

CURRICULUM VITAE

Raimondo Betti

Department of Civil Engineering & Engineering Mechanics
Columbia University
610 S.W. Mudd Bldg.
New York, NY 10027

Tel.: (212) 854-6388
Fax: (212) 854-6267
betti@civil.columbia.edu

Professional Experience:

- July 2010 – June 2013: Chairman, Department of Civil Engineering & Engineering Mechanics, Columbia University, New York, NY.
- July 2002 – present: Professor, Department of Civil Engineering & Engineering Mechanics, Columbia University, New York, NY.
- Jan. 1996 – July 2002: Associate Professor, Department of Civil Engineering & Engineering Mechanics, Columbia University, New York, NY.
- July 1991-Dec. 1995: Assistant Professor, Department of Civil Engineering & Engineering Mechanics, Columbia University, New York, NY.

Education:

- 1991: Ph.D. in Civil Engineering, University of Southern California, Los Angeles, CA.
Dissertation Title:
"Dynamic Soil-Structure Interaction for Long-Span Cable Supported Bridges".
Ph.D. Advisor: Prof. A.M. Abdel-Ghaffar.
- 1988: M.S. in Civil Engineering, Structural Mechanics Program, U.S.C.
- 1985: "Laurea" in Civil Engineering, University of Rome "La Sapienza", Italy;
final grade: 110/110 magna cum laude.

National Science Foundation Award:

- 1994 NSF National Young Investigator Award

Columbia University School of Engineering and Applied Science Awards:

- 1996 Distinguished Faculty Teaching Award.
- 2000 Kim Faculty Involvement Award

Columbia University Award:

- 2000 Great Teacher Award

International Awards:

- 1997 Research Award for Foreign Specialists, Public Works Research Institute, Ministry of Construction, Government of Japan.

Honorary Appointments:

- Adjunct Professor, School of Transportation Science and Engineering, Harbin Institute of Technology, Harbin, China

Honorary Medal Awards:

- Aftab Mufti Medal, International Society for Structural Health Monitoring of Intelligent Infrastructure, 2017
- Norman Medal, American Society of Civil Engineers, 2024

Other Awards:

- New York Academy of Science: Member since 1994
- Sigma Xi, the Scientific Research Society: Member since 1992
- Stauffer Fellowship Award, U.S.C., 1990-91
- Powell Research Fellowship Award for three consecutive years, U.S.C., 1987-90
- Best Teaching Assistant Award, Department of Civil Engineering, U.S.C., 1990
- Outstanding Academic Achievement Award, OISS, U.S.C., 1988-90
- Listed in *American Men and Women of Science*, 1995
- Listed in *Who's Who in Engineering and Science*, 1992-present

Advanced Learning Certificates:

- Specialization Certificate in “Machine Learning” (3 courses): Coursera – Stanford University & DeepLearning.AI (2022)

Current Research Interests:

Structural Mechanics, Structural Dynamics, System Identification and Damage Detection, Health Monitoring of Structures, Earthquake Engineering, Vibration Control of Linear and Nonlinear Structures, Dynamic Soil-Structure Interaction, Computational Mechanics, Bridge Engineering, Seismic Analysis of Bridges, Corrosion Processes and Hydrogen Embrittlement in High-Strength Bridge Wires, Estimation of Residual Strength in Main Cables of Suspension Bridges, Non Destructive Testing for Bridges.

Scientific Committees:

- Dynamic, Engineering Mechanics Institute, ASCE
- Structural Health Monitoring, Engineering Mechanics Institute, ASCE

- Scientific Board, Journal of Ingegneria Sismica
- Invited Member of the Technical Committee on Life-Cycle Performance, Cost and Optimization of the International Association for Structural Safety and Reliability.

ASCE Appointment:

- Associate Editor, *ASCE Journal of Engineering Mechanics* (2003-2005)
- Chairman, Dynamics Committee, *ASCE Engineering Mechanics Division*. (2003-2006)
- Vice-Chairman, Dynamics Committee, *ASCE Engineering Mechanics Division*. (2006-2008)
- Editor, Special Issue of *ASCE Journal of Engineering Mechanics* in Memory of Professor A.M. Abdel-Ghaffar (June 2013).
- Member and Chair of EMI Award Committee (2011-2014)
- Member of the ASCE Department Head Council (2010-2013)
- Elected Member of the ASCE EMI Board of Governors (2023-2026)

Other Appointments:

- Elected member to the Board of Governors of the International Association for Structural Control and Monitoring.
- Visiting Professor, Politecnico di Torino (Italy) (1/2017- 6/2017)
- Visiting Professor, University of Rome “La Sapienza” (Italy) (3/2024)
- Visiting Professor, University of Trento (Italy) (6/2024)

Publications:

Chapters/Books:

- Betti, R.: “Time Domain Identification of Structural Systems from Input-Output Measurements”, *CISM Publication “Dynamic Methods for Damage Detection in Structures”*, Udine, 2007.
- Smyth, A.W., Betti, R., and Longman, R.W.: “Data-Based Models”, chapter in *IOP Handbook of Smart Systems*
- Betti, R., and Abdel-Ghaffar, A.M.: "Techniques in the Analysis of Embedded Foundations in Structural Systems", chapter IV, Vol.12, in *International Series in Engineering, Technology and Applied Science Volumes on Structural Dynamic Systems, Computational Techniques and Optimization*, edited by C.T. Leondes, Gordon and Breach Science Publishers.
- Betti, R.: “Monitoring of Resilience of Highway Bridges”, chapter in *ASCE Manual of Practice on Resilience*, Editor: Dr. Ettouney, M., ASCE.
- Blabac, B., Murphy, T., Sluszk, P., Betti, R. and Deodatis, G.:”Guidelines for Risk-based Inspection and Strength Evaluation of Suspension Bridge Main Cables, *NCHRP 353*, Washington, DC: The National Academies Press. (2023) <https://doi.org/10.17226/26861>.

Books Edited:

- Ling, H., Smyth, A. and Betti, R.: "Poromechanics IV", Proceedings of the 4th Biot Conference, Columbia University, New York, NY (2009)
- Betti, R., and Smyth, A.: "Proceedings of the 4th International Workshop on Structural Health Monitoring and Control", Columbia University, New York, NY, (2004).
- Meier, U., and Betti, R.: "Recent Advances in Bridge Engineering", Proceedings of the US-Canada-Europe Workshop on Bridge Engineering, Zurich, Switzerland (1998).
- Betti, R., Meyer, C., and Yanev, B.: "Proceedings of the International Conference on Retrofitting of Structures", Columbia University, New York, NY, (1996)

Journal Papers under review or in preparation:

- Li, L., Betti, R., Shen, Z., Gan, L., Gu, H. and Zhang, H.: "Robust Structural Modal Identification and Damage Assessment through Novel Weighted Spectral and Cepstral Representations" *Journal of Sound and Vibration*, (under review).
- Crocetti, A., Beigi, H., Betti, R. and Ceravolo, R.: "Divergence-based Bridge Health Monitoring through Kolmogorov-Arnold Networks using Cepstral Coefficients and Gaussian Mixture Models", *Mechanical Systems and Signal Processing*, (under review)
- Speciale, C., Tronci, E.M., Betti, R., and Milana, S.: "Cepstral Coefficients for Real-Time Recognition of Known and Unknown Wind Turbine Damage and Power-Generation States", *Renewable Energy*, (under review).

Journal Papers:

106. Teka, L., He, X., Betti, R., and Yin, H.: "Development length of a high-strength wire in a bridge cable changing with the wrapping force and axial loading", *ASCE Journal of Engineering Mechanics*, (2026, in press).
105. Hom, K.L., Beigi, H., and Betti, R.: "From Experiments to In-Service: Learning Embeddings for Damage Identification in Structural Health Monitoring", *Mechanical Systems and Signal Processing*, (2026), ISSN: 08883270, Vol. 242, 10.1016/j.ymssp.2025.113622 (DOI)
104. Mehrjoo, A., Hom, K.L., Beigi, H., and Betti, R.: "Zero-Shot Bridge Health Monitoring using Cepstral Features and Streaming LSTM Networks", *Infrastructures*, Special Issue on Advances in Structural Health Monitoring and Industry Innovations for Bridge Management and Conservation, (2025) <https://doi.org/10.3390/infrastructures10110292> .
103. Lin, C.S., Gerasimidis, S., and Betti, R.: "Progressive Collapse Analysis of Half-Through Truss Bridges Considering Corrosion Effects", *International Journal of Steel Structures*, (2025), <https://doi.org/10.1007/s13296-025-00971-7>.

