

# Long Qiao, PhD, PE

Associate Professor of Construction Engineering  
Department of Engineering Technology  
Missouri Western State University  
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## EDUCATION

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### **Ph.D. Civil Engineering.**

Kansas State University, Manhattan, KS

Dissertation: *Structural Damage Detection Using Signal-Based Pattern-Recognition*

### **M.S. Civil Engineering.**

Texas Tech University, Lubbock, TX

Thesis: *Analyzing Reinforced Concrete Shelters*

### **B.S. Civil Engineering.**

Xian University of Architecture & Technology, China

## EMPLOYMENT

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### **Associate Professor (Tenured)**

Engineering Technology Department, Missouri Western State University

Aug. 2016 – Present

### **Assistant Professor (Tenure-Track)**

Engineering Technology Department, Missouri Western State University

Aug. 2009 – Aug. 2016

### **Graduate Teaching and Research Assistant**

Civil Engineering Department, Kansas State University

Jan. 2005 – May 2009

### **Graduate Research Assistant**

Civil Engineering Department, Texas Tech University

Jan. 2002 – Dec. 2003

## TEACHING AND ADVISING

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### **Academic Course Taught:**

#### At Missouri Western State University

- CET 105 – Construction Materials (Fall & Spring)
- CET 256 – Bituminous, Concrete, and Soils (Spring)
- CET 260 – Mechanics of Materials (Spring)
- CET 260 – Mechanics of Materials-Lab (Spring)
- CET 308 – Analysis of Structures (Fall)
- CET 358 – Structural Steel & Wood Design (Fall)
- CET 360 – Construction Management (Fall)
- CET 390 – Technological Projects (Fall & Spring)
- CET 408 – Design of Concrete and Masonry Structures (Spring)
- CET 458 – Soil Mechanics and Foundations (Fall)
- CET 458 – Soil Mechanics and Foundations-Lab (Fall)

- EGT 220 – Engineering Materials (Fall)
- EGT 260 – Statics (Fall)
- EGT 265 – Engineering Statics (Fall)
- EGT 325 – Machine Parts and Mechanical Design (Spring)
- EGT 356 – Fluids and Hydraulics (Spring)
- EGT 490 – Engineering Technology Internship (Summer)
- EGT 520 – Project and Process Management (Fall/Spring)
- EGT 610 – Advanced Engineering Technology (Spring)
- EGT 690 – Engineering Technology Research (Fall & Spring)
- MET 260 – Mechanics of Materials (Spring)
- MET 260 – Mechanics of Materials-Lab (Spring)

At Kansas State University

- CE 537 – Introduction to Structural Analysis
- CE 745 – Dynamic of Structures
- CE 544 – Reinforced Concrete Design
- CE 544 – Reinforced Concrete Design-Lab

**Graduate Student Advising:**

- Vincent Couldry. M.A.S.  
Research topic: History, Advancements, and Future look into Solar Systems and their Cost  
Graduation Date: December 2021
- John O'Rourke. M.A.S.  
Research topic: Using Solidworks in Conjunction With Online Databases in the Manufacturing Industry  
Graduation Date: December 2021
- Kyle Kendall. M.A.S  
Research topic: 3D Modeling and Printing and the Effects on the Manufacturing Industry  
Graduation Date: May 2021
- Johnathan Ottinger. M.A.S.  
Research topic: AR and VR Increasing Productivity and Efficiency of the Master of Applied Science in Engineering Technology Management  
Graduation Date: May 2021
- Oveya Duraian. M.A.S.  
Research topic: IOT Based Centralized Monitoring System for Smart City  
Graduation Date: May 2020
- Hema Pamuru. M.A.S.  
Research topic: A Case Study on Difference between Management Studies and Engineering Studies  
Graduation Date: May 2020
- Payal Verma. M.A.S  
Research topic: An Overview of Vibration-Based Damage Detection Methods  
Graduation Date: May 2018
- Tiffany Adams. M.A.S.  
Research topic: Safety Technology for American Railroads: PTC Necessity and Application  
Graduation Date: May 2018
- Cedric Lohse. M.A.S.  
Research topic: Lean Management in the Construction Industry- the Application of Information Technology Designed for Performance Improvement in the Pre-Construction Phase  
Graduation Date: May 2018
- Tom Rhoad. M.A.S.  
Research topic: Planning and Implementing a Business

