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Professional Experience

- 2007-present Professor, University of Puerto Rico - Mayagüez
- 2002-2007 Associate Professor, University of Puerto Rico - Mayagüez
- 1999-2002 Assistant Professor, University of Puerto Rico - Mayagüez
- 1995 Instructor Civil Engineering Department
- 1992- 1999 Research and Teaching Assistant, Engineering Research and Development Center, USA Corps of Engineers, Vicksburg Mississippi.

Professional Affiliations

- Technical and Professional Associations:
- American Society of Civil Engineers
- International Conference of Building Officials
- Precast / Prestressed Concrete Institute
- Colegio de Ingenieros y Agrimensores de Puerto Rico

Professional Preparation

- Ph.D. in Civil Engineering, University of Puerto Rico, Mayagüez Campus, 1999.
- M.S. in Civil Engineering, University of Puerto Rico, Mayagüez Campus, 1995.
- B.S. in Civil Engineering, University of Puerto Rico, Mayagüez Campus, 1992.

Selected Publications and Presentations

- Arroyo, J. and Suárez L., "Response of Multiple Horizontal Soil Layers Using Higher Order Frequency Response Functions," Earthquake Resistant Engineering Structures II, Wessex Institute of Technology, WIT Press, Southampton, UK, 1999.
- Arroyo, J. and Suárez L., "Response of Multiple Horizontal Soil Layers Using Higher Order Frequency Response Functions". Paper presented in the Second International Symposium on Earthquake Resistant Engineering Structures 99 (ERES 99), University of Catania, Italy, June 15-17, 1999.
- Suárez, L. and Arroyo, J., "Applications of the Volterra Series to the Analysis of Nonlinear Layered Soil Deposits," invited paper presented in the 1999 ASME Applied Mechanics and Materials Conference, Virginia Tech, Blacksburg, Virginia, on June 27-30, 1999.

- J.R. Arroyo, “Response of Multiple Horizontal Soil Layer Using Higher Order Frequency Response Functions in the Frequency Domain”, FoPER ’99, RUM, October 1999.
- J.R. Arroyo, “Brief History, Structural Details And Actual Conditions Of Historic Bridges Built In The 19th Century In Puerto Rico”, paper presented in the Preserving the Historic Road in America Conference, sponsored by the National Park Service, Morristown, New Jersey, April 2000.
- J.R. Arroyo, “Brief History, Structural Details And Actual Conditions Of Historic Bridges Built In The 19th Century In Puerto Rico”, Proceeding of the Preserving the Historic Road in America Conference, sponsored by the National Park Service, Morristown, New Jersey, April 2000.
- Arroyo, J., “Response of Multiple Horizontal Soil Layer Using Higher Order Frequency Response Functions in the Frequency Domain,” paper presented and published in the Proceedings of the EM2000 Fourteenth Engineering Mechanics Conference, American Society of Civil Engineering, University of Texas at Austin, May 2000.
- J.R. Arroyo, “Response of Multiple Horizontal Soil Layer Using Higher Order Frequency Response Functions”, Proceedings of the European Congress on Computational Methods (ECCOMAS 2000), Barcelona, Spain, September 2000.
- Arroyo, J., “Response of a Single Horizontal Soil Layer Using the Volterra Series in the Frequency Domain,” International Journal of Computational Engineering Science (IJCES), Vol 1, No. 2 (2000) 235-255, Imperial College Press.
- J.R. Arroyo, “New Methodology to Calculate the Seismic Response of a Stratified Soil Deposit”, DIMENSION, Revista del Colegio de Ingenieros de Puerto Rico, Año 14,Vol. 4, 2000.
- J.R. Arroyo, “Effects of Damping Matrix in the Response of Structures with Added Viscous Dampers”, Paper submitted for publication on the Third International Conference on Earthquake Resistant Engineering Structures (ERES 2001), Malaga, Spain, September 2001.
- Suárez, L.E., and Arroyo, J. R., “Seismic Analysis of Soils Deposits with Moderate Nonlinear Behavior Using Higher Order Frequency Response Functions”, XXI Southeastern Conference on Theoretical and Applied Mechanics (SECTAM XXI), Orlando, Florida, 2002.
- Suárez, L. E., and Arroyo, J. R., “Application of the Volterra Series in the Frequency Domain for the Seismic Analysis of Nonlinear Soil Deposits”, VI Congreso Internacional Métodos Numéricos en Ingeniería y Ciencias Aplicadas, CIMENICS 2002, Caracas, Venezuela, 2002.
- Arroyo, J. R., Ebeling, R., and Barker, B., “Analysis of Full-Scale, Low-Velocity, Controlled Barge Impact Experiments at Robert C. Byrd Lock, December 1998, Using the Impulse and Linear Momentum Principle for a Single-Degree-of-Freedom Barge Flotilla Model”, Technical Report, Information Technology Laboratory, US Army Corps of Engineers, Engineer Research and Development Center, Innovations for Navigation Projects Research Program, 2002.
- Arroyo, J. R., and Ebeling, R., “A Numerical Method for Computing Barge Impact Forces Based on Ultimate Strength of the Lashings between Barges”, Technical Report, Information Technology Laboratory, US Army Corps of Engineers, Engineer Research and Development Center, Innovations for Navigation Projects Research Program, 2004.

