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RESEARCH INTERESTS

Earthquake engineering and Seismic design of structures; Computational simulation of structures behaviors; Static and dynamic experimental tests; Structural control; Structural health monitoring; Concrete and steel structures, Precast concrete structures; Statistic pattern recognition; Probabilistic inference; Data mining; Immersive virtual learning; Engineering education

EDUCATION

Ph.D., Civil Engineering, University of Wisconsin-Madison, 2001
MS, Engineering Mechanics, University of Wisconsin-Madison,1997
MS, Civil Engineering, Tongji University, Shanghai, China,1988
BS, Civil Engineering, Tongji University, Shanghai, China,1985

REGISTRATION

Professional Engineer, License No. 33146-006, Wisconsin , 1998

EXPERIENCE

8/20011-current, Associate Professor
Department of Civil and Environmental Engineering
JacksonStateUniversity, Jackson, Mississippi

8/2005-8/2011, Assistant Professor
Department of Civil and Environmental Engineering
JacksonStateUniversity, Jackson, Mississippi

4/2000-8/2005, Senior Structural Engineer
Flad & Associates, Madison, Wisconsin

9/1998-4/2000, Senior Structural Engineer
A. Epstein and Sons International, Inc., Chicago, Illinois

3/1995-9/1998, Research Assistant
Department of Civil and Environmental Engineering
University of Wisconsin-Madison, Madison, Wisconsin

4/1988-3/1995, Structural Engineer
Beijing Institute of Architectural Design and Research, Beijing, China

9/1985-4/1988, Graduate Assistant
Department of Civil Engineering
Tongji University, Shanghai, China

HONORS AND AWARDS

Outstanding Achievement Award of the College of Science, Engineering, and Technology of Jackson State University, 2008

Martin P. Korn Award (Best Research Paper) of Prescast/Prestressed Concrete Institute (PCI) for publication on the PCI Journal, 2006

FUNDED RESEARCH

10/01/2009-9/30/2013, Principle Investigator
Grant #: MDOT/State Study-229, "Instrumentation and Computational Modeling for Evaluation of Bridge Substructures Across Waterways," funded by FHWA through Mississippi Department of Transportation (MDOT).

07/01/2009-06/30/2010, Principle Investigator
Grant #: DTRT06-G-0049, "Phase I Project for Integrating Intelligent Structure Technology for Refining Bridge Inspection in Mississippi," funded by FHWA through the Institute for Multimodal Transportation.

10/01/2010-09/30/2013, Principle Investigator
Award #: NSF/HRD-1036328, "Investigation of Effects of Scaffolding Creative Problem Solving through Question Prompts in Project-Based Service Learning," funded by National Science Foundation (NSF). Co-PIs: Valerie Shelby (Center of Community Service Learning, Jackson State University (JSU)), and Jianjun Yin (College of Education, JSU)

03/01/2009-02/29/2011, Principle Investigator
Award #: NSF/DUE-0837395, multi-disciplinary collaborative project "Novel Development of Lab and Course Modules: Integrate Intelligent Structure Technology and Self-Regulated Learning to Inspire Motivated and Strategic Learners in STEM," funded by NSF. Co-PIs: Gordon Skelton (Dept. of Computer Engineering,JSU), Tzusheng Pei (Dept. of Computer Science, JSU), Evelyn Leggette (Division of Undergraduate Studies, JSU), and Hui-Ru Shih (Dept. of Technology,JSU)

01/01/07-12/30/2009, Principle Investigator
Award #: NSF/EEC-0634279, multi-disciplinary collaborative project “New Vision for Built Environment-Integration of Nanotechnology into Civil Engineering Undergraduate Curriculum”, funded by NSF. Co-PIs: Y.L. Mo (University of Houston), Karen Lozano (University of Texas-Pan American), and Xinqing Ma (Inframat Corporation)

SAMPLE PUBLICATIONS

Zheng, W. and Yu, Y., 2013 “Bayesian Probabilistic Framework for Damage Identification of Steel Truss Bridges under Joint Uncertainties," accepted and in process by Journal of Advances in Civil Engineering.