Graduation Date: May 2017

- Ashok KC. M.A.S.  
Research topic: Comparative Study of Crack Detection Technique in MATLAB using Digital Image Processing to Monitor Structure Health Safety  
Graduation Date: May 2017
- Corey Halderman. M.A.S.  
Research topic: Construction of a New Facility for a Research & Development Animal Facility for a Biopharmaceutical Test Environment  
Graduation Date: Fall 2012
- Devin Hart. M.A.S.  
Research topic: Creating A Positive Learning Environment in An Electrical Circuits Lab  
Graduation Date: May 2011
- William Vockery. M.A.S.  
Research topic: Field Programmable Gate Arrays – Exploring Applications  
Graduation Date: May 2011

**Undergraduate Student Advising:**

- Average 30 students per semester.

**PUBLICATIONS**

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- Qiao, L. “*Signal Transformation Analysis for Damage Detection Using Pattern Recognition*”, Proceeding of the 11<sup>th</sup> International Conference on Structural Health Monitoring of Intelligence Infrastructure, SHMII 11, August 8-12, 2022, Montreal, Quebec, Canada.
- Qiao, L. “*Wavelet Transformation Analysis for Damage Detection on a Three-Story Building*” International Journal of Engineering Research and Development, Volume 18, Issue 04, July-August, 2022.
- Qiao, L. and Verma, P. “*An Overview of Vibration-based Damage Detection Methods*”, Proceedings of the 10th International Conference on Structural Health Monitoring of Intelligence Infrastructure, SHMII 10, June 30 – July 2, 2021, Porto, Portugal.
- Qiao, L. and KC, A. “*Comparative Study of Crack Detection Techniques using Digital Processing to Monitor Structure Health and Safety*”, the 9<sup>th</sup> International Conference on Structural Health Monitoring of Intelligence Infrastructure (SHMII-9), August 4-7, 2019, St. Louis, Missouri.
- Qiao, L. and Fletcher, L. “*Real Life Simulation in Engineering Technology Degree.*” Conference on Applied Learning in High Education, 2018, CALHE, UNCW.
- Qiao, L. and Esmaeily, A. “*Signal-Based Damage Detection Methods – Algorithms and Applications.*” International Journal of Engineering Research and Development, Vol. 11, No. 05, pp. 44-57, 2015.
- Qiao, L., Esmeily, A. and Melhem, H. “*Signal Pattern-Recognition for Damage Detection in Three-Story Steel Building.*” Abstract was published at 17<sup>th</sup> U.S. National Congress on Theoretical and Applied Mechanics (USNCTAM, 2014), June 15-20, 2014, East Lansing, MI, USA.
- Qiao, L., Graham, J. and Esmaeily, A. “*Application of Image Adaptive Cross Correlation in Experimental Measurements.*” Abstract was published at Engineering Mechanics Institute Conference (EMI), August 3-7, 2013, Evanston, IL, USA.
- Qiao, L., Esmaeily, A. and Melhem, H. “*Signal Pattern Recognition for Damage Diagnosis in Structures.*” Computer-Aided Civil and Infrastructure Engineering, Vol. 27, pp. 699-710, 2012.