102. Sclafani, L., Stagi, L., Tronci, E.M., Betti, R., and Milana, S.: "Real-Time Unsupervised Structural Damage Detection Using Cepstral Features and Principal Component Analysis", *Structural Health Monitoring*, (2025), <https://doi.org/10.1177/14759217251355946>
101. Roveri, N., Severa, L., Milana, S., Tronci, E.M., Culla, A., Betti, R. and Carcaterra, A.: "ADACTA - Advanced Automated Component Analysis for Structural Health Monitoring", *Structural Health Monitoring*, (2025), <https://doi.org/10.1177/14759217251326599>.
100. Li, L., Brugger, A., Betti, R., Shen, Z., and Gan, L.: "A Cepstrum-Informed Neural Network for Structural Damage Assessment", *Computers and Structures*, ISSN: 00457949, Vol. 306 2025.
99. Teka, L., Betti, R., and Yin, H.: "The effect of wrapping force on the effective stiffness of packed parallel wire cables with elastoplastic contacts", *ASCE Journal of Engineering Mechanics*, Vol. 150, No. 10, 2024, <https://doi.org/10.1061/JENMDT.EMENG-7731>.
98. Stagi, L., Sclafani, L., Tronci, E.M., Betti, R., Milana, S., Culla, A., Roveri, N., and Carcaterra, A.: "Enhancing the Damage Detection and Classification of Unknown Classes with a Hybrid Supervised-Unsupervised Approach", *Infrastructures*, 9, 40, 2024 <https://doi.org/10.3390/infrastructures9030040>
97. Li, L., Brugger, A., Betti, R., Shen, Z., and Gan, L.: "Vibration-based Structural Damage Localization through a Discriminant Analysis Strategy with Cepstral Coefficients", *Structural Health Monitoring*, <https://doi.org/10.1177/14759217241231034>.
96. Tronci, E.M., Betti, R., and DeAngelis, M.: "Damage detection in a RC-masonry tower equipped with a non-conventional TMD using temperature independent damage sensitive features", *Developments on the Built Environment*, Vol. 15, 2023, <https://doi.org/10.1016/j.dibe.2023.100170>.
95. Li, L. and Betti, R.: "A Machine Learning-Based Data Augmentation Strategy for Structural Damage Classification in Civil Infrastructure Systems", *Journal of Civil Structural Health Monitoring*, Vol. 13, 2023, pp. 1265-1285, <https://doi.org/10.1007/s13349-023-00705-5>
94. Tronci, E.M., Beigi, H., Betti, R., and Feng, M.Q.: "A Damage Assessment Methodology for Structural Systems using Transfer Learning from the Audio Domain", *Mechanical Systems and Signal Processing*, <https://doi.org/10.1016/j.ymssp.2023.110286>.
93. Shen, M., Betti, R., Deodatis, G., Blabac, B., and Martin, B.: "Risk-based Inspection and Strength Evaluation of Suspension Bridge Cables", *ASCE Journal of Structural Engineering*, <https://doi.org/10.1061/JSENDH.STENG-11891>.
92. Li, L., Morgantini, M., and Betti, R.: "Structural Damage Assessment through a New Generalized Autoencoder with Features in the Quefrency Domain", *Mechanical Systems and Signal Processing*, Vol. 184, 2023, <https://doi.org/10.1016/j.ymssp.2022.109713>

91. Robinson, J., Brugger, A., Sloane, M., and Betti, R.: "Experimental-Numerical Determination of the Effective Thermal Conductivity of Suspension Bridge Main Cables", *ASCE Journal of Bridge Engineering*, Vol. 27, No. 12, 2022, [https://doi.org/10.1061/\(ASCE\)BE.1943-5592.0001973](https://doi.org/10.1061/(ASCE)BE.1943-5592.0001973) (elected as the 2022 best paper in ASCE Journal of Bridge Engineering and recipient of the ASCE Norman Medal)
90. Tronci, E.M., Beigi, H., Feng, M.Q., and Betti, R.: "A transfer learning SHM strategy for bridges enhanced by the use of speaker recognition x-vectors", *Journal of Civil Structural Health Monitoring*, Vol. 12, No.6, 2022, pp:1285-1298. <https://doi.org/10.1007/s13349-022-00591-3>
89. Bernagozzi, G., Mukhopadhyay, S., Betti, R., Landi, L. and Diotallevi, P.P.: "Proportional flexibility-based damage detection for buildings with unknown mass scenarios: the case of severely truncated modal spaces", *Engineering Structures*, Vol 259, 2022, 114145, <https://doi.org/10.1016/j.engstruct.2022.114145> .
88. Brugger, A., Lee, S.-Y., Robinson, J., Morgantini, M., Betti, R., and Noyan, I.C.: "Internal Contact Mechanics of 61-Wire Cable Strands", *Experimental Mechanics*, 2022, <https://doi.org/10.1007/s11340-022-00896-w>.
87. Tronci, E.M., De Angelis, M., Betti, R. and Altomare, V.: "Multi-stage semi-supervised methodology for modal parameter estimation adopting parametric system identification algorithms", *Mechanical Systems and Signal Processing*, Vol. 165, 2022, 108317, <https://doi.org/10.1016/j.ymssp.2021.108317> .
86. Robinson, J., Brugger, A., and Betti, R.: "Experimental Investigation of the High Temperature Performance of High Strength Steel Suspension Bridge Wire", *ASCE Journal of Bridge Engineering*, Vol 26, No. 7, 2021, [https://doi.org/10.1061/\(ASCE\)BE.1943-5592.0001721](https://doi.org/10.1061/(ASCE)BE.1943-5592.0001721).
85. Achilli, A., Bernagozzi, G., Betti, R., Diotallevi, P.P., Landi, L. Quqa, S. and Tronci, E.M.: "On the use of multivariate autoregressive models and outlier analysis for vibration-based damage detection and localization", *Journal of Smart Structures and Systems*, Vol 27, No 2, 2021, pp. 335-350.
84. Tronci, E.M., De Angelis, M., Betti, R. and Altomare, V.: "Vibration based structural health monitoring of a RC-masonry tower equipped with a non-conventional TMD", *Engineering Structures*, Vol 224, 2020, <https://doi.org/10.1016/j.engstruct.2020.111212>.
83. Morgantini, M., and Betti, R.: "The Inner Product Vector as an Output-Only Cross-Correlation-Based Feature to Structural Damage Assessment", *Journal of Vibroengineering* doi:10.21595/JVE.2020.21373.
82. Tronci, E.M., De Angelis, M., Betti, R. and Altomare, V.: "Semi-automated operational modal analysis methodology to optimize modal parameter estimation", *Journal of Optimization Theory and Applications*, Vol. 187, Issue 3, No. 11, 2020, doi:10.1007/s10957-020-01694-x.

