

Qindan Huang, Ph.D., Associate Professor

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a. Professional Preparation

Tongji University, Shanghai, China	Civil Engineering	B.S. 2001
The University of Toledo, Toledo, OH	Civil Engineering	M.S. 2004
Texas A&M University, College Station, TX	Civil Engineering	Ph.D. 2010

b. Appointments

2018 – Present	Associate Professor, Civil Engineering, The University of Akron
2011 – 2018	Assistant Professor, Civil Engineering, The University of Akron
2010 – 2011	Postdoctoral Research Associate, Texas A&M University, College Station
2006 – 2010	Graduate Student Researcher, Texas A&M University, College Station
Summer 2009	Lecturer, Texas A&M University, College Station
2004 – 2006	Structural Engineer, Malcolm Pirnie Inc.

c. Research Expertise

Structural reliability; risk and life-cycle analysis; performance assessment of deteriorating systems; probabilistic methods and modeling in civil engineering; performance-based design; multi-hazard analysis; decision making under uncertainty

d. Products

Peer-reviewed journal

1. Daghash, S., Huang, Q., and Ozbulut, O.E. (2019). “Tensile Behavior and Cost Efficiency Evaluation of ASTM A1010 Steel for Bridge Construction,” *ASCE Journal of Bridge Engineering*, 24(8): 04019078.
2. Sajedi S., and **Huang, Q.** (2019). “Reliability-based life-cycle-cost comparison of different corrosion management strategies,” *Engineering Structures*, 186: 52-63.
3. Kere, K.J., and **Huang, Q.** (2019). “Life-Cycle Cost Comparison of Corrosion Management Strategies for Steel Structures,” *ASCE Journal of Bridge Engineering*, 24(4): 04019007.
4. **Huang, Q.**, Dyanati, M., Roke, D., Chandra, A., and Sett, K. (2018). “Economic Feasibility Study of Self-Centering Concentrically Braced Frame Systems,” *ASCE Journal of Structural Engineering*, 144(8): 04018101.
5. Silwal, B., **Huang, Q.**, Ozbulut, O.E., and Dyanati, M. (2018). “Comparative seismic fragility estimates of steel moment frame buildings with or without superelastic viscous dampers,” *Journal of Intelligent Material Systems and Structures*, 1045389X18798936.
6. Zaker Esteghamati, M., Banazadeh, M., and **Huang, Q.** (2018). “The effect of design drift limit on the seismic performance of RC dual high-rise buildings.” *The Structural Design of Tall and Special Buildings*, 27(8): e1464.
7. Nikellis, A., Eshun, K. O., Dyanati, M., Roke, D. A., **Huang, Q.**, Chandra, A., & Sett, K. (2018). “Effect of site-specific soil nonlinearities and uncertainties on ground motion intensity measures and structural demand parameters.” *Georisk: Assessment and Management of Risk for Engineered Systems and Geohazards*, 1-18.

