, 2021.
4. Cui, Kaichen, "Post-buckled beams for isolation," M.S. Thesis, 2020.
5. Rinker, Jennifer M., "An Empirically Based Stochastic Turbulence Simulator with Temporal Coherence for Wind Energy Applications," Ph.D. Dissertation, 2016. (Best departmental dissertation prize.)
6. Yin, Boya Helen , "Seismic Response Analysis of a Full-Scale Base-Isolated Structure via Measurements and Modeling," Ph.D. Dissertation, 2016.
7. Mirza, Ali Mohammed, "Verification of Model Reduction for Hysteretic Structural Response," M.S. Thesis, 2014.
8. Rinker, Jennifer M., "Phase Coherence in Wind Data and Simulation," M.S. Thesis, 2014.
9. Yin, Boya, "The Effect of Soil Structure Interaction on the Behavior of Base Isolated Structures," M.S. Thesis, 2014.
10. Harvey, Philip Scott, Jr., "Rolling Vibration Isolation Platforms: Modeling, Analysis, and Assessment," Ph.D. Dissertation, 2013.
11. Zéhil, Gérard-Philippe, "Modeing of Nonlienar Viscoelastic Solids with Damage Induced Anisotropy, Dissipative Rolling Contact Mechanics, and Synergistic Structural Composites," Ph.D. Dissertation, 2013.
12. Harvey, Philip Scott, Jr., "Modeling and control of an equipment isolation system for critical facilities," M.S. Thesis, 2012.
13. Kuzucu, Ismail B. "Probabilistic Seismic Hazard Analysis: Recurrence Models and Conditional Intensities," M.S. Thesis, 2012.
14. Cassidy, Ian L. "Control of Vibratory Energy Harvesters in the Presence of Nonlinearities and Power-Flow Constraints," Ph.D. Dissertation, 2012.
15. Dickinson, Bryce W. "A parametric statistical generalization and simulation of uniform hazard earthquake ground motions," M.S. Thesis, 2008.
16. Thurston, Julie "Large Scale Testing of Semi-Active Seismic Isolation," M.S. Thesis, 2003.
17. Alhan, Cenk, "Large Scale Semi-Active Seismic Isolation," Ph.D. Dissertation, 2003.
18. Cheng, Shuxing, "Positive Real Synthesis for Semi-Active Control," M.S. Thesis, 2001.
19. Oka, Natasha A., "Nonlinear dynamic analysis of an asymmetric structure fitted with semi-active hydraulic devices," M.S. Thesis, 2000.
20. Chompucot, Chaval, "Modeling ER and MR Dampers," M.S. Thesis, 2000.
21. Batt, Daniel P., "Testing of a scaled seismically-isolated structure using a hydraulic shaking table," M.S. Thesis, 1999.
22. Doke, Nitin S., "Vibration control of structures using materials with variable stiffness," M.S. Thesis, 1998.
23. Baltimore, Craig V., "Field-flow orientation effects in magnetorheological fluids," Ph.D. Dissertation, 1998.

Ph.D. and M.S. Committees

1. Rachael E. Lau, "Remote landslide risk assessment fusing data-driven and physics-based approaches," Ph.D. Dissertation, Civil and Environmental Engineering, 2024.

2. Celine Robinson, "Unveiling the Risks: Remote Sensing and Machine Learning for Data-Driven Aboveground Storage Tank Vulnerability Assessment," Ph.D. Dissertation, Civil and Environmental Engineering, 2024.

3. Peiyi Chen, "On the Construction of Admissible Representations for Scientific Machine Learning and Uncertainty Quantification, With Various Applications in Computational Mechanics," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2024.

4. Levi Manring, "Nonlinear Control of Complex Dynamical Systems," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2022.

5. Shanshan Chu, "Stochastic Modeling of Physical Parameters on Complex Domains, with Applications to 3D Printed Materials," Ph.D. Dissertation, Civil and Environmental Engineering, 2022.

6. Alejandro Garcia, "Models To Derive the Resonant Frequency of a Liquid in a Rectangular Tank With a Curved Bottom," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2021.

7. Siqi Mo, "Langevin Sampling for Concentrated Measure," M.S. Thesis, Civil and Environmental Engineering, 2022.

8. Varun Mallapalli, "Essays on Theoretical Methods for Environmental and Developmental Economics Policy Analysis," Ph.D. Dissertation, Civil and Environmental Engineering, 2020.

