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EDUCATION

Ph.D. University of California, San Diego, 2009. Doctoral Advisor: Tara Hutchinson

- Major in Structural Engineering (minor in Computer Science); Dissertation: Identifying Structural Damage from Images

M.S. Michigan Technological University, 2004; Thesis advisor: Theresa Ahlborn

- Major in Civil Engineering; Thesis: A Quantitative Analysis of Model Uncertainty for a Time-Step Prestress Loss Method

B.S. Southeast University, Nanjing, China

- Major in Civil Engineering (minor in Computer Science)

PROFESSIONAL BACKGROUND

Assistant Professor, University of Missouri - Kansas City, Sep. 2010 – present

- Doctoral Faculty in Civil Engineering and Electrical & Computer Engineering
- General academic interests: Multi-hazard and Disaster Resilience Science and Engineering
    - Engineering Mechanics – Physical and computational modeling of soil-structure systems; probabilistic and multi-hazard assessment; computational hydrogeological hazard modeling
    - Sensing and Computing – Remote sensing-based disaster and hazard assessment; image-based disaster scene understanding and computing; robotic remote and wireless sensing network and applications
- Direct the Disaster, Infrastructure, and Geo-Intelligence Technology at UMKC. (http://info.umkc.edu/digitlab). Research activities include:
    - **Multi-Hazard Soil-Structure Systems and Hydrogeological Hazard Assessment**
        - Soil-structure and fluid-soil-structure systems simulation
        - Physical modeling (using centrifuge/flume) and system identification

        - Probabilistic life-cycle modeling and vulnerability assessment
        - Novel finite element methods for soil-water (hydrogeological) modeling and hazard assessment
    - **Imaging, Networking, and Computing Technologies and Applications**
        - Application of remote (optical, hyperspectral, SAR) sensing and innovative disaster scene computing; and innovative remote sensing: robotic aerial-ground networking and sensing
        - Collaborative mobile-cloud computing and crowd-based sensing and computing
        - Big imagery data computing, reasoning, and decision-making
    - **Application Research in precision agriculture and medical informatics**

- **Teaching**

  CEE 321 - *Structural Analysis* (undergraduate), Fall 2010-2015
  CEE 276 - *Strength of Materials* (undergraduate), Spring 2013
  CEE 421 - *Matrix Methods* (undergraduate), Spring 2012
  CEE 5679 - *Dynamics of Structures* (graduate), Spring 2011/2013/2014, Fall/2015
  CEE 5501AE - *Advanced Engineering Mathematics* (graduate), Fall 2013/2014
  CEE 5501AS – *Applied Soil-Structure Analysis* (graduate), Spring 2014
  CE421CM – *Matrix and Computer Method for Structural Analysis and Design* (undergraduate), Spring 2015
  CE5501MM – *Introduction to Finite Element Methods* (Graduate), Spring 2015
  CE 5501MF – *Mathematical Foundation of Finite Element Methods* (graduate; UM Course Sharing Award; co-instructor at UMKC), Spring 2015
  CE 401/5501 – *Design of Wood Structures*, Fall 2015

Postdoctoral Researcher, University of California, San Diego, Jan. 2009 - Aug. 2010

- Participated in an integral ***centrifuge-based*** geotechnical and structural testing project focusing on ***structure-soil-structure interaction*** (SSSI) and seismic effects at a city scale
    - Leading responsibilities included centrifuge model design, simulation of structure-foundation-soil systems, response data reduction, and nonlinear system identification. Project website: http://www.curee.org/projects/NCB/index.html
    - Other activities include preparation of scholar publications and participation in development of NSF/USGS proposals

Graduate Research Assistant, Doctoral Student at University of California, Irvine and Ph.D. candidate at University of California, San Diego, Sep. 2004 - Dec. 2008.

- Conducted dissertation research in the area of remote sensing-based urban damage assessment; development of advanced learning-based image understanding algorithms; published scholarly articles; developed research proposals in the area of structural health monitoring; undergraduate mentoring in human computing of post-disaster damage.
- Conduct nondestructive condition evaluation research using X-ray and optical technologies

Structural Engineer, China Aviation Planning and Construction Development Co, Beijing, China, Aug. 1997 - Aug. 2001.