8. Dyanati, M., **Huang, Q.**, and Roke, D. (2017). "Sensitivity analysis of seismic performance and loss evaluation", *Bulletin of Earthquake Engineering*, DOI: 10.1007/s10518-017-0150-6.
9. Chandra, A., **Huang, Q.**, Roke, D., and Sett, K. (2017). "Improving precision in earthquake loss estimation," *Sustainable and Resilient Infrastructure*, DOI: 10.1080/23789689.2017.1365231.
10. Sajedi S., **Huang, Q.**, Gandomi, A.H., and Kiani, B. (2017). "Reliability-based multi-objective design optimization of reinforced concrete bridges considering corrosion affect," *ASCE Journal of Risk and Uncertainty Analysis Part A: Civil Engineering*, DOI: 10.1061/AJRUA6.0000896.
11. Sajedi, S., and **Huang, Q.** (2016). "Load-Deflection Behavior Prediction of Intact and Corroded RC Bridge Beams with or without Lap Splices Considering Bond Stress-Slip Effect," *ASCE Journal of Bridge Engineering*, DOI: 10.1061/(ASCE)BE.1943-5592.0000981, 04016102.
12. Dyanati, M., **Huang, Q.**, and Roke, D. (2016). "Cost-Benefit Evaluation of Self-centering Concentrically Braced Frames Considering Uncertainties", *Structure and Infrastructure Engineering*, DOI: 10.1080/15732479.2016.1173070.
13. Miran, S.A. **Huang, Q.**, and Castaneda, H. (2016). "Time-Dependent Reliability Analysis of Corroded Buried Pipelines Considering External Defects", *ASCE Journal of Infrastructure Systems*, DIO: 10.1061/(ASCE)IS.1943-555X.0000307, 04016019.
14. Kiani, B., Sajedi S., Gandomi, A.H., **Huang, Q.**, and Liang, R.Y. (2016). "Optimal adjustment of ACI formulation for shrinkage of concrete containing pozzolans," *Construction & Building Materials*, 131: 485-495.
15. Sajedi S., Gandomi, A.H., Kiani, B., and **Huang, Q.** (2016). "Genetic Programming for Experimental Data Mining: A Case Study on Concrete Creep Formulation," *Automation in Construction*, 70(1): 89-97.
16. Holik, W., Schneider, W., and **Huang, Q.** (2016). "Winter Maintenance Fleet Savings from Implementing Specialty Winter Maintenance Equipment," *Cold Regions Science and Technology*, 127: 57-64.
17. Holik, W., Schneider, W., and **Huang, Q.** (2016). "Assessing the Vulnerability of Winter Maintenance Material Storage Facilities," *ASCE Journal of Cold Region Engineering*, 06016004.
18. Kafaekivi, M., Roke, D., and **Huang, Q.** (2016). "Seismic Performance assessment of dual systems combining conventional and self-centering concentrically braced frames," *Structures*, 5: 88-100.
19. Sajedi S., and **Huang, Q.** (2015). "Probabilistic Model for Steel-Concrete Bond Strength Considering Corrosion Effect," *Engineering Structures*, 99: 120-131.
20. **Huang, Q.**, Gardoni, P., and Hurlbaas, S. (2015). "Assessment of Modal Parameters Considering Measurement and Modeling Errors," *Journal of Smart Structures and Systems*, 15(3): 717-733.
21. Dyanati, M., **Huang, Q.**, and Roke, D. (2015). "Seismic Demand Models and Performance Evaluation of Self-Centering and Conventional Concentrically Braced Frames," *Engineering Structures*, 84 (1): 368-381.
22. **Huang, Q.**, Gardoni, P., and Hurlbaas, S. (2015). "Adaptive Reliability Analysis of Reinforced Concrete Bridges Subject to Seismic Loading Using Nondestructive Testing," *Journal of Risk & Uncertainty in Engineering Systems, Part A: Civil Engineering*, 1(4): 04015014.
23. Fan, H., **Huang, Q.**, and Liang, R. (2014). "Reliability and Importance Analysis of Piles in Spatially Varying Soils Considering Multiple Failure Modes," *Computers and Geotechnics*, 57: 97-104.

24. **Huang, Q.**, Gardoni, P., Pagnotta, A., and Trejo, D. (2014). "Probabilistic Model for Steel-concrete Bond Behavior of Bridge Columns Considering the Effect of ASR," *Engineering Structures*, 71: 1-11.
25. Pagnotta, A., Trejo, D., Gardoni, P., and **Huang, Q.** (2013). "Effects on Impact-Echo signals caused by adjacent steel reinforcing bars and voids in lap-splice regions: Experimental study," *ACI Special Publication*, 292: 1-14.
26. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2012). "A Probabilistic Damage Detection Approach Using Vibration-based Nondestructive Testing," *Structural Safety*, 38: 11-21.
27. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2011). "Predicting Concrete Compressive Strength Using Ultrasonic Pulse Velocity and Rebound Number Data," *ACI Materials Journal*, 108(4): 403-412.
28. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2010). "Probabilistic Seismic Demand Models and Fragility Estimates for Reinforced Concrete Highway Bridges with One Single-Column Bent," *ASCE Journal of Engineering Mechanics*, 136(11): 1340-1353.
29. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2009). "Probabilistic Capacity Models and Fragility Estimates for Reinforced Concrete Columns Incorporating NDT Data," *ASCE Journal of Engineering Mechanics*, 135(12): 1384-1392.