81. Morgantini, M., Balsamo, L., and Betti, R.: "The use of Cepstral Coefficients as novel damage sensitive feature in Structural Health Monitoring", *Mechanical Systems and Signal Processing*, Vol. 147, 2020.
80. Civera, M., Ferraris, M., Ceravolo, R., Surace, C., and Betti, R.: "The Teager-Kaiser Energy Cepstral Coefficients as an Effective Structural Health Monitoring Tool", *Applied Science*, 2019, 9, 5064;doi:10.3390/app9235064.
79. Miraglia, G., Lenticchia, E., Ceravolo, R., and Betti, R.: "Synergistic and Combinatorial Optimization of FE Models for Monitored Buildings", *Journal of Structural Control and Health Monitoring*, Vol.26, No. 9, 2019, doi.org/10.1002/stc.2403.
78. Sloane, M., and Betti, R.: "Heat Transfer on a Disk: a Closed-form Solution for Suspension Bridge Main Cables exposed to Fire", *ASCE Journal of Engineering Mechanics*, Vol. 145, No. 3, 2019.
77. Bernagozzi, G., Mukhopadhyay, S., Betti, R., Landi, L. and Diotallevi, P.P.: "Output-only Damage Detection in Building Structures Using Proportional Modal Flexibility-Based Deflections", *Engineering Structures*, Vol. 167, 2018, pp. 549-566, <https://doi.org/10.1016/j.engstruct.2018.04.036>.
76. Karanci, E. and Betti, R.: "Modeling Corrosion in Suspension Bridge Cables. 1: Annual Corrosion Rate", *ASCE Journal of Bridge Engineering*, Vol. 23, No. 6, 2018, DOI: 10.1061/(ASCE)BE.1943-5592.00001233, nominated for the ASCE Arthur M. Wellington Prize as Best Paper published that year in the Journal of Bridge Engineering.
75. Karanci, R. and Betti, R.: "Modeling Corrosion in Suspension Bridge Cables. 2: Long-term Corrosion and Remaining Strength", *ASCE Journal of Bridge Engineering*, Vol. 23, No. 6, 2018, DOI: 10.1061/(ASCE)BE.1943-5592.00001234, nominated for the ASCE Arthur M. Wellington Prize as Best Paper published that year in the Journal of Bridge Engineering.
74. Phan, M.Q., Vicario, F., Betti, R., and Longman, R.W., "State-Space Model and Kalman Filter Gain Identification by a Kalman Filter of a Kalman Filter," *ASME Journal of Dynamic Systems, Measurement and Control*, Vol. 140(3), 2018, DOI: 10.1115/1.4037778
73. Priori, C., De Angelis, M., and Betti, R.: "On the Selection of User-Defined Parameters in Output-Only Identification", *Mechanical Systems and Signal Processing*, Vol. 100, No. 1, 2018, pp. 501-523, <https://doi.org/10.1016/j.ymssp.2017.07.045>
72. Sun, G., Longman, R.W., Betti, R., Chen, Z., and Xue, S.: "Observer Kalman Filter Identification of SuspenDome", *Mathematical Problems in Engineering*, 2017, DOI:10.1155/2017/1601534.
71. Brugger, A., Lee, S.-Y., Mills, J.A.A., Betti, R., and Noyan, I.C.: "Partitioning of Clamping Strains in a Nineteen Parallel Wire Strand", *SEM Journal of Experimental Mechanics*, Vol 57, No. 6, 2017, pp. 921-937.
70. Vicario, R., Phan, M.Q., Betti, R. and Longman, R.W.: "OKID via output residual: a converter from stochastic to deterministic system identification", *Journal of Guidance, Control and Dynamics*, Vol. 40, No. 12, 2017, pp 3226-3238.
69. Betti, R., Sloane, M., Khazem, D., and Gatti, C.: "Monitoring the structural health of main

cables of suspension bridges', *Journal of Civil Structural Health Monitoring*, Vol. 6, Issue 3, July 2016, pp. 355-363, awarded Best Paper of 2016 by ISHMIL.

68. Mukhopadhyay, S., Lus, H., and Betti, R.: "Output-only structural identification with incomplete instrumentation and independence of measured information", *Earthquake Engineering and Structural Dynamics*, Vol. 45, Issue 2, 2016, pp. 273-296.
67. Sun, H., Waisman, H., and Betti, R.: "A sweeping window method for detection of flaws in a large structure using an explicit dynamic XFEM and absorbing boundary layers", *International Journal for Numerical Methods in Engineering*, Vol. 105, 2016, pp. 1014-1040.
66. Mukhopadhyay, S., Lus, H., and Betti, R.: "Probabilistic Structural Health Assessment with Identified Physical Parameters from Incomplete Measurements", *ASCE/ASME Journal of Risk and Uncertainty in Engineering Systems*, Vol 2, No. 3, 2016, DOI: 10.1061/AJRU6.0000838.
65. Balsamo, L., and Betti, R.: "Statistical Pattern Recognition Based Structural Health Monitoring", *Institution of Civil Engineering (ICE) Journal of Forensic Engineering*, 2015, DOI: 10.1689/feng.15.00008.
64. Sun, H., and Betti, R.: "A Hybrid Algorithm with Bayesian Inference for Probabilistic Model Updating", *Computer-Aided Civil and Infrastructure Engineering*, DOI:10.1111/mice.12142, May 2015.
63. Balsamo, L., and Betti, R.: "Data-based Structural Health Monitoring Using Small Training Data Sets", *Journal of Structural Control and Health Monitoring*, Vol. 22, No. 10, 2015, pp. 1240-1264.
62. Phan, M.Q., Vicario, F., Longman, R.W., and Betti, R.: "Optimal Bilinear Observers for Bilinear State-Space Models by Interaction Matrices", *International Journal of Control*, Vol. 88, No. 8, 2015, pp. 1504-1522, DOI: [10.1080/00207179.2015.1007530](https://doi.org/10.1080/00207179.2015.1007530).
61. Balsamo, L., Mukhopadhyay, S., and Betti, R.: "A Statistical Framework for structural Health Monitoring with Stiffness Proportional Damage Sensitive Features", invited paper for a special issue on Structural Health Monitoring and Control of the *Journal of Smart Structures and Systems*, Vol 15, No. 3, 2015, pp. 699-715.
60. Mukhopadhyay, S., Lus, H., and Betti, R.: "Structural Identification with Incomplete Instrumentation and Global Identifiability Requirements under Base Excitation", *Journal of Structural Control and Health Monitoring*, Vol. 22, No. 7, 2015, pp. 1024-1047.
59. Phan, M.Q., Vicario, F., Betti, R. and Longman, R.W.: "Output-Only Observer/Kalman Filter Identification (O³KID)", *Journal of Structural Control and Health Monitoring*, Vol. 22, No. 5, 2015, pp. 847-872.
58. Sun, H., Waisman, H., and Betti, R.: "A multiscale flaw detection algorithm based on XFEM", *International Journal for Numerical Methods in Engineering*, Vol. 100, No. 7, 2014, pp. 477-503.
57. Balsamo, L., Betti, R., and Beigi, H.: "A Structural Health Monitoring Strategy Using Cepstral Features", *Journal of Sound and Vibration*, Vol. 333, 2014, pp. 4526-4542
56. Vicario, F., Phan, M.Q., Betti, R., and Longman, R.W.: "Linear State Representations for Identification of Bilinear Discrete-Time Models by Interaction Matrices", *Nonlinear*

Dynamics, Vol. 77, No. 4, 2014, pp. 1561-1576.

55. Montoya, A., Deodatis, G. Betti, R., and Waisman, H.: "A Physics Based Stochastic Model to Determine the Failure Load of Suspension Bridge Main Cables", *ASCE Journal of Computing in Civil Engineering*, Vol. 29, No. 4, 2015, DOI: 10.1061/(ASCE)CP.1943-5487.0000393, 2014.
54. Mukhopadhyay, S., Lus, H., and Betti, R.: "Modal Parameter Based Structural Identification Using Input-Output Data: Minimal Instrumentation and Global Identifiability Issues", *Mechanical Systems and Signal Processing*, Vol 45, No. 2, 2014, pp. 283-301.
53. Sun, H., and Betti, R.: "Simultaneous Identification of Structural Parameters and Dynamic Input with Incomplete Output-only Measurements" *Journal of Structural Control and Health Monitoring*, Vol. 21, 2014, pp. 868-889.
52. Sun, H., Waisman, H., and Betti, R.: "Nondestructive identification of multiple flaws using XFEM and a topologically adapting artificial bee colony algorithm", *International Journal for Numerical Methods in Engineering*, Vol. 95, No. 10, 2013, pp. 871-900.
51. Reggio, A., De Angelis, M. and Betti, R.: "A State-space Methodology to Identify Modal and Physical Parameters of Non-viscously Damped System", *Mechanical Systems and Signal Processing*, Vol. 41, 2013, pp. 380-395.
50. Sun, H., Lus, H., and Betti, R.: "Identification of Structural Models Using a Modified Artificial Bee Colony Algorithm", *Computers and Structures*, Vol. 116, 2013, pp. 59-74.
49. Hong, A.L., Betti, R. and Ubertini, F.: "A New Stochastic Subspace Approach for System Identification and Its Application to Long-Span Bridges", *ASCE Journal of Engineering Mechanics*, Vol. 139, No. 6, 2013, pp. 724-736.
48. Mei, F., Noyan, I.C., Brugger, A., Betti, R., Clausen, B., Brown, D., and Sisneros, T.: "Neutron Diffraction Measurement of Stress Redistribution in Parallel Seven-wire Strands After Local Fracture", *SEM Journal of Experimental Mechanics*, 2013, DOI: 10.1007/s11340-012-9621-5, published online May 24, 2012.
47. Mukhopadhyay, S., Lus, H., Hong, A.L. and Betti, R.: "Propagation of Mode Shape Error in Structural Identification", *Journal of Sound and Vibration*, Vol. 331, No. 17, 2012, pp. 3961-3975.
46. Sloane, M.J., Betti, R., Hong, A.L., Marconi G. and Khazem, D.: "An Experimental Analysis of a Non-Destructive Corrosion Monitoring System for Main Cables of Suspension Bridges", *ASCE Journal of Bridge Engineering*, Vol. 18, Issue 7, 2013, pp. 653-662.
45. Hizir, N.B., Phan, M.Q., Betti, R., and Longman, R.W.: "Identification of Discrete-Time Bilinear State-Space Models Through an Equivalent Linear Model Using the Observer Kalman Identification Algorithm", *Nonlinear Dynamics*, Vol. 69, Issue 4, 2012, pp. 2065-2078.
44. Waisman, H., Montoya, A.H., Betti, R.: "A simplified contact-friction methodology for modeling wire breaks in parallel wire strands", *Computers and Structures*, Vol. 100-101, 2012, pp. 39-53.
43. Cavalieri, F., Imbimbo, M., and Betti, R.: "Damage Detection in Structures Subjected to