9. Michael W. Lee, "On Improving the Predictable Accuracy of Reduced-order Models for Fluid Flows, " Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2020.

10. Dani Levin, "Convolution and Volterra Series Approach to Reduced Order Modelling of Unsteady Aerodynamic Loads and Improving Piezoelectric Energy Harvesting of an Aeroelastic System," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2020.

11. Ying Zhang, "Nanosecond Shock Wave-Induced Surface Acoustic Waves and Fracture at Fluid-Solid Boundaries," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2018.

12. Joseph A. Camillo, "Statistical Modeling to Improve Buried Target Detection with a Forward-Looking Ground-Penetrating Radar," Ph.D. Dissertation, Electrical and Computer Engineering, 2017.

13. Ashleigh E. Swingler, "An Econophysics Approach to Short Time-Scale Dynamics of the Equities Markets," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2017.

14. Justin Winokur, "Adaptive Sparse Grid Approaches to Polynomial Chaos Expansions for Uncertainty Quantification," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2015.

15. Genevieve Lipp, "Single-track Vehicle Dynamics and Stability," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2014.

16. Zach Ballard "Dynamics of Ocean Buoys and Athlete Motion for Energy Harvesting," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2013.

17. Quan Li "Combined Deterministic-Stochastic Identification with Application to Control of Wave Energy Harvesting Systems ," M.S. Thesis, Civil and Environmental Engineering, 2012.

18. Richard Wiebe "Nonlinear Dynamics of Discrete and Continuous Mechanical Systems with Snap-through Instabilities," Ph.D. Dissertation, Civil and Environmental Engineering, 2012.

19. Ted Lyman "Post-Buckled Stability and Modal Behavior of Plates and Shells," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2012.

20. Maciej Balajewicz "A New Approach to Model Order Reduction of the Navier-Stokes Equations," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2012.

21. Sam Stanton "Nonlinear Electroelastic Dynamical Systems for Inertial Power Generation," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2011.

22. Steven Lattanzio "Optimal Power Generation of a Wave Energy Converter in a Stochastic Environment," M.S. Thesis, Civil and Environmental Engineering, 2011.

23. Kesari Mishra "Online availability estimation and control," Ph.D. Dissertation, Electrical and Computer Engineering, 2011.

24. Hendren, Christine, "Framing and Assessing Environmental Risks of Nanomaterials," Ph.D. Dissertation, Civil and Environmental Engineering, 2010.

25. Khasawneh, Firas, "Stability Analysis of Time Delay Systems Using Spectral Element Method," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2010.

26. Pascaline Cette, "The influence of an attached central mass on the dynamics of a base-excited post-buckled beam," M.S. Thesis, Mechanical Engineering and Materials Science, 2010.

27. Munoz, Francisco, "Streamflow response to precipitation measurement uncertainty and land-use changes in northwestern Mexico," Ph.D. Dissertation, Civil and Environmental Engineering, 2007.

28. Cao, Yingjun, "Fuzzy logic network theory with applications to gene regulatory networks," Ph.D. Dissertation, Electrical and Computer Engineering, 2006.

29. Yang, Bin, "Mortar finite element methods for large deformation contact mechanics," Ph.D. Dissertation, Civil and Environmental Engineering, 2006.

30. Balven, Heather, "Aspects of San Andreas Fault structure from SAFOD seismic recordings," MS Thesis, Earth and Ocean Sciences, 2006.

31. Stanislescu, Ilinca, "Nonlinear Finite Element Formulations and Bifurcation Analysis for Structures Undergoing Large Deformations," Ph.D. Dissertation, Civil and Environmental Engineering, 2005.

32. Mamane-Gravetz, Hadas, "Impact of Particles and Particle-Microbe Interaction on UV Disinfection," Ph.D. Dissertation, Civil and Environmental Engineering, 2005.

33. Nielsen, Jan, "CALIPSO: a new approach to geophysical measurements on an andesitic volcano," MS Thesis, Earth and Ocean Sciences, 2005.

34. Sprofera, Joseph, "The impact of model uncertaintity on spatial compensation in active structural acoustic control," MS Thesis, Mechanical Engineering and Materials Science, 2004.