Other publications

30. Soraghi, A., **Huang, Q.**, and Hauff, D. (2019) "Probabilistic model for rebar-concrete bond failure mode prediction considering corrosion," *Structures Congress 2019*, Orlando, FL.
31. Zaker Esteghamati, M., and **Huang, Q.** (2019). "An efficient stratified-based ground motion selection for cloud analysis," *13th International Conference on Applications of Statistics and Probability in Civil Engineering*, ICASP13, Seoul, South Korea, 2019.
32. Hillegas, J. A., Liua, R., Liua, B., Sancheza, A., and **Huang, Q.** (2018). "Engineering Properties Influencing Clayey Materials for Additive Manufacturing," *Proceedings of the IASS Symposium 2018*, Boston, USA.
33. Sajedi, S., and **Huang, Q.** (2017). "Comparison of Corrosion Management Strategies of RC Structures Using a Reliability-Based Approach," *NACE International Corrosion Conference & Expo*, New Orleans, LA.
34. Miran, S.A., **Huang, Q.**, and Castaneda, H. (2016). "Optimal Inspection Interval Based on Reliability Assessment of Corroded Pipelines," *NACE Corrosion Risk Management Conference*, Houston TX, May 2016.
35. Sajedi, S., and **Huang, Q.** (2016). "Reliability-based life cycle cost analysis of corroded reinforced concrete substructures considering patch repair," *NACE Corrosion Risk Management Conference*, Houston TX, May 2016.
36. Sajedi S., and **Huang, Q.** (2015). "Time-Dependent Reliability Analysis on the Flexural Behavior of Corroded RC Beams before and after Repairing," *Structures Congress 2015*, Portland, Oregon.
37. Dyanati, M., **Huang, Q.**, and Roke, D. (2015). "Life Cycle Cost-Benefit Evaluation of Self-centering and Conventional Concentrically Braced Frames," *12th International Conference on Applications of Statistics and Probability in Civil Engineering*, ICASP12, Vancouver, Canada.
38. Dyanati, M., and **Huang, Q.** (2014). "Seismic Reliability of a Fixed Offshore Platform Against Collapse," *Proceedings of the ASME 2014 33rd International Conference on Ocean, Offshore and Arctic Engineering*, San Francisco, CA.

39. Dyanati, M., **Huang, Q.**, and Roke, D. (2014) "Structural and Nonstructural Performance Evaluation of Self-Centering Concentrically Braced Frames Under Seismic Loading," *Structures Congress 2014*, Boston, MA.
40. **Huang, Q.**, Gardoni, P., Trejo, D., and Pagnotta, A. (2013). "Probabilistic Model for Steel-Concrete Bond Behavior of Bridge Columns Considering the Effect of ASR," *The 11th International Conference on Structural Safety and Reliability (ICOSSAR2013)*, New York.
41. Pagnotta, A., Gardoni, P., Trejo, D., and **Huang, Q.** (2013). "Probabilistic Impact-Echo Method to Detect Debonding of Steel Reinforcement in RC structures," *The 11th International Conference on Structural Safety and Reliability (ICOSSAR2013)*, New York.
42. Fan, H., **Huang, Q.**, and Liang, R. (2013). "Reliability Analysis of Drilled Shafts Subjected to Axial and Lateral Loading Considering Soil Spatial Variability," *The 11th International Conference on Structural Safety and Reliability (ICOSSAR2013)*, New York.
43. Dyanati, M., **Huang, Q.**, and Roke, D. (2013). "Seismic Performance and economic feasibility Evaluation of Self-Centering Concentrically-Braced-Frame (SC-CBF) System," *The 11th International Conference on Structural Safety and Reliability (ICOSSAR2013)*, New York.
44. Kafaeikivi, M., Roke, D., and **Huang, Q.** (2013). "Seismic Performance assessment of dual systems combining conventional and self-centering concentrically braced frames," *The 11th International Conference on Structural Safety and Reliability (ICOSSAR2013)*, New York.
45. Roke, D., Chandra, A., **Huang, Q.**, and Sett, K. (2013). "Methodology for Life Cycle Cost Assessment of Self-Centering Concentrically Braced Frame Systems," *The 10th International Conference on Urban Earthquake Engineering Proceedings*, March, Tokyo, Japan.
46. M.R., H., Roke, D., and **Huang, Q.** (2013). "Quantification of Higher Mode Responses for Steel Self-Centering Concentrically Braced Frames," *The 7th International Structural Engineering and Construction Conference*, Honolulu, Hawaii.
47. Pagnotta, A., Gardoni, P., Trejo, D., and **Huang, Q.** (2012). "Assessing impact-echo test variables for detecting loss of bond in RC bridge columns," *Proceedings of the 6th International Conference on Bridge Maintenance, Safety, and Management*, Stresa, Italy.
48. **Huang, Q.**, Gardoni, P., Pagnotta, A., and Trejo, D. (2012). "Probabilistic Model for Steel-Concrete Bond Behavior of Bridge Columns Considering the Effect of ASR," *Proceedings of the 6th International Conference on Bridge Maintenance, Safety, and Management*, Stresa, Italy.
49. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2011). "Adaptive Reliability Analysis of Reinforced Concrete Bridges Using Nondestructive Testing," *International Conference on Vulnerability and Risk Analysis and Management*, Hyattsville, MD.
50. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2009). "Updating Structural Properties using Modal Parameters Considering Measurement Errors," *ASCE Structures Congress 2009*, Austin, TX.
51. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2009). "Updating Fragility Estimates for Reinforced Concrete Bridges Using Nondestructive Testing," *The 10th International Conference on Structural Safety and Reliability (ICOSSAR2009)*, Osaka, Japan.
52. **Huang, Q.**, Gardoni, P., and Hurlebaus, S. (2009). "Updating Structural Properties Using Vibration based Nondestructive Testing with Modal Parameters," *The 7th International Symposium on Non Destructive Testing in Civil Engineering (NDTCE'09)*, Nantes, France.
53. **Huang, Q.** (2007). "Vibration Based Energy Harvesting Technique to Drive Wireless Sensor Networks," *The Proceedings of 1st Civil Engineering Student Research Symposium*, Texas A&M University, College Station, TX.