- Ground Motion Excitation”, *Journal of Civil Engineering and Architecture*, Vol. 6, No. 3, 2012, pp. 280-299.
42. Mosquera, V., Smyth, A.W., and Betti, R.:”Rapid Evaluation and Damage Assessment of Instrumented Highway Bridges”, *Journal of Earthquake Engineering and Structural Dynamics*, Vol. 41, No. 4, 2012, pp. 755-774.
41. Longman, R.W., Peng, Y.T., Kwon, T., Lus, H., Betti, R. and Juang, J.N.:”Adaptive Inverse Iterative Learning Control”, *Journal of The Chinese Society of Mechanical Engineers*, Vol. 32, No. 6, 2011, pp. 493-506.
40. Waisman, H., Montoya, A.H., Betti, R., and Noyan, I.C.:”Load Transfer and Recovery Length in Parallel Wires of Suspension Bridge Cables”, *ASCE Journal of Engineering Mechanics*, Vol. 137, No. 4, 2011, pp. 227-237.
39. Ubertini, F., Hong, A.L., Betti, R. and Materazzi, A.L.: "Estimating Aeroelastic Effects from Full Bridge Responses via Operational Modal Analysis," *Journal of Wind Engineering & Industrial Aerodynamics*, Vol. 99, No. 6–7, 2011, pp. 786-797.
38. Hong, A.L. Ubertini, F. and Betti, R.:”Wind Analysis of a Suspension Bridge: Identification and FEM Simulations”, *ASCE Journal of Structural Engineering*, Vol. 137, No. 1, 2011, pp.133-142.
37. Noyan, I.C., Brugger, A., Betti, R., Clausen, B., and Brown, D.W.:”Measurement of Strain/Load Transfer in Parallel Seven-wire Strands Using Neutron Diffraction”, *SEM Journal of Experimental Mechanics*, Vol. 50, No. 2, 2010, pp.265-272..
36. Fracaccio, G., Brugger, A., and Betti, R.:”Experimental Studies on Damage Detection in Frame Structures Using Vibration Measurements”, *Journal of Shock and Vibrations*, Vol. 17, no 6, 2010, pp. 697-722.
35. Yu, J., Imbimbo, M., and Betti, R.:”Stiffness Matrix Properties for Reduced Order Models of Linear Structural Systems”, *ASME Journal of Applied Mechanics*, Vol. 77, No 11, 2010.
34. Drissi-Habti, Yanev, B., and Betti, R.:”Suspension Bridge Cables: Pathologies, Inspection, Alternative Materials”, *ASNT Materials Evaluation*, Vol 67, No. 12, 2009, pp. 1379-1386.
33. Drissi-Habti, Betti, R., and Yanev, B.:”Structural Health Monitoring of Bridge Cables”, *ASNT Materials Evaluation*, Vol 67, No. 11, 2009, pp. 1285-1292.
32. Hong, A.L. Betti, R., and Lin, C.C.:”Identification of Dynamic Models of a Building System Using Multiple Earthquake Data Sets”, *Journal of Structural Control and Health Monitoring*, No. 16, 2009, pp. 178-199.
31. Yu, J., Imbimbo, M., and Betti, R.:”Identification of Linear Models of Structural Systems Using a Limited Set of Instrumentations”, *ASME Journal of Applied Mechanics*, Vol. 76, No.3, 2009, 031005.
30. Fracaccio, G., Brugger, A., and Betti, R.:”Identification and Damage Detection in Structures Subjected to Base Excitation”, *SEM Journal of Experimental Mechanics*, Vol 48, No. 4, 2008, pp. 521-528.
29. Shi, Y.W., Deodatis, G., and Betti, R.:”Cable Strength Evaluation for Suspension Bridges Using a Random Field Approach”, *ASCE Journal of Structural Engineering*, Vol. 133, No.

12, 2007, pp. 1690-1699..

28. Ashrafi, S.A., Smyth, A.W., and Betti R.: "A Parametric Identification Scheme for Non-Deteriorating and Deteriorating Nonlinear Hysteretic Behavior", *Journal of Structural Control and Health Monitoring*, Vol 13, 2006, pp. 108-131.
27. Franco, G., Betti, R., and Longman, R.W.: "On the Uniqueness of Solutions for the Identification of Linear Structural Systems", *ASME Journal of Applied Mechanics*, Vol. 73, No. 1, 2006, pp. 153-162.
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- Betti, R., Smyth, A.W., Testa, R.B., Duby, P. and West, A.C.:”Deterioration of the Mechanical Properties of Wires in Suspension Bridge Cables”, *Proceedings of the NDT Conference 2000*, Atlantic City, NJ, 2000, pp. 405-410.
- Smyth, A.W., Betti, R., Lus, H., and Masri, S.F.:”Global Health Monitoring and Damage Detection of the Vincent Thomas Bridge”, *Proceedings of the NDT Conference 2000*, Atlantic City, NJ, 2000, pp. 399-404.

- Testa, R.B., Zhang, W., Smyth, A.W., and Betti, R.: "Detection of Cracks with Closure", *Proceedings of the NDT Conference 2000*, Atlantic City, NJ, 2000., pp. 411-416.
- Betti, R., and Yanev, B.: "Condition Assessment and Rehabilitation of Suspension Bridge Cables in New York City", *Proceedings of Structural Faults and Repair-99*, London, UK, 1999.
- Lus, H., Betti R., and Longman, R.W.: "Identification of Linear Structural Systems Using Earthquake Induced Vibration Data", *Proceedings of 13th ASCE Engineering Mechanics Conference*, Baltimore, MD, 1999.
- Betti, R.: "Considerations on Soil-Structure Interaction Effects on Vibration Control of Seismically Excited Structures", *Proceedings of the ASCE Structures Congress XVI*, New Orleans, LA, 1999.
- Betti, R., and Yanev, B.: "Conditions of Suspension Bridge Cables: The New York City Case Study", *TRB Annual Meeting*, Washington, DC, 1999, (appeared in the 1999 *TRB Record*.)
- Lus, H., Betti R., and Longman, R.W.: "Identification of Structures Using General Input Data", *Proceedings of IMAC-XVII*, Kissimmee, FL, 1999, pp. 153-158.
- Huang, K., Betti, R., and Ettouney, M.M.: "Instantaneous Optimal Control For Seismically Excited Nonlinear and Hysteretic Structures", *ASME-ASCE Engineering Mechanics Conference*, San Diego, CA, 1998, pp. 221-224.
- Betti, R., Bieniek, M.P., Duby, P.F. and West, A.C.: "Hydrogen Embrittlement and Deterioration Effects on Wires in Cable-Supported Bridges", *Proceedings of the 13th U.S.-Japan Bridge Engineering Workshop*, Tsukuba, Japan, 1997.
- Betti, R., Bieniek, M.P., Duby, P.F. and West, A.C.: "Effects of Hydrogen Embrittlement on High Strength Bridge Wires", *Proceedings of the U.S.-Canada-Europe Workshop on Bridge Engineering*, Zurich, Switzerland, 1997, pp. 41-49.
- Betti, R., Lus, H., Panariello, G.F. and Longman, R.W.: "Reduced-order Controller for MDOF Systems by Ensemble Training", *Proceedings of the Eleventh VPI&SU Symposium on Structural Dynamics*, Blacksburg, VA, 1997, pp. 71-80.
- Panariello, G.F., Betti, R., and Longman, R.W.: "A Trained Structural Controller for MDOF Systems", presented at *ASME-ASCE-SES Conference McNu'97*, Evanston, IL, 1997.
- Panariello, G.F., Betti, R., and Longman, R.W.: "Ensemble Training of a Structural Controller for MDOF Systems", *Proceedings of the 2nd International Workshop on Structural Control*, Hong Kong, 1996, pp. 382-392.
- Betti, R.: "Important Issues in the Seismic Analysis of Long-Span Cable-Supported Bridges", *Proceedings of the 12th U.S.-Japan Bridge Engineering Workshop*, Buffalo, NY, 1996, pp. 57-72.
- Betti, R.: "Environmental Deterioration Effects in Bridge Wires", *Recent Advances in Bridge Engineering, Evaluation, Management and Repair*, Casas, Klaiber and Mari Eds., CIMNE, Barcelona, Spain, 1996, pp. 367-382.
- Romanini, E., Carvalho, E.R., Mesquita Neto, E., and Betti, R.: "Dynamic Structure-Soil-Structure Interaction by the Substructure Deletion Method", *Proceedings of*

the 18 BEM, Portugal, 1996, pp. 465-472.