35. Burns, Steven, "Implementation of the adaptive piezoelectric microsensoriactuator for atomic force microscopy," MS Thesis, Mechanical Engineering and Materials Science, 2004.

36. Adei, Benjamin, "Characterization of consolodated soils," MS Thesis, Civil and Environmental Engineering, 2004.

37. Gyamfi, Joseph. "Noninvasive evaluation of soil characteristics," MS Thesis, Civil and Environmental Engineering, 2004.

38. Holland, David. "An investigation of the geometric scaling properties of inflatable structures used in space solar sails," MS Thesis, Mechanical Engineering and Materials Science, 2003.

39. Kozlowski, Matthew V. "Positive real vibration control using the adaptive piezoelectric sensoriactuator," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2003.

40. McEver, Mark A., "Adaptive feedback control of dynamic systems using Q-parameterization," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2003.

41. Ardelean, Emil "Aeroelastic control of flutter using trailing edge control surfaces powered by piezoelectric actuators," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2003.

42. Moon, Suk-Min, "On-Line Generalized Predictive Control with Recursive Least Squares System Identification," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2003.

43. Cox, David E., "Control Design for Parameter Dependent Aeroelastic Systems," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2003.

44. Nichols, Jonathan M. "Applications of Nonlinear Time Series Analysis," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2002.

45. Li, Jing, "LMI-based controller synthesis for fuzzy control systems and clustering-based sensor fusion for UXO detection," Ph.D. Dissertation, Electrical and Computer Engineering, 2001.

46. Smith, G. Clark, "Design methodologies for optimum spatial compensation of adaptive structures," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 2000.

47. Henry, James K., "Active control of sound transmission through a curved panel into a cylindrical enclosure," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 1999.

48. Lane, Steven A., "Active noise control of acoustic enclosures using an approximate constant volume velocity source," Ph.D. Dissertation, Mechanical Engineering and Materials Science, 1999.

49. Suner, Ahmet, "Time delay problem in the active vibration feedback control of a piezoelectric laminated plate," Ph.D. Dissertation, Civil and Environmental Engineering, 1999.

50. El-Esnawy, Nayer Ahmed, "Analysis and design of tandem vehicles and guardrail breakaway cable terminals for safer highways," Ph.D. Dissertation, Civil and Environmental Engineering, 1997.

51. Sener, Murat, "Adaptive base isolation : a system to control seismic energy flow into buildings," Ph.D. Dissertation, Civil and Environmental Engineering, 1996.

Undergraduate Research

⋆	1. Wollmuth, Annie, "Optimizing Microgrid Performance with Energy Storage Integration: A Tool for Sustainable Grid Design,"	2024
	2. Tsang, Arthur, "Analyziing Inelastic Response Spectra and Strength Reduction Factors for Various Ground Motions,"	2022
	3. Ty, Andrei and Kraemer, Jcacob, "Power Grids: Modeling Fragility and Comodoty Trading,"	2022
▷ ⋆	4. Heitmann, Caroline, "Dynamics of Tensegrity,"	2021
▷	5. Tsao, Valerie, "Dynamics of Tensegrity,"	2021
	6. Sheppard, Nati, "The Importance of Quality Control in Construction,"	2020
	7. Lau, Rachael, "Probabalistic Hazard Analysis and Landslides,"	2020
	8. Yankey, Tenzin, "Probabalistic Seismic Hazard Analysis and GR relationships,"	2019
	9. Sharma, Pratiksha, "Microcontroller-based implementation of P-wave detection,"	2018
⋆	10. Thompson, Delaney, "Servo-electric three-axis shake table,"	2018
	11. Sullivan, Amanda, "Effect of Natural Base Isolation on Liquefaction Potential beneath Narrow and Wide Buildings,"	2017
◇	12. Tsai, Jasmine, "Wind Loads for Wind Turbins,"	2017
	13. Brown, Sara, "Hurricane Loss Models,"	2017
	14. Brown, Anita , "Dynamics of Moored Floats,"	2016
	15. Nganga, Timothy, "Analysis and Optimization of Spoked Bicycle Wheels as Stressed Structures,"	2016
	16. Gorbacheva, Ekaterina , "Seismic Hazard Quantification for three-dimensional ground motions and inelastic structures,"	2015
◇⊙	17. Coar, Maxwell "Observer-Kalman Identification from aftershock measuremetns from a Seismically-isolated structure,"	2014
	18. Farrell, Robin, "Christchurch Women's Hospital: Analysis of the connection with the Parkside West building and its implication for SFSI,"	2012
▷◇⋆	19. Allen, Amy M., "Dynamics and Control of Deep-Water Offshore Wind Turbines,"	2012
▷◇	20. Wasilewsky, Craig, "Tensegrity Structures,"	2012
	21. Schroeder, Aaron "Simulation of Friction Effects on Base-Isolated Structures,"	2012
◇	22. Morris, Katie, "Differential Algebraic Equations for Inelastic Response Analysis,"	2011
	23. Liao, Edward, "Effects of the Design Parameters on the Response of a Four-Story Inelastically-Braced Structure,"	2010
	24. Mitchell, Jason, "Dynamic Buckling Response of Cable Stayed Towers,"	2010
▷◇⋆	25. Ian Cassidy, "Controllable vibration isolation with variable electro-magnetic friction damping."	2008
▷◇	26. Steven Lattanzio, "WEAVE: Web-based Educational Framework for Analysis, Visualization, and Experimentation,"	2008
▷	27. Cleland Robinson, "Squeeze-film magnetorheological damper,"	2008
▷◇⋆	28. Axelrod, Nicole, "Performance Limits of Passively-Damped Ball-in-Cone Isolation Systems,"	2007