e. Research Projects

1. *“Probabilistic Characterization of Bond Behavior at Rebar-Concrete Interface in Corroded RC Structures: Experiment, Modeling, and Implementation”*
Sponsor: National Science Foundation (NSF)
Total Award: \$184,535
PI: **Qindan Huang**
Award Period: 08/15/2016 – 07/31/2020
2. *“Evaluation of Effective Bridge Deck Repair Maintenance Methods (Phase I)”*
Sponsor: Ohio Department of Transportation (ODOT)
Total Award: \$63,423.85
PI: **Qindan Huang** (Co-PI: Junliang Tao)
Award Period: 08/14/2017 – 05/15/2018
3. *“Experimental Characterization of Coating Disbondment in Buried Pipelines by Frequency Domain”*
Sponsor: Consolidated Edison Company of New York
Total Award: \$16,000
PI: **Qindan Huang**
Award Period: 11/18/2015 – 12/31/2016
4. *“Performance-Based Evaluation of Self-Centering Concentrically Braced Frames”*
Sponsor: NSF
Total Award: \$297,803
PI: David Roke (Co-PIs: **Qindan Huang**, Kallol Sett, Akhilesh Chandra)
Award Period: 09/01/2012 – 08/31/2016
5. *“Performance-Based Evaluation of Self-Centering Concentrically Braced Frames REU Supplement: Below-Grade Flexibility Study”*
Sponsor: NSF
Total Award: \$5,000
PI: David Roke (Co-PI: **Qindan Huang**)
Award Period: 4 months
6. *“Damage evolution of DEFT coating/7075 T6 alloy-system under stress conditions based on advanced electrochemical techniques and reliability analysis”*
Sponsor: Department of Defense (DoD)
Total Award: \$205,948
PI: Homero Castaneda (Co-PI: **Qindan Huang**)
Award Period: 06/01/2013 – 08/31/2016
7. *“Surface Applied Corrosion Inhibitors Testing”*
Sponsor: BASF
Total Award: \$8,000
PI: **Qindan Huang**
Award Period: 02/01/2016 – 08/16/2016
8. *“Reliability-based life cycle cost analysis of corroded reinforced concrete substructures considering patch repair”*
Sponsor: NCERCAMP Project Development Grant, The University of Akron
Total Award: \$2,000
PI: **Qindan Huang**
Award Period: 04/04/2016 – 05/31/2016

9. “*Probabilistic Seismic Demand Models of Reinforced Concrete Bridges*”

Sponsor: Faculty Research Committee, The University of Akron
Total Award: \$10,000
PI: **Qindan Huang**
Award Period: 05/12/2014 – 08/31/2014

f. Synergistic Activities

- Member of Transportation Research Board (TRB) Corrosion Committee
- Member of ASCE Technical Council on Life-Cycle Performance, Safety, Reliability, and Risk of Structural Systems - Task Group 1
- Member of SEI Technical Activities Division Committee on Multiple Hazard Mitigation, of the Technical Administrative Committee on Dynamic Effects
- Member of NACE; Member of American Society of Civil Engineers (ASCE); Member of American Concrete Institute (ACI); Member of Transportation Research Board (TRB)
- Journal Reviewer of *Corrosion Science*, *ASCE Journal of Bridge Engineering*, *ASCE Journal of Structural Engineering*, *ASCE Journal of Infrastructure Systems*, *ASCE Journal of Materials in Civil Engineering*, *ASCE Journal of Materials in Civil Engineering*, *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems*, *ACI Journal*, *Natural Hazard*, *Engineering Structures*, *Smart Structures and Systems*, *Structure and Infrastructure Engineering*, *Journal of Aerospace Engineering*, *NDT & Evaluation*, *Applied Ocean Research*, *Journal of Constructional Steel Research*, *Sustainable and Resilient Infrastructure*, *Computers & Structures*