- Designed over twenty concrete/steel buildings, high-rise buildings, raft and deep foundation, non-building critical facility; finite-element and seismic analysis; software development; engineering consulting and project management

RESEARCH PROJECTS

(Detailed description of the following projects are found in Appendix A)

Active Externally Funded Projects

- **USDA** "NIFA-BARD Collaborative: Rapid Hydrophobicity Sensing and Computing through MAV-based Hyperspectral Imaging", PI, $148,995, 08/01/2015~07/31/2017
    - Role in the project: PI; collaborate with Professors Eyal Ben-Dor and Rony Wallach at Israel in development of rapid drone-based hyperspectral imaging and computing methods for monitoring and analyzing soil hydrophobicity
    - To develop the next-phase USDA CAP grant in response to local, national and global water crisis and other disasters in agriculture (e.g. wildfire and mudflow) due to climate changes.
- **NCHRP 14-29** "*Assessing, Coding, and Marking of Highway Structures in Emergency Situations*", $31,000, 10/2013-10/2015.
    - Role in the project: Disaster Informatics Expert, co-PI; collaborate with Oregon State, Merrimack and industry partners in developing the first national transportation structures assessing, coding and marking technologies and guidelines.
    - Principally in charge of smart app development and guidelines for transportation structures assessing, coding and marking.
- **NASA** "*Enhancing E-DECIDER with Loss and Damage Estimation Capa*bility", $30,000 (http://e-decider.org/), 10/2013-10/2015.
    - Role in the project: Co-PI; collaborate with NASA/JPL, UC Davis, Indiana University, ImageCat, Inc and national/local (mainly California) stakeholders in emergency responses in developing remote sensing-based damage detection, damage mapping, mobile cloud computing, and crowdsourcing innovations.
    - Ultimately the research team aims to develop the next-generation disaster forecasting, preparedness and response decision-making gateways based on geophysics, remote sensing, and crowdsourcing-based technologies.
- **University of Missouri System's Interdisciplinary Inter-Campus Award** "Development and Application of a Hybrid Material Point and Immersed Finite Element Method (MPM-IFE) to Soil-Water Flow Modeling Considering Hydrophobicity", $59,400, 08/2015 ~ 07/2016
    - Role in the project: PI; collaborate with Dr. Xiaoming He at Missouri University of Science and Technology
    - The objective of this IDIC proposal is to develop a novel finite element-based approach by a hybrid framework of using the promising material point method (MPM) and the emerging immersed finite element (IFE) method. The resulting

MPM-IFE framework will be applied to simulate a complex hydro-mechanics problem, namely soil-water flow considering hydrophobicity.

Completed Externally Funded Research/Education Projects

- **NASA**, "*High-level Understanding and Real-time Computing of Remotely-Sensed Very-High-Resolution Images for Built Environment Monitoring and Disaster Assessmen*t"; $50,000, 10/2012-08/2014.
    - Role in the project: so-PI; explore and develop new disaster scene understanding algorithms ('disaster object bank')
- **IBM** Smarter Planet Faculty Innovation Award, "*Smart Sensing and Computing for Smarter Energ*y", 2011, co-PI: $5,000, 12/2011-12/2012.
    - Role in the project: so-PI; explore mobile and cloud computing methodologies for smarter energy analytics for residences and public spaces
- **University of Missouri Research Board**, "*Design-oriented Scoured Foundation Modelin*g", 2011, sole-PI: $25,900, 1/2011-8/2012.
    - Role in the project: so-PI; explore and develop multi-hazard probabilistic soil-structure bridge system assessment considering flood/tsunami induced scour; develop flume-based soil-structure system monitoring and identification
- **Toyota Research Initiation Award**, "*Social Justice in Smart Energy*", co-PI: $5,000, 08/2011-08/2012.
    - Role in the project: co-PI; development of mobile and cloud smart apps for smarter energy analytics for residences and public spaces

Currently Actively Pursued Research Projects

- Innovative hybrid testing of structure systems with multi-university collaboration
- Collaborative fundamental research in centrifuge-based flow-soil-structures modeling
- Disaster data, processing, knowledge discovery and decision support cloud infrastructure development led by a NASA/JPL-based team
- Disaster geoinformatics and population dynamics research with multi-university collaboration
- Innovative computational soil-water modeling

Non-externally Funded Research Projects

The following non-externally funded research projects were conducted by student researchers in my labs, which have all yielded technical publications or significant deliverables.