▷◇	29. Sarah Oliver, "Measurement of Microslip Friction,"	2006
◇⋆	30. Yau, Siu-Chung, "Response surface methods for Structural Reliability Assessment,"	2006
	31. Victorsson, Victor, "Reliability-Based Optimal Design,"	2005
▷◇	32. Atari, Noor, "Web-based laboratories for instruction in Mechanics,"	2004
	33. Jones, Alissa, "Particle Concentration and Electromagnet configuration of MR devices,"	2003
	34. Mailloux, Matthew, "Uncertainty Propagation in Seismic Isolation,"	2003
▷◇⋆	35. Hoagg, Jesse, "Controllable Seismic Isolation using MR devices,"	2002
▷◇⋆	36. Dobossy, Mark E., "Optimal Design of MR Devices,"	2001
▷	37. Hoang, David, "Linear Power Controller for a Magnetorheological Damper,"	2000
▷ ⋆	38. McDonnald, Melissa, "Vibration Suppression of an Orbiting Structure," *North Carolina Space Grant Consortium Scholarship*	1999
	39. McCormick, Shane "Structural Optimization,"	1998
▷	40. Riley, Kathryn, "Submerged Funicular Arches,"	1997
▷	41. Morales, Rodrigo, "Drift-Free Integrators,"	1997
▷	42. Wenk, Clint, "Electro-dynamic shaker control,"	1996

▷ : significant experimental components
◇ : Pratt Fellow
⊙ : National Academy of Engineering Grand Challenges Scholar
⋆ : Eric I. Pas Undergraduate Research Prize

Service

Service to the School and the University

- Chair, Civil and Environmental Engineering 2021—*present*
- Member, Academic Council 2021—2023
- Chair, Pratt Dean Review Committee 2019
- Member, University Environment and Facilities Committee 2016—2017
- Chair, Alternate Paths toward BSE Committee 2018—2023
- Member, Pratt Undergraduate Research Committee 2018—2019
- Chair, Pratt Engineering Faculty Council 2015—2017
- Member, Pratt Teaching Awards committee 2015—2017
- Member, Pratt Teaching Academy 2015—2017
- Member, Pratt Masters of Engineering program committee 2010—2019
- Member, Pratt Faculty Budget Advisory Committee 2013—2014
- Member, Pratt committee on future of engineering education 2012
- Member, Pratt academic integrity charette 2012
- Member, faculty search committee on robotics and controls 2011—2012
- Member, Engineering Curriculum Review Committee 2009
- Contributor, Duke School-Days outreach program 2000—2009
- Member, Energy Engineering and the Environment Certificate committee 2006—2007
- Faculty Mentor, Engineers Without Borders Uganda trip 2006
- Director, Center for Applied Control 2002—2006
- Member, Academic Council Student Affairs Committee 2004—2005
- Member, Pratt School of Engineering Curriculum Committee 2002—2005
- Member, Fundamentals of Engineering Exam review lecture series 1997—2005
- Member, Pratt School of Engineering Engineering Faculty Council 2003—2004
- Member, University Instrument Shop Committee 2003—2004
- Member, University Web-Homework Committee 2002—2003
- Chair, Pratt School of Engineering Computation Sub-committee 2002—2003
- Secretary, Pratt School of Engineering Engineering Faculty Council 2001—2002
- Member, Pratt School of Engineering Engineering Faculty Council 2000—2002
- Member, Pratt School of Engineering Infrastructure Working Group 1999—2000
- Member, Pratt School of Engineering Building Committee 1999—2000
- Consultant, Free Electron Laser Laboratory Vibration Study 1999