- Betti, R., and Huang, K.: "Seismic Analysis of Bridges Including Soil--Structure Interaction Effects", Proceedings of the *Fourth National Workshop on Bridge Research in Progress*, Buffalo, NY, 1996, pp. 59-65.
- Betti, R., de Mesquita Neto, E., and Romanini, E.: "Dynamic Soil-Structure Interaction for Multiple Embedded Foundations", Proceedings of the *Eleventh ASCE Engineering Mechanics Specialty Conference*, Fort Lauderdale, FL, 1996, pp. 314-317.
- Panariello, G.F., Betti, R. and Longman, R.W.: "Linear Optimal Structural Control Including the External Excitation", Proceedings of the *Eleventh ASCE Engineering Mechanics Specialty Conference*, Fort Lauderdale, FL, 1996, pp. 760-763.
- Betti, R. and Panariello, G.F., and Poulin, K.: "Vibration Control of Structures on Multiple Supports", Proceedings of the *Eleventh World Conference on Earthquake Engineering*, Acapulco, Mexico, 1996.
- Betti, R. et al: "Seismic Performance of Long-Span Suspension Bridges in the United States", Proceedings of the *IABSE Symposium*, San Francisco, CA, 1995, pp. 573-578.
- Betti, R. et al: "Seismic Performance of Long-Span Suspension Bridges in the United States", Progress Report, *Annual Seminar of ASCE Metropolitan Section*, New York, NY, 1995, pp. 134-165.
- Betti, R.: "Dynamic Soil-Bridge Interaction", Proceedings of the *Tenth Engineering Mechanics Specialty Conference*, Boulder, CO, 1995, pp. 82-85.
- Betti, R. and Panariello, G.F.: "Control of Structures Subjected to Spatially Variable Earthquake Excitation", Proceedings of the *First World Conference on Structural Control*, Los Angeles, CA, 1994, Vol. 2, pp. TP2/79-TP2/88.
- Betti, R.: "Substructure Deletion Method: a BEM Approach", Proceedings of the *Sixteenth Boundary Element International Conference*, Southampton, UK, 1994, pp. 487-494.
- Betti, R. and Abdel-Ghaffar, A.M.: "Effects of Soil-Structure Interaction on the Seismic Response of Cable Supported Bridges", Proceedings of the *Sixth International Conference on Soil Dynamics and Earthquake Engineering*, Bath, UK, 1993, pp. 537-552.
- Betti, R. and Testa, R.B.: "Structural Control and Monitoring of Bridges", Proceedings of the *U.S. - Japan - Italy Workshop on Structural Control*, Sorrento, Italy, 1992, pp. 12-26.
- Betti, R. and Abdel-Ghaffar, A.M.: "Soil-Structure Interaction for Cable Supported Bridges", Proceedings of the *Earthquake Engineering Research Institute Annual Meeting*, San Francisco, CA, 1992.
- Kawano, K., Abdel-Ghaffar, A.M. and Betti, R.: "Effects of Seismic Spatial Variations on Suspension Bridge Responses", Proceedings of the *ASCE Engineering Mechanics Specialty Conference in Computing in the 1990's and Beyond*, OH, 1991, pp. 666-670.

Conference Presentations:

- Mehrjoo, A., Beigi, H., and Betti, R.:” Real-Time Structural Damage Detection Using Kolmogorov-Arnold Neural Networks and Cepstral Features”, *ASCE EMI 2025 Conference*, Anaheim (CA), May 2025.
- Zorzi, S., Broccardo, M., Betti, R., and Zonta, D.:” Bayesian Hypothesis Testing for Structural Damage Detection Using Cepstral Coefficients”, *ASCE EMI 2025 Conference*, Anaheim (CA), May 2025.
- Robinson, J., Brugger, A., and Betti, R.:”Experimental Study of the High Temperature Performance of Steel Suspension Bridge Wires”, *IABSE 2019 Conference*, New York, NY, September 2019
- Morgantini, M. and Betti, R.:”Cepstral Coefficients, a New Feature for Structural Damage Assessment”, *ASCE 2019 Conference of Engineering Mechanics Institute*, California Institute of Technology, June 2019.
- Jumari, R., Sloane, M., Betti, R., and Brugger, A.:”Experimental Investigation of the Post-Fire Mechanical Behavior of High-Strength Steel Suspension Bridge Wires”, *ASCE 2019 Conference of Engineering Mechanics Institute*, California Institute of Technology, June 2019.
- Brugger, A., Robinson, J., Betti, R., Noyan, I.C.:” Using Neutron Diffraction to Understand the Multiscale Internal Mechanics of Suspension Bridge Cables”, *ASCE 2019 Conference of Engineering Mechanics Institute*, California Institute of Technology, June 2019.
- Tronci, E., Betti, R., and De Angelis, M.:”Cepstral Coefficients as Effective Sensitive Features Discriminating Damage Events from Temperature Effects”, *ASCE 2018 Conference of Engineering Mechanics Institute*, MIT, May 2018.
- Morgantini, M., and Betti, R.:”A Statistical Analysis Through the Inner Product Vector Theory for Structural Damage Detection”, *ASCE 2018 Conference of Engineering Mechanics Institute*, MIT, May 2018.
- Robinson, J., Sloane, M., Brugger, A., and Betti, R.:”Experimental Investigation of the Mechanical Properties of High-Strength Steel Suspension Bridge Wires under Elevated Temperature Conditions”, *ASCE 2018 Conference of Engineering Mechanics Institute*, MIT, May 2018.
- Bernagozzi, G., Betti, R., Landi, L., and Diotallevi, P.P.:”Damage Assessment on a Frame Structure using Modal Identification and Flexibility-based Deflection”, *ASCE 2017 Conference of Engineering Mechanics Institute*, USCD, San Diego, June 2017.

Poster Presentations:

- Mehrjoo, A., Beigi, H., and Betti, R.:”Real-Time Structural Damage Detection using Kolmogorov-Arnold Neural Networks and Cepstral Features”, *2025 Data Science Day*, NY, 2025.
- Hom, K.L., Beigi, H., and Betti, R.:”From Experiments to In-Service: Encoding Structural Damage via Speaker Recognition”, *2025 Data Science Day*, NY, 2025.

- Mehrjoo, A., Beigi, H., and Betti, R.: "Real-Time Structural Damage Detection using Kolmogorov-Arnold Neural Networks and Cepstral Features", *2025 AI Summit*, NY, 2025.
- Hom, K.L., Beigi, H., and Betti, R.: "From Experiments to In-Service: Encoding Structural Damage via Speaker Recognition", *2025 AI Summit*, NY, 2025.
- Betti, R., Deodatis, G., Noyan, I.C., Waisman, H., Hong, A.L., Montoya, A. and Sloane, M.: "Aging Cables in Suspension Bridges", *Building Partnerships and Pathways to Address Engineering Grand Challenges Workshop*, El Paso, TX, 2010.
- Panariello, G.F., Betti, R., and Longman, R.W.: "Effects of Multiple Earthquakes in Linear Optimal Structural Control", *International Conference on Retrofitting of Structures*, New York, NY, 1996.
- Betti, R. and Abdel-Ghaffar, A.M.: "Soil-Structure Interaction for Cable Supported Bridges", *Earthquake Engineering Research Institute Annual Meeting*, San Francisco, CA, 1992.

Technical Reports:

- Betti, R. and Bieniek, M.P.: "Conditions of Suspension Bridge Cables", Columbia University Report, sponsored by NYC DOT, NYSBA, PANY&NJ, TBTA, New York, 1997.
- Betti, R.: "Corrosion Monitoring System for Main Cables of Suspension Bridges", FHWA Report, US Department of Transportation, Pub. No. FHWA-HRT-14-023, May 2014.
- Glisic, B., Schumacher, T., and Betti, R.: "Multi-Sensor Sheets Based on Large-Area Electronics for Advanced Structural Health Monitoring of Civil Infrastructure", CAIT-UTC-025, 2014.
- Blabac, B., Murphy, T., Sluska, P., Betti, R. and Deodatis, G.: "Guidelines for Risk-based Inspection and Strength Evaluation of Suspension Bridge Main Cables", NCHRP Report 12-115, April 2021.