- Deep Learning of Disaster-Scene Imagery: database construction (Mallory Tackett, undergraduate student in physics; ongoing).
- Building-integrated photovoltaics (BIPV) aided by multi-view drone imaging and 3D scene reconstruction (Leonardo Bueno, visiting undergraduate student from Brazil;

ongoing)

- Seismic damage survey in the aftermath of the 2014 South Napa Earthquake using drone-based aerial imaging and mobile-cloud disaster application (Jianfei Chen, summer 2014). A crowdsourcing campaign has been organized for seismic fault rupture recognition in vineyards (http://goo.gl/RtiDNT), which has attracted more than 4000 views in a week
- Disaster scene crowd-sensing and crowd-computing – an innovative app for disaster damage crowdsourcing (Avinash Desireddy, summer 2014)
- Flume testing and identification of a self-vibrating progressively scoured model structure; undergraduate researcher (Ryan Holmes, 2012)
- Global disaster scene imagery database; undergraduate researcher (Ashlee Warnke, 2013). The database from this project will form a benchmarking imagery database for testing computer vision-based disaster scene understanding and learning algorithms for damage assessment
- Bathymetric bridge scour point cloud processing and integrated building information modeling; undergraduate researcher (Isaac Somogie, 2011)
- Tower-line systems simulation and geospatial risk assessment subjected to combined hurricane winds and storm surges; undergraduate researcher (Ryan Holmes, 2011).

THESIS AND RESEARCH SUPERVISION

- Visiting Scholars
  1) **Xinye Wu**: Xiamen University, China; 08/2014 ~ present.
     - Research topic: vehicle stability and transportation infrastructure monitoring
  2) **Wei Zhan**: Yangze University, China; 01/2015 ~ 07/2015
     - Research topic: nonlinear manifold learning and optimization
  3) **Zhaohua Dai:** Nanjing Forestry University; 09/2015 ~ 03/2016
     - Research topic: construction automation technologies
  4) **Xiaotong Peng**: Jinan University; 10/2015 ~ 10/2016
     - Research topic: innovative resilient steel structures to multiple hazards
- Ph.D. Degree, Advisor
  1) ***Xuan Guo***, Civil Engineering, Fall 2011 ~ Nov 2014; defended
     - Dissertation: Seismic Vulnerability Analysis of Scoured Bridge Systems (http://search.proquest.com.proxy.library.umkc.edu/docview/1654779015)
     - Awarded "Outstanding PhD Student in Engineering" by the School of Computing and Engineering, University of Missouri-Kansas City, Dec 2014
  2) ***Jianfei Chen***, Computer Engineering, Fall 2013 ~ present (Expected Dec 2015)

- Dissertation**:** Aerial-ground sensing networks: system and analytics design
- Passed qualifying exam on December 2013 and plan of study approved by the graduate school Candidacy on March 2015
- Awarded UMKC's School of Graduate Studies Research Grant ($6,500) for dissertation research on February 2015

3) ***Shimin Tang*****,** Electrical and Computer Engineering, Spring 2016 ~ present
   - Tentative Dissertation topic**:** Representation, Enhancement, and Classification of Geospatial-Hyperspectral Imagery Data

- M.S. Student Advisor
  1) Rahul Tripathi, Civil Engineering, 2012 Fall ~ Spring 2014 (thesis)
     - Title: Parametric Soil-Structure Modeling For Rapid Climatic Disaster Response
  2) Jianfei Chen, Computer Engineering, 2011 Fall ~ Sep. 2013 (thesis)
     - Title: A Study of Smart Device-based Mobile Imaging and Implementation for Engineering Applications
  3) Syed Hussain, Civil Engineering, Summer 2015 ~ Fall 2016 (expected; thesis)
     - Tentative Title: Probabilistic Characterization of Pile Group Capacities Considering Flood-Induced Scour
  4) Avinash Desireddy, Computer Science, Summer, 2014 (Ind. Study)
     - Research topic: Mobile-Cloud Smart App for Disaster Scenes Analytics
  5) Rishabh Bhojak, Computer Science, Spring, 2015 (project)
     - Research topic: Mobile-Cloud Smart App for Green Garden Assessment and Server Design
  6) Bhargava Gellaboina, Computer Science, Summer 2015
     - Research topic: Mobile-Cloud Smart App Development, GIS Web Portal, Server Implementation, and Testing
  7) Eric Swanson, Civil Engineering, 2011 Fall ~ Spring 2015 (project)
     - Project: Seismic response characterization for raised access floor and equipment system considering horizontal and vertical ground motion
  8) Teddy Haile-Mariam, Civil Engineering, 2012 