Service to the Department of Civil and Environmental Engineering

- Chair, Civil and Environmental Engineering 2021—*present*
- Chair, CEE DEIC committee 2020—2024
- Chair, CEE Curriculum Committee 2009—2023
- Co-Chair, ABET review committee for CivE 2021
- "360 Advising" First-year coach 2021
- Member, Graduate Program Committee 2016—2021
- Member, tenure review committee 2015, 2017, 2020
- Director of Masters Studies in "Civil Engineering" 2009—2016
- Coordinator, Materials, Structures & Geosystems qualifying exam sub-committee 2009—2017
- Undergraduate academic advisor 1996—*present*
- Independent Study Advisor to twenty-seven undergraduate students 1996—*present*
- Member, ABET review committee 2012—2014
- Chair, tenure review committee 2012
- Co-chair, faculty search in mechanics and control 2011—2012
- Chair, Pratt Faculty Search Committee in Risk and Uncertainty 2008—2011
- Member, Engineering Faculty Council 2008—2010
- Member, Engineering Faculty Council Curriculum sub-committee 2008—2009
- Chair, reappointment review committee 2009
- Coordinator, CEE Seminar series 2008
- Director of Undergraduate Studies 2003—2006
- Chair, CEE Faculty Search Committee 2005—2006
- Chair, CEE Faculty Search Committee 2004—2005
- Chair, CEE qualifying exam committee 2002—2005
- Graduation with Distinction Committee 1998—2005
- Co-Chair, CEE Faculty Search Committee 2002—2003
- Member, CEE Faculty Search Committee 2000—2001
- Member, CEE Faculty Search Committee 1998—1999
- Member, CEE Department Undergraduate Curriculum Review Committee 1997—1998
- CEE Faculty Secretary 1995—1997

Service to the Profession

- Member, NSF committee of visitors for CMMI 2015
- Member, ASCE Standardization Committee for the Development of a Standard for Shake-Table Testing for Nonstructural Components 2013—*present*
- Member, ASCE-EMI Structural Health Monitoring and Control Commitee 1999—*present*
- Member, ASCE-EMI Experimental Analysis and Instrumentation Committee 1995—*present*
- NSF proposal review panelist (22 panels) 1994—*present*
- Tenure review letters 2006—2014
- Program Committee, Engineering Mechanics Institute Conference EMI-PMC 2012
- Program Committee, American Control Conference 2004—2012
- Guest Editor, *Bulletin of the New Zealand Society for Earthquake Engineering* 2010
- Vice-chair, ASCE-SEI Committee on Structural Control 2008—2010
- Associate Editor, *J. Engineering Mechanics* 2005—2013
- Chair, ASCE-EMD Experiemental Analysis and Instrumentation Committee 2004—2008
- Vice Chair, ASCE-EMD Experiemental Analysis and Instrumentation Committee 2003—2004
- Secretary, ASCE-ST Committee on Structural Control. 2002—2004
- Reviewer, Civilian Research Development Foundation of the Former States of the USSR 2003
- Co-coordinator, Benchmark Problem on Seismic Isolation. 1999—2002
- Program Committe, SPIE, Smart Systems for Bridges, Structures, and Highways 1998—2000