- Arroyo, J. R., and Ebeling, R., "Barge Train Maximum Impact Forces using Limit States for the Lashings between Barges", Technical Report, Information Technology Laboratory, US Army Corps of Engineers, Engineer Research and Development Center, Innovations for Navigation Projects Research Program, 2005.
- Arroyo, J., "Mitigation of Seismic Hazard of Reinforced Concrete Residential Structures with Non-rigid Connections", Final Report, FEMA – HAZARD MITIGATION GRANT PROGRAM – 1372 – DR – PR – RESEARCH PROJECT – PR – 0006, 2005.
- Arroyo J.R. and Ebeling R., "Glancing-Blow Impact Forces by a Barge Train on a Lock Approach Wall", Vol. 12, No. 2, ASCE Journal of Infrastructure Systems, June 2006.
- Arroyo J.R. and Vazquez D., "Seismic Evaluation of Reinforced Concrete Residential Structures with Non-rigid Connections, Part I – Vulnerability Analysis", DIMENSION, Revista Del Colegio de Ingeníeros y Agrimensores de P.R., Año 20, Vol. 3, 2006.
- Arroyo, J.R. and Vázquez, D., "Seismic Evaluation of Reinforced Concrete Residential Structures with Non-rigid Connections, Part II – Connection Analysis", DIMENSION, Revista Del Colegio de Ingeníeros y Agrimensores de P.R., Año 21, Vol 2, 2007.
- Arroyo, J.R. and Vázquez, D., "Seismic Evaluation of Reinforced Concrete Residential Structures with Non-rigid Connections, Part III – Retrofitting Techniques", DIMENSION, Revista Del Colegio de Ingeníeros y Agrimensores de P.R., Año 22, Vol. 2, 2008.
- Arroyo, J.R., "Mitigation of Landslide Hazard Based on Parametric Analysis", Final Report, FINAL REPORT, FEMA – HAZARD MITIGATION GRANT PROGRAM 1552 – DR – PR – Research Project - PR – 00030, 2008.

Synergistic Activities

- Principal Investigator of the research project "Improved Structural Analysis of Buildings With Added Dampers". This research project is sponsored by FEMA with duration of two years. The project began in October 2000.
- U.S. Army Summer Faculty Research and Engineering (SFRE) Program of the Army Research Office, summer 2000. During ten weeks I worked with Dr. Robert Hall, director of the Geotechnical and Structures Division of the Engineering Research and Development Center of the USA Corps of Engineers in Vicksburg, Mississippi. The research was related to the development of a soil-structure interaction model of dams subjected to dynamic loads.
- U.S. Army Corps of Engineers, Research and Development Center, summer 2001. During ten weeks I worked with Dr. Robert Ebeling, ITL-ERDC in Vicksburg, Mississippi. The research was related to the development a numerical method for computing barge impact forces.
- Principal Investigator of the research project "Research into a Numerical Method for Computing Barge Impact Forces", U.S. Army Corps of Engineers, Research and Development Center, December 2001 to September 2002.
- Principal Investigator of the research project "Mitigation of Seismic Hazard on Reinforced Concrete Residential Structures with Non-Rigid Connections between a New and Existing Level". This research project is sponsored by FEMA with duration of two years.

- Principal Investigator of the research project “A Numerical Method for Computing Barge Impact Forces Based on Ultimate Strength of the Lashings between Barges”, U.S. Army Corps of Engineers, Research and Development Center, 2003-2004.
- Principal Investigator of the research project “Barge Train Maximum Impact Forces using Limit States for the Lashings between Barges”, U.S. Army Corps of Engineers, Research and Development Center, 2004-2005.
- Chair of a technical session in the EM2000, Fourteenth Engineering Mechanics Conference, American Society of Civil Engineering, May 2000, held at the University of Texas, Austin, Texas.
- Reviewer of technical papers for the 79th Annual Meeting of the Transportation Research Board, Recent Advances in the Numerical Modeling of Layered Media, sponsored by the A2K05 Committee on Modeling Techniques in Geomechanics and the A2B05 Committee on Strength and Deformation Characteristic of Pavement Sections, Washington, DC, January, 2000.