Committee Membership / International and National Conference Activities:

- Co-Chair of 1 session, *12th EWSHM*, Toulouse, France, July 2026.
- Co-Chair of 1 session, *11th EVACES*, Porto, Portugal, July 2025.
- Co-Chair of 1 session, *IOMAC 2024*, Naples, Italy, May 2024.
- Co-Chair of 2 sessions on "Safety Assessment of Aging Infrastructure: From Data to Decision", *ASCE 2020 Conference of Engineering Mechanics Institute*, Columbia University, NY, NY, May 2020.
- Co-Chair of 2 sessions on "Safety Assessment of Aging Infrastructure: From Data to Decision", *ASCE 2019 Conference of Engineering Mechanics Institute*, California Institute of

Technology, Pasadena, CA, June 2019.

- Co-Chair of 2 sessions on “Safety Assessment of Aging Infrastructure”, *ASCE 2018 Conference of Engineering Mechanics Institute*, MIT, Boston, MA, May 2018.
- Co-Chair of 2 sessions on “Safety Assessment of Aging Infrastructure: from Data to Decision”, *ASCE 2017 Conference of Engineering Mechanics Institute*, UCSD, San Diego, CA, June 2017.
- Invited Member to the invitation-only FHWA workshop on *Nondestructive Evaluation and Structural Health Monitoring: Implementation Guidance, Research Needs and Integration*, Washington, D.C., June 2016
- Invited Member of the International Scientific Committee of the *Istanbul Bridge Conference*, Istanbul, (Turkey), August 2016.
- Invited Member of the International Scientific Committee of the *7th International Conference on Structural Health Monitoring of Intelligent Infrastructure* (SHMII – 7), Turin (Italy), July 2015.
- Invited Member of the International Scientific Committee of the *6th World Conference on Structural Control and Monitoring*, Barcelona (Spain), July 2014.
- Invited Member of the International Scientific Committee of the *23rd Australasian Conference on Mechanics of Structures and Materials*, Byron Bay (Australia), December 2014.
- Invited member of the U.S. Delegation to the *U.S.-Japan Workshop on Bridge Engineering*, Tsukuba (Japan), November 2013.
- Invited Member of the Technical Committee on Life-Cycle Performance, Cost and Optimization of the International Association for Structural Safety and Reliability (from 4/2013).
- Invited Panelist: *6th Astana World Economic Forum*, Astana, Kazakhstan, May 2012.
- Invited lecture, *International Workshop on Structural Health Monitoring and Damage Assessment*, Taipei, Taiwan, ROC, June 2011.
- Invited member of the U.S. Delegation to the *7th U.S.-China Workshop on Bridge Engineering Workshop*, Shanghai, China, September 2010.
- Invited member of the U.S. Delegation to the *6th U.S.-China Workshop on Bridge Engineering Workshop*, Newark, NJ, May 2010.
- Co-Chair of DHS Workshop on Aging Infrastructure, Columbia University, July 21-23, 2009.
- Invited lecture, *International Workshop on Structural Health Monitoring and Damage*

Assessment, National Chung Hsing University, Taichung, Taiwan, ROC, January 2008.

- Chair of 1 session on “Dynamics and Control of Structural Systems”, USNCTAM 06, Boulder, Colorado, 2006.
- Chair of 2 sessions on “System Identification”, *SPIE Sensors and Smart Structures Technologies for Civil, Mechanical and Aerospace Systems*, San Diego, CA, 2006.
- Invited lecture, *International Workshop on Structural Health Monitoring and Damage Assessment*, National Chung Hsing University, Taichung, Taiwan, ROC, December 2006.
- Member of the Scientific Committee of the 4th International Conference on Structural Health Monitoring and Control, San Diego, 2006.
- Co-chair of the 4th *International Workshop on Structural Control*, New York, NY, 2004.
- Chair of 2 sessions on “System Identification”, *ASCE 17th Engineering Mechanics Conference*, Newark, DE, 2004.
- Co-chair of session on “System Identification”, *IABMAS04, Second International Conference on Bridge Maintenance, Safety and Management*, Kyoto, Japan, 2003.
- Member of the Organizing Committee of the *ASCE 15th Engineering Mechanics Conference*, New York, NY, 2002.
- Co-chair for session on “System Identification”, *ASCE 15th Engineering Mechanics Conference*, New York, NY, 2002.
- Member of the Scientific Committee of the *Conference of the International Association for Bridge Maintenance and Safety IABMAS’02*, Barcelona, Spain, 2002.
- Co-chair for session on “System Identification”, *ASCE – ASME Engineering Mechanics Conference*, San Diego, CA, 2001.
- Member of the Scientific Committee of the *Earthquake Engineering and Soil Dynamics Conference*, Philadelphia, PA, 2001.
- Co-chair for session on “Health Monitoring”, *3rd International Workshop on Structural Control*, Paris, France, 2000.
- Invited member of the U.S. Delegation to the *U.S.-Japan Meeting on Nonlinear System Identification and Structural Health Monitoring*, Los Angeles, CA, October 2000.
- Co-chair for session on “System Identification”, *ASCE 14th Engineering Mechanics Conference*, Austin, TX, 2000.
- Invited member of the U.S. Delegation to the *U.S.-Japan Meeting on Nonlinear System Identification and Structural Health Monitoring*, Kyoto, Japan, November 1999.

- Member of the Advisory Board for the *eight International Conference Structural Faults & Repair – 99*, London, UK, 1999.
- Chair for session on “Control and System Identification for Civil Structures”, *ASCE 13th Engineering Mechanics Conference*, Baltimore, MA, 1999.
- Co-chair for session on "Dynamic Soil-Structure Interaction for Seismic Design", *ASCE Structural Engineers World Congress*, San Francisco, CA, 1998.
- Invited member of the U.S. Delegation to the *U.S.-Japan Meeting on Nonlinear System Identification and Structural Health Monitoring*, Honolulu, Hawaii, October 1998.
- Invited member of the U.S. Delegation to the *U.S.-Italy Workshop on Protective Systems for Bridges*, New York, April 1998.
- Invited member of the U.S. Delegation to the *U.S.-Japan Workshop on Bridge Engineering*, Tsukuba, Japan, October 1997.
- Chair for session on "Vibration Control of Civil Structures", *Joint Summer Meeting ASCE/ASME/SES*, Evanston, IL, 1997.
- Co-chair of the *U.S.-Europe Workshop on Bridge Engineering*, Zurich, Switzerland, 1997.
- Invited member of the Steering Committee, *Bridge Strengthening Symposium*, Edinburgh, UK, July, 1997.
- Chair, *International Conference on Retrofitting of Structures*, New York, NY, March 1996.
- Invited member of the U.S. Delegation to the *U.S.-Japan Workshop on Bridge Engineering*, Buffalo, October 1996.
- Invited member of the U.S. Delegation to the *U.S.-Europe Workshop on Bridge Engineering*, CIMNE, Barcelona, Spain, July 1996.
- Chair for three sessions at the *Eleventh ASCE Engineering Mechanics Specialty Conference*, Fort Lauderdale, FL, May 1996.
- Member of the Organizing Committee for the *Thirty-sixth Rock Mechanics Symposium*, New York, NY, 1997.
- Invited member of the Information Committee for the *First World Conference on Structural Control*, Los Angeles, CA, August 1994.
- Invited member of the U.S. Delegation to the *U.S. - Japan - Italy Workshop on Intelligent Structures and Structural Control*, Sorrento, Italy, July 1992.
- Administrative Coordinator of the *U.S. National Workshop on Structural Control Research*, Los Angeles, CA, October 1990.