Conference Session Chair

- "Analysis and Simulation," 10th US Nat'l Conference on Earthquake Engineering, Anchorage AK 2014
- "Base Isolation and Nonstructural Components," Quake Summit 2013, Reno NV, 2013.
- "Stochastic Dynamics II" and "Dynamics and Controls," Engineering Mechanics Institute Conference EMI-PMC, Notre Dame IN, 2012
- "Earthquake Engineering" Engineering Mechanics Institute Conference, Boston MA, 2012
- "Selected NEES Equipment Sites" Engineering Mechanics Division Conference, Newark DE, 2004
- "Effector Technology," *US-Japan Cooperative Research Program on Earthquake Hazard Mitigation,* Disaster Prevension Research Institute, 21-22 Oct 2002, Kyoto, Japan.
- "Passive Control" *U.S.-Japan Workshop on Smart Structures for Improved Seismic Performance in Urban Regions,* 14 Aug 2001, Seattle WA,
- "Semi-Active Seismic Isolation," *2001 Mechanics and Materials Conference,* 27–29 Jun 2001, San Diego, CA.
- "Active/Passive/Hybrid Systems for Vibration Control," *SPIE, 8th Annual International Symposium on Smart Structures and Materials,* 3–8 Mar 2001, Newport Beach, CA.
- "Analytical Studies on Semi-active and Active Structural Control Systems," *EM-2000 ASCE Engineering Mechanics Conference,* 21–24 May 2000, Austin, TX.
- "Shaking Table Studies on Semi-active Control Systems," *EM-2000 ASCE Engineering Mechanics Conference,* 21–24 May 2000, Austin, TX.

- "Semi-active Control Systems," *13th ASCE Engineering Mechanics Conference,* 14–16 Jun 1999, Baltimore, MD.
- "Active/Passive Devices for Civil Structures," *SPIE, 6th Annual International Symposium on Smart Structures and Materials,* 1–5 Mar 1999, Long Beach, CA.
- "Structural Control," *12th ASCE Engineering Mechanics Conference,* 17–20 May 1998, San Deigo CA.
- "Small Scale Seismic Simulators," *12th ASCE Engineering Mechanics Conference,* 17–20 May 1998, San Deigo CA.
- "Active/Passive Devices for Civil Structures," *SPIE, 5th Annual International Symposium on Smart Structures and Materials,* 1–6 Mar 1998, San Diego, CA.
- "Magnetorheological Dampers," *SPIE, 5th Annual International Symposium on Smart Structures and Materials,* 1–6 Mar 1998, San Diego, CA.

Professional Society Memberships

- American Society of Civil Engineers
- Earthquake Engineering Research Institute
- Engineering Mechanics Institute, ASCE
- Structural Engineering Institute, ASCE

Reviewer for

- *Advances in Structural Engineering*
- *AIAA Journal*
- Army Research Office
- *ASCE Journal of Engineering Mechanics*
- *ASCE Journal of Structural Engineering*
- *ASME Journal of Vibration and Acoustics*
- American Control Conference
- *Communications in Nonlinear Science*
- *Computer-Aided Civil and Infrastructure Engineering*
- *Computers and Structures*
- Conference on Decision and Control
- *Earthquake Engineering and Structural Dynamics*
- *Earthquake Spectra*
- *Engineering Structures*
- *Experimental Mechanics*
- *Finite Elements in Analysis and Design*
- *IEEE Control System Magazine*
- *IEEE Transactions on Control Systems Technology*
- *IEEE Transactions on Vehicle Electronics*
- *International Journal of Solids and Structures*
- *Journal of Aircraft*
- *Journal of Automobile Engineering*
- *Journal of Guidance, Control, and Dynamics*
- *Journal of Intelligent Material Systems and Structures*
- *Journal of Numerical Methods in Engineering*
- *Journal of Smart Structures and Materials*
- *Journal of Structural Control and Health Monitoring*
- *Journal of Vibration and Control*

- *Journal of Wind Engineering and Industrial Aerodynamics*
- *Materials Science and Engineering A,*
- National Science Foundation
- *Nonlinear Dynamics*
- *Nuclear Engineering and Design*
- Prentice-Hall
- *Shock and Vibration*
- *Smart Materials and Structures*
- *Smart Structures and Systems*
- *Soil Dynamics and Earthquake Engineering*
- *Structural Engineering and Mechanics*
- U.S. Civilian Research and Development Foundation (CRDF)