Zheng, W., and Chen, Y.T., 2013. “Novel Probabilistic Approach to Damage Identification of Bridge Piers Post Vessel Collision Based on Vibration Measurements.” Proceedings of the Transportation Research Board 92nd Annual Meeting, paper number: 13-3286, Washington, D.C., January 13-17, 2013

Zheng ,W., Wang, L.S. and Yin, J.J., 2013 “Correlation Analysis of Scaffolding Creative Problem Solving Through Question Prompts with Process and Outcomes of Project-Based Service Learning.” Proceedings of 2013ASEE Annual Conference & Exposition, Paper number: AC 2013-6169, Atlanta, Georgia, June 23 - 26, 2013

Zheng, W., and Yu, Y., (2012). " Structural Health Monitoring of Damages in Steel Truss Bridge Model under Connection Model Uncertainties," Proceedings of the Transportation Research Board 91st Annual Meeting 2012, paper number: 12-4213, Washington, D.C., January 22-26, 2012

Yu, H., Lu, B.T., Presuel-Moreno, F. J., and Zheng, W., (2011). “Concrete Mix Affects Reinforcement Corrosion Initiation and Chloride Threshold Level,” Journal of the Transportation Research Board, No. 2220, pp. 75 – 81

Zheng, W., Shih, H., Lozano, K., and Mo, Y.L., (2011). “Impact of Nanotechnology on Future Civil Engineering Practice and Its Reflection in Current Civil Engineering Education,” ASCE Journal of Professional Issues in Engineering Education and Practice, Vol. 137, No. 3, July, pp. 162-173

Skelton, G., Peng, Q., Zheng, W., and Shih, H.,(2011). “Using Robotics for Teaching Critical Thinking, Problems Solving, and Self-Regulated Learning for Freshmen Engineering Students,” Proceedings of 2011 ASEE Annual Conference & Exposition, Paper number: AC 2011-1679, June 26 - 29, 2011Vancouver, BC, Canada

Zheng, W., Peng, B., and Zhang, Z., (2011). “Assessment of Performance Reliability of Scoured Bridges Based on Probabilistic Inference with In-Suit Monitoring Data,” Proceedings of the Transportation Research Board 90th Annual Meeting 2011, paper number: 11-3020, January 23-27,2011, Washington, D.C

Peng, B., Zheng, W., (2011). “An Alternative Approach to Detecting Scour at Bridge Foundation,” Proceedings of the Transportation Research Board 90th Annual Meeting 2011, paper number: 11-3012, January 23-27,2011, Washington, D.C

Skelton, G., Pang, Q., Yin, J., Williams, B. J., and Zheng, W., (2011). “Introducing Engineering Concepts to Public School Students and Teachers: Peer-based Learning through Robotics Summer Camp,” Review of Higher Education and Self-Learning, Vol. 3, Issue 7,

Zheng, W., Yin, J., Skelton, G., Shih, H., Pei, T. & Leggette. E., (2010) “An Integrated Approach of Intelligent Structure Technology and Self-Regulated Learning for Enhancing Students' Motivation, Confidence, and Strategies in Science and Engineering Studies,” Journal of Information Systems Technology and Planning, Vol.2, Issue 3, pp 85-95

Zheng, W., Yin, J., Skelton, G., (2010) “Synergizing Creativity, Self-Regulated Learning, and Motivation through Cyber-infrastructure-Enabled Problem/Project-Based Learning,” American Education Science Review, Vol.1, No 1, pp 1-17

Zheng,W., Shih, H., Lozano, K., Pei, J., Kiefer, K., and Ma, X., (2009). “A Practical Approach to Integrating Nanotechnology Education and Research into Civil Engineering Undergraduate Curriculum,” Journal of Nanotechnology Education, Vol. 1, No. 1, pp 22-33

Shih, H.R., Walters, W.L., Zheng, W., and Everett, J., (2009) “Course Modules on Structural Health Monitoring with Smart Materials,” Journal of Technology Studies, Vol.35, No.2, pp 65-73

Shih, H., Rushon, D., Tzou H., Zheng,W., and Uchion, K., (2008). “Photostriction and Its Use in Actuation of Flexible Structures,” ASEE Journal of Engineering Technology, Vol.25,No.1 , pp 26-31

Zheng, W., Shih, H., and Mo, Y.L., (2009). “Integration of Cognitive Instructions and Problem/Project Based Learning into Civil Engineering Curriculum to Cultivate Creativity and Self-Directed Learning,” Proceedings of 2009 ASEE Annual Conference & Exposition, Paper Number: AC 2009-1195, June 14 - 17, 2009 - Austin, TX