Invited Lectures:

- Invited lecture, Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, USA, March 2025.
- Invited lectures, Department of Civil and Environmental Engineering, University of Trento, Trento, Italy, June 2024
- Invited lectures, Department of Structural and Geotechnical Engineering, University of Rome La Sapienza, Rome, Italy, March 2024.
- Invited lecture, Department of Civil and Environmental Engineering, Lehigh University, Bethlehem, PA, October 2023.
- Invited lecture, Department of Civil and Environmental Engineering, Lehigh University, Bethlehem, PA, February 2023.
- Invited lecture, Biennale Tecnologia, Politecnico di Torino, Turin, Italy, November 2022.
- Invited lecture, Tianjin University, Tianjin, China, March 2022.
- Invited keynote lecture, FABRE Workshop on Structural Health Monitoring of Bridges, Lucca, Italy, February 2022.
- Invited lecture, University of Strathclyde, UK, April 2021.
- Invited lecture, Center for Advanced Infrastructure and Transportation, Rutgers University, December 2020.
- Invited lectures, Workshop on Monitoring of Bridge Structures, Politecnico di Torino, Turin, Italy, June 2019.
- Invited lecture, Highway Planning and Design Institute of China Communication Consultant Corporation (CCCC), Beijing, China, June 2018.
- Invited lecture, Smart Cities X, Concordia University, Montreal, Canada, September 2017.
- Invited lecture, Workshop on Monitoring of Historical Heritage Buildings, Politecnico di Torino, Turin, Italy, June 2017.
- Invited lecture, Department of Civil and Environmental Engineering, MIT, March 2016.
- Invited lecture, Department of Civil and Environmental Engineering, University of Pittsburgh, February 2016.
- Invited lecture, Department of Civil and Environmental Engineering, Northeastern University, September 2015.
- Keynote speaker, the 7th *International Conference on Structural Health Monitoring of*

Intelligent Infrastructure (SHMII – 7), Turin (Italy), July 2015.

- Invited lecture, Department of Civil Engineering, Bogazici University, March 2014.
- Keynote lecture, Recent Advances in Structural Health Monitoring, Engineering Week, Metropolitan Engineering Societies Council, February 2014.
- Sensor Technology for Monitoring the Interior of the Manhattan Bridge Main Cables, TRB 93rd Annual Meeting, Washington DC, January 2014.
- Monitoring Corrosion in Main Cables of Suspension Bridges, Winter NACE Symposium, Hoboken, NJ, November 2011.
- Invited lecture, Department of Civil Engineering, University of Minnesota, December 2010.
- Invited lecture, Sustainable Energy and Infrastructure Forum, California Institute of Technology, Pasadena, September 2010.
- Monitoring Corrosion Inside Main Cables of Suspension Bridges, Structural Engineering Association of NY, May 2010.
- Monitoring Corrosion Inside Main Cables of Suspension Bridges, Post-Tensioning Institute, Fort Worth, TX, May 2010.
- Corrosion Monitoring in Main Cables of NYC Suspension Bridges, TRB 88th Annual Meeting Washington D.C., January 2009.
- Monitoring Corrosion in Main Cables of Suspension Bridges, Winter NACE Symposium, Hoboken, NJ, November 2008.
- Research on Aging Suspension Bridge Cables: A Direct Effect on Bridge Security, US-UK Workshop on Bridges, Tunnels and Stadia, Department of Homeland Security, Washington D.C., November 2008.
- Monitoring the Structural Health of Main Cables of Suspension Bridges, Abdel-Ghaffar Symposium, Los Angeles, September 2008.
- Monitoring the Structural Health of Suspension Bridge Cables, Workshop on Aging Infrastructure, Department of Homeland Security, Washington D.C., June 2008.
- Monitoring Corrosion in Suspension Bridge Cables, Annual TRB Meeting, Washington D.C., January 2007.
- Invited lecture, Department of Civil and Environmental Engineering, University of South Carolina, November 2006.
- Invited lecture, Department of Civil and Environmental Engineering, Cornell University, October 2006
- Monitoring Corrosion in Suspension Bridge Cables, Annual TRB Meeting, Washington D.C., January 2006.

- Invited Lecturer on “Dynamic Methods for Damage Detection in Structures”, International Centre for Mechanical Sciences (CISM), Udine, Italy, October 2005.
- Corrosion Problems in Suspension Bridge Cables, NACE Annual Meeting, New York Region, New York, NY, May 2005.
- Invited series of lectures on structural identification at the University of Sao Carlos and Campinas (Brazil), June 2004.
- Corrosion Control on Bridges, NACE Conference, New York, NY, May 2003.
- New Jersey Institute of Technology, Newark, NJ, April 2001.
- University of Rome “La Sapienza”, Rome, Italy, September/October 2000.
- University of Rome “RomaTre”, Rome, Italy, November/December 2000.
- New York Interagency Engineering Council, New York, NY, May 1998.
- US-Italy Workshop on Protective Systems for Bridges, New York, NY, April 1998.
- University of California, Berkeley, CA, March 1998
- California Institute of Technology, Pasadena, CA, January 1998.
- Public Works Research Institute, Earthquake Disaster Prevention Research Center, Tsukuba Science City, Japan, March 1997.
- Purdue University, West Lafayette, IN, February 1997.
- University of California, Los Angeles, CA, February 1997.
- Universidade de Sao Paulo, Department of Structural Engineering, Sao Carlos, SP, Brazil, August 1996.
- Universidade Estadual De Campinas, Department of Computational Mechanics, Campinas, SP, Brazil, July - August 1996.
- Universidad Metropolitana, Centro de Investigaciones Aplicadas, Caracas, Venezuela, July, 1996.
- Universita' degli Studi "La Sapienza", Rome Italy, July 1996.
- The John's Hopkins University, Baltimore, MD, April 1996.
- State University of New York at Buffalo, Buffalo, NY, March 1995.

Teaching

Courses:

- Columbia University

- C.E. E1201y Design of Buildings, Bridges and Spacecraft (undergraduate): guest speaker for 4 lectures.
- Engr. Mech. E3105x Mechanics (undergraduate)
- Engr. Mech. E3113x Mechanics of Solids (undergraduate)
- C.E. E3121y Structural Analysis I (undergraduate)
- C.E. E3123x Structural Analysis II (undergraduate)
- Engr. Mech. E4114y Mechanics of Fracture and Fatigue (graduate)
- Engr. Mech. E4214y Theory of Plates and Shells (graduate)
- Engr. Mech. E6315y Theory of Elasticity (graduate)
- C.E. E4225x Reliability Analysis for Civil and Mechanical Systems (graduate)
- C.E. E4332x Finite Element Analysis I (graduate)
- C.E. E6333y Finite Element Analysis II (graduate)
- Engr. Mech. E4215x Theory of Vibration (graduate)
- C.E. E3125y Structural Design (undergraduate)
- C.E. E3126y Computer Aided Design (undergraduate)
- Engr. Mech. 6216y Structural Health Monitoring (graduate)
- University of Southern California
 - CE 539 Advanced Steel Structures (graduate): Spring 1991.
(replacing Prof. A.M. Abdel-Ghaffar on sick leave)

Short Courses:

- Short course on Structural Health Monitoring, Department of Civil and Environmental Engineering, University of Trento, Trento, Italy, June 2024.
- Short Course on Soil-Structure Interaction, Universidade Estadual de Campinas, Campinas, SP, Brazil, August 1996.

Other Teaching and Research Experience:

- 1998-present: Affiliate Researcher: National Bridge Research Organization (NaBRO).
- 1993: Participant in the Summer School and Workshop on "The Mechanics-Materials Linkage", Institute for Mechanics and Materials, University of Maryland, College Park.
- 1987-89: Research Assistant, Department of Civil Engineering, U.S.C.
- 1985-86: Research Associate and Instructor, Department of Structural Engineering and Geomechanics, University of Rome "La Sapienza", Italy.

Doctoral Students Supervisor:

Completed: G. F. Panariello (May 1997), K. Huang (October 1998), H. Lus (January 2001), G.W. Vermaas (January 2001), Jeng-Wen Lin (October 2001), Guillermo Franco (July 2003), Jun Yu (July 2004), Yuwei Shi (July 2006, co-sponsorship with G. Deodatis), Ah Lum Hong (May 2010), Berk Hizik (October 2010), Jie Xu (January 2011), Arturo Montoya (April 2012, co-sponsorship with H. Waisman), Duk Jin Joo

(July 2012), Hao Sun (September 2014), Francesco Vicario (September 2014, co-sponsorship with R.W. Longman (ME) and with M.Q. Phan (Dartmouth)), Suparno Mukhopadhyay (December 2014), Luciana Balsamo (December 2014), Matthew Sloane (December 2016), Adrian Brugger (April 2017), Efe Karanci (May 2017), Chih-Shiuan Lin (January 2019), Marcello Morgantini (July 2020), Jumari Robinson (July 2022), Eleonora Tronci (Co-sponsor with Prof. M. Feng, September 2022), Mengyao Shen (July 2022, Co-sponsor with Prof. G. Deodatis), Lechen Lin (June 2023, sponsor).