- Qiao, L. “*Structural Evaluation Methods on an Existing Concrete Bridge.*” American Journal of Engineering and Technology Research, Vol. 12, No. 2, pp. 28-40, 2012.
- Qiao, L., and Esmaily, A. “*An Overview of Signal-Based Damage Detection Methods.*” Journal of Applied Mechanics and Materials, Vols. 94-96, pp 834-851, 2011.
- Qiao, L., Esmaily, A. and Melhem, H. “*Structural Damage Detection Using Signal Pattern-Recognition.*” Key Engineering Materials, Vol. 400-402, pp. 465-470, 2009.
- Qiao, L., Nayyeri, S., Rasheed, A., and Esmaily, A. “*Comparison of Conventional and Wireless Data Acquisition System.*” Innovative Instrumentation and Experimental Methods in Engineering Mechanics, The 2009 Joint ASCE-ASME-SES Conference on Mechanics and Materials, June 24-27, 2009, Virginia Tech, Blacksburg, VA.
- Qiao, L. Esmaily, A., and Melhem, H. “*Damage Detection on a Three-Story Structure using Signal-Based Pattern Recognition.*” Advances in Health Monitoring and System Identification Session (switched to Innovative Instrumentation and Experimental Methods in Engineering Mechanics, case: Impulse Applicator), The 2009 Joint ASCE-ASME-SES Conference on Mechanics and Materials, June 24-27, 2009, Virginia Tech, Blacksburg, VA.
- Qiao, L., Esmaily, A. and Melhem, H. “*Signal Based Damage Detection using Pattern-Recognition.*” Proceeding of the 7<sup>th</sup> International Conference on Composite Science and Technology (ICCST/7), January 20-22, 2009, Sharjah, United Arab Emirates.
- Qiao, L., Esmaily, A. and Melhem, H. “*Structural Damage Diagnosis Using Signal Pattern-Recognition intelligent Computing.*” Proceedings of 15<sup>th</sup> Annual Workshop of the European Group for Intelligent Computing in Engineering (EG-ICE), Plymouth, UK, July 2-4, 2008, <http://www.eg-ice-plymouth.org>
- Qiao, L., Esmaily, A. and Melhem, H. “*Structural Damage Detection using Signal Pattern Recognition.*” 12<sup>th</sup> International Conference on Computing in Civil and Building Engineering & 2008 International Conference on Information Technology in Construction, October 16-18, 2008, Beijing, China.
- Qiao, L., Esmaily, A. and Melhem, H. “*Structural Damage Detection Using Pattern-Matching Method.*” Proceedings of 3<sup>rd</sup> International Conference on Structural Engineering, Mechanics and Computation (SEMC), Cape Town, South Africa, pp. 1836-1841, September 10-12, 2007.
- Budek, A., Zain, M., Qiao, L. and Phelan, R.S. “*Validation of Finite-Element Analyses for Storm Shelters.*” Journal of Architectural Engineering, ASCE, Vol. 12, No. 2, pp. 64-71, 2006.
- Kiesling, E.W., Budek, A., Davidson, J., Qiao, L. and Zain, M. “*Size Limits for Residential Shelters.*” Proceedings of 11<sup>th</sup> International Conference on Wind Engineering, Lubbock, TX, USA, June 2-5, 2003.
- Qiao, L. and Liu, Z. “*Analyzing and Strengthening a Damaged Bridge.*” Academic Papers on Architecture and Civil Engineering of Henan, China, Vol. 5, 2000.

## ACADEMIC SERVICES

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- Member of Dean Search Committee –University, 2022
- Member of Academic Program Review Committee –University, 2021-present
- Member of Graduate Council – University, 2015-2021
- Committee Member of General Studies – University, 2013-2015
- Committee Member of Undergraduate Curriculum Committee - University, 2011-2013
- Director of Graduate Studies – ET Dept., 2015-2020
- CET Program Coordinator – ET Dept., 2012-present

- Committee Member of General Studies – ET Dept., 2009-present
- Chair of Faculty Search Committee – ET Dept., 2013, 2015, 2018, 2020, 2022
- Member of Faculty Search Committee – ET Dept., 2015, 2018, 2020
- Chair of Scholarship Committee - ET Dept., 2010-2020
- Student academic advisor (undergraduate/graduate), 2009-present
- Develop undergraduate curriculum for CET program, ET Dept., 2010-present
- Develop Entrance/Exit Exams for CET Program, ET Dept., 2010-present
- Develop graduate program for CET program, ET Dept., 2009-2020
- Advise student registration, 2009-present
- Assist student orientation, 2009-present
- Provide student consultation, program promotion/marketing services, 2009-present
- Participate in the departmental fund-raising activity, Spring, 2010-present
- Attend the 2012 ABET Symposium, April 19-21, 2012, St. Louis, MO
- Participate the University Commencement Parade on Behalf of the ET Dept., 2009-present
- Present on IT Day on Behalf of the ET Dept., Spring, 2010-present
- Participate in the Open House on Behalf of the ET Dept., 2009-present
- Participate on the Griffon Edge Display on Behalf of the ET Dept., Spring, 2010-present
- Participate in Industrial Advisory Board Meeting, ET Dept., Fall, 2009-present