Zheng, W., Skelton, G., and Shih, H. (2009). “Nurture Motivated, Confident, and Strategic Learners in Engineering through Cognitive and Psychological Instructions for an Entry-Level Course,” Proceedings of 2009 ASEE Annual Conference & Exposition, Paper Number: AC 2009-1195, June 14 - 17, 2009 - Austin, TX

Shih, H., Zheng, W., and Walters, W., (2009). “Applications of Smart Materials In Structural Health Monitoring,” Proceedings of the ASME 2009 International Mechanical Engineering Congress & Exposition, paper number: IMECE2009-10145, November 13-19, Lake Buena Vista, Florida

Zheng,W., Shih, H., Lozano, K., Kiefer, K., and Ma, X., 2008. "Enhancing Engineering Educational Outcomes through Integration of New Vision for Civil Infrastructures with Nanotechnology into Undergraduate Curriculum and Its Implementation Results." Proceedings of 2008 ASEE Annual Conference & Exposition, Paper Number: AC 2008-2543: June 22 - 25, 2008, Pittsburgh, PA

Shih H., Zheng, W., Walters, W. and Paradeshi, S., 2008. "Smart Materials and Structures Experiments for Undergraduate Students" Proceedings of 2008 ASEE Annual Conference & Exposition, Paper Number: AC 2008-2632, June 22 - 25, 2008, Pittsburgh, PA.

Zheng,W., Shih, H., Lozano, K., Pei, J., Kiefer, K., and Ma, X., (2007). "New Vision for Built Environment-Integration of Nanotechnology into Civil Engineering Undergraduate Curriculum", Presentation and paper abstract, Proceeding of Engineering Education NSF Awardees' Conference, September 26-28, 2007, Arlington, Virginia

Zheng,W., Lozano, K., Pei, J., Kiefer, K., Ma, X., and Shih, H., (2007)., "Collaboration among Educational Institutions and Industries for Addressing New Challenge in Civil Engineering Undergraduate Education," Proceedings of the 2007 ASEE Gulf-Southwest Annual Conference, The University of Texas – Pan American, March, 2007, South Padre Island, Texas

Zheng, W., and Oliva, M.G., (2007). "Analytical Method to Determine the Elastic In-Plane Behaviors of Pretopped, Precast Untopped Double-tee Diaphragm with Discrete Connections under Seismic Loads," PCI Journal, V. 52, No. 5, September–October, pp. 106–123

Shih, H, Tzou, H. S., and Zheng, W. (2007). "Photonic Control of a Free-Floating Parabolic Membrane Shell," Proceedings of 2007 ASME International Mechanical Engineering Congress and Exposition, Paper Number: IMECE2007-41141, November, 2007, Seattle, Washington

Pincheira, J.A., Oliva, M.G., and Zheng, W. (2005) "Tests on Double-Tee Connectors Subjected to Monotonic and Reversed Cyclic Loading of In-Plane and Out-plane." PCI Journal November/December of 2005

Zheng, W. and Oliva, M.G. (2005) "Practical Method to Estimate Deformation of Precast pretopped Double-tee Diaphragms." PCI Journal March/April of 2005, pp44-55.

Zhou, B. Z., Zheng, W., Guan, Q.X. and Liu, T.H. (2000). "Experiment Research on Seismic Behavior of Six-story Building of Hollow-core Concrete Blocks." Journal of Building Structures, Chinese Association of Architectural Engineering, Vol.21, No.4, pp2-12.

Zheng, W. (1993). “Preliminary Study on Distortion and Modification Method for Model Testing of Dynamic Ultimate Strength.” Proceedings of U.S/P.R. China Workshop on Experimental Methods in Earthquake Engineering, The John A. Blume Earthquake Engineering Center, Stanford University, U.S., pp106-113.

Zheng, W., Li, Y.L., Hua, Z.C. and He, L.Q. (1994). “Experiment Research on Behavior of Partially Unbound Post-tensioned Prestressed High Performance Concrete (fc’>80MPa) Beams with a smaller depth-to-span ratio.” Research Report of Beijing Institute of Architectural Design and Research.