Current: Kyle Leland Hom (sponsor), Ahmet Alperen Koc (co-sponsor).

Post-Doctoral Supervisor:

Past: Dr. Azin Mehrjoo (July 2024-25)

Current: Dr. Ilias Mavromatis (Oct 2025-Sept 2026)

Faculty Sponsor for Visiting Scholars:

Prof. X. Ou (Harbin University, PRC: 1/95-6/95)
Mr. E. Meyer (Berlin Technical University, Germany: 11/94-3/95)
Mr. D. Cerini (Politecnico di Milano, Italy: 9/95-3/96)
Ms. S. Derisi (Politecnico di Milano, Italy: 9/95-3/96)
Prof. G. Via (Universita' di Roma, Italy: 9/95-10/95)
Prof. H.A. Smith (Stanford University: 7/96-7/97)
Mr. E. Benzi (Universita' di Roma, Italy: 1/97-8/97)
Prof. S. Barretto (Universidade de Mogi das Cruzes, Brazil: 12/98-2/99)
Dr. R. Chmielewski (Rostock University, Germany: 4/99 – 4/00)
Prof. M. DeAngelis (Universita' di Roma, Italy: 3/2000 - 3/2001)
Prof. M. Imbimbo (Universita' di Roma Tor Vergata: multiple visits)
Dr. G. Fraraccio (Universita' di Roma, Italy: 1/2006, 7/2006)
Ms. Luciana Balsamo (Universita' di Bologna, 7/2008, 12/2008)
Mr. Francesco Cavalieri (Universita' di Cassino, 7/2008, 12/2008)
Ms. Maddalena D'Agata (Universita' di Bologna, 2/2009, 7/2009)
Dr. Monseff Drissi-Habti (LCPC (Nantes), France, 6/2009, 8/2009)
Prof. Francesco Ubertini (Universita' di Perugia, multiple visits)
Mr. Andrea Della Bona (Universita' di Perugia, 6/2010, 9/2010)
Prof. Hilmi Lus (Bogazici University, Turkey, 9/2010, 9/2011)
Dr. Anna Reggio (Universita' di Roma La Sapienza, Italy, 4/2011 – 2/2012)
Prof. Marco Savoia (Universita' di Bologna, 1/2012, 7/2012)
Mr. Tommaso Mallano (Politecnico di Torino, 7/2013, 12/2013)
Dr. Kenji Yoshitake (Shimizu Corporation, Japan, 9/2013-7/2014)
Dr. Carlo Priori (University of Rome “La Sapienza”, Italy, 5/2014 – 8/2014)
Prof. Nagayuki Yoshida (Hosei University, Japan, 6/2014 – 12/2014).
Mr. Marcello Morgantini (Politecnico di Torino, Italy, 11/2014 – 3/2015)
Mr. Giovanni Caproni (Politecnico di Torino, Italy, 4/2015 – 9/2015)
Ms. Maria Chiara Ferrante (Politecnico di Torino, Italy, 4/2015 – 9/2015)

Ms. Erica Lenticchia (Politecnico di Torino, Italy, 2/2017 – 5/2017)
Mr. Gaetano Miraglia (Politecnico di Torino, Italy, 2/2017 – 5/2017)
Dr. Marica Pecorelli (Politecnico di Torino, Italy, 4/2017 – 6/2017)
Prof. Rosario Ceravolo (Politecnico di Torino, Italy, 6/2017 – 8/2017)
Prof. Cecilia Surace (Politecnico di Torino, Italy, 6/2017 – 8/2017)
Ms. Eleonora Tronci (Universita' di Roma La Sapienza, Italy, 2/2017 – 8/2017)
Mr. Matteo Carluccio (Universita' di Roma La Sapienza, Italy, 4/2017 – 7/2017)
Mr. Giacomo Bernagozzi (Universita' di Bologna, Italy, 11/2016 - 5/2017)
Prof. Salvatore Russo (Universita' di Venezia, Italy, 8/2018 - 9/2018)
Mr. Vittorio Altomare (Universita' di Roma La Sapienza, Italy, 9/2018 -12/2018)
Ms. Alessandra Achilli (Universita' di Bologna, Italy, 4/2019 - 9/2019)
Ms. Lorenza Abbracciavento (Politecnico di Torino, Italy, 9/2024 – 2/2025)
Mr. Alessio Crocetti (Politecnico di Torino, 4/2025 – 10/2025)

Professional Memberships:

- "Albo degli Ingegneri" (Society of Engineers), Italy.
- American Academy of Mechanics.
- American Society of Civil Engineers.
- Engineering Mechanics Institute
- International Association for Structural Control.
- International Society of Structural Health Monitoring of Intelligent Infrastructure
- Transportation Research Board.

Professional Licenses:

- Professional Engineer (1985), Italy: License #14182
- Professional Engineer, New York State (2006): #084122

Engineering Consulting Activities:

- Technical Consultant, Innovative Structural and Specialty Engineering, NY. (2022 – present)
- Technical Consultant, Parsons Transportation Group, NY. (2006 – 2019)
- Expert Technical Advisor for Cable-Corrosion, Dynamic Excitations and Monitoring of Structures for MTA (NY). (2004 – 2019)
- Member of Peer Review Team for Cable Replacement Project at Bronx-Whitestone Bridge (Ammann & Whitney): 2001-2004.

Miscellaneous Activities:

- Reviewer for *Journal of Structural Control and Monitoring*, *Nonlinear Dynamics*, *Mechanics Research Communications*, *AIAA*, *ASCE Journal of Structural Engineering*, *ASCE Journal of Engineering Mechanics*, *ASME Journal of Applied Mechanics*, *ASCE Journal of Bridge Engineering*, *IEEE Trans. Components, Packaging and Manufacturing Technology*, *Journal of*

Construction and Building Materials, National Research Council Transportation Research Board, Engineering Structures.

- Member of Review Panels for National Science Foundation.

Media Interviews:

- Daily Planet: *Discovery Channel* (April 2006, March 2011)
- All things considered: *National Public Radio* (December 2008)
- Stressing a cable for bridges' sake: *New York Times* (December 2008)
- Interview with Joe Palca: *National Public Radio* (February 2009)
- Documentary for IBM Centennial Exhibition: (October 2011)
- Interview with *Wall Street Journal*: (November 2023)
- Interview with *CBS New York*: (January 2024)
- Interview with *Sole 24 Ore*: (February 2024)

Related University Activities:

- Member of Committee on Diversity, Equity and Inclusion, CEEM Department (2023-present)
- Chair of the Graduate Studies Committee of the CEEM Department (2016 – present)
- Member of review panel for SIRS and STAR programs in SEAS (2019)
- Member of the University Senate (2002-present)
- Member of the Senate Faculty Affairs Committee (2002-present)
- Member of Conflict of Interest Committee (2008-2013)
- Organizer of Dual Degree program with University of Bologna (Italy) (2009-present)
- Member of Globalization Committee, Columbia University (2006-present)
- Member of Globalization Committee, FuSEAS (2006-2009)
- Member of Curriculum Committee, FuSEAS
- Member of Pupin Medal Committee, FuSEAS (2003-2006).
- Member of University Committee for NCAA Re-certification (2001-2002)
- Member of Committee on Presidential Graduate Teaching Award (2000-2001)
- Member of FuSEAS Committee on Nomination (1999 – 2006).

- Member of the University Seminar on Historic Monuments and Sites (1999 – 2001).
- Member of the President's Advisory Committee for Intercollegiate Athletics and Physical Education (1999 – 2006).
- Member of the Organizing Committee on NYC Infrastructure and Environmental Issues (1998)
- Professor in Residence, Hartley - Wallach Hall, Columbia University (1995 - 2001).
- Sophomore Faculty Advisor, Department of Civil Engineering and Engineering Mechanics, Columbia University (1992 - present).
- Chair of Search Committee for Faculty Position, Dept. of CEEM, Columbia University (1997-98, 2002-03, 2020-21).
- Member of the Committee on Alcohol Policy, Columbia University, (1996 - 97).
- Member of the Task Force on Digital Library Support for Instruction and Research, Columbia University, (1996 - 97).
- Member of Committee on Instruction, Columbia University, (1995 - 2002).
- Reader for SEAS applications, Undergraduate Admissions, Columbia University (1993 - 95).
- Editor of the CEEM Departmental brochure and Carleton Laboratory brochure.
- Coordinator for Scientific Seminars, Dept. of CEEM, Columbia University (1992-93).
- Speaker for Double Discovery Center, Columbia University (1993).