## **PROFESSIONAL SERVICES**

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- Reviewer for Journal of the Structural Design of Tall and Special Buildings, 2021-present
- Reviewer for Journal of Bridge Engineering, ASCE, 2011-present
- Reviewer for Journal of Engineering Mechanics, ASCE, 2011-present
- Reviewer for Journal of Structural Control and Health Monitoring, 2013-present
- Reviewer for Journal of Computer-Aided Civil and Infrastructure Engineering, 2012-present
- Reviewer for the 3<sup>rd</sup> Global Conference on Materials Science and Engineering (CMSE 2014)
- Reviewer for the 3<sup>rd</sup> International Conference on Civil Engineering and Urban Planning (CEUP 2014)
- Reviewer for Textbook “*Introduction to Building Materials*”, Pearson, October 2010
- Reviewer for Textbook “*Applied Statics and Strength of Materials*”, Pearson, August 2013
- Associate Editor for American Journal of Engineering and Technology Research, 2012-present

## **PROFESSIONAL LICENSURE AND MEMBERSHIP**

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- P.E. License.
- Member of American Institute of Steel Construction (AISC)

## **GRANTS AND HONORS**

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- Missouri Western Award for Teaching Excellence, MWSU, 2021
- Compass Award as the Most Influential Professor, the Missouri Lambda Chapter of Alpha Chi National College Honor Society, 2017, 2019.
- 2015 ASCE Outstanding Reviewer, ASCE, 2016
- Griffon Baseball Honorary Coach, MWSU, 2013
- Griffon Football Honorary Coach, MWSU, 2011, 2012
- Certificate of Appreciation Award, MWSU, 2015, 2016, 2017, 2019, 2020, 2021
- Travel Fund, MWSU, 2013, 2014, 2016, 2017, 2019, 2021, 2022
- PORTAL Grant, MWSU, 2013, 2014
- Summer Research Institute (SRI) Grant, MWSU, 2011

## PROFESSIONAL DEVELOPMENT

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- Attending 2020 AISC Night School Webinar Course Series, “2016 Specification for Structural Steel Building”
- Attending 2020 AISC Night School Webinar Course Series, “Connection Design for Moment Frames and Braced Frames”
- Attending 2019 AISC Night School Webinar Course Series, “Welded Connections - A Primer for Engineers”
- Attending 2019 AISC Live Webinar, "Plan for Steel Bridge", April 23, 2019
- Attending 50th Annual Geotechnical Engineering Conference at the University of Kansas, Lawrence, KS, November 8, 2018
- Attending 2018 AISC Live Webinar, "Leaning Out", September 26, 2018
- Attending 2018 AISC Live Webinar, "Birth of the Skyscraper", September 28, 2018
- Attending 2017 AISC Live Webinar, "What Structural Engineers Should Know About Fire Design";
- Attending 2017 McGraw-Hill Higher Education Live Webinar, "Engineering Today's Students: Maximizing the Potential of Each Learner";
- Attending 2017 McGraw-Hill Higher Education Live Webinar, "Online Learning: Are Students Adequately Setup for Success?"
- Attending 49th Annual Geotechnical Engineering Conference at the University of Kansas, Lawrence, KS, November 9, 2017
- Attending 62th Annual Structural Engineering Conference at the University of Kansas, Lawrence, KS, March 2, 2017
- Attending 48th Annual Geotechnical Engineering Conference at the University of Kansas, Lawrence, KS, November 10, 2016
- Attending 61th Annual Structural Engineering Conference at the University of Kansas, Lawrence, KS, March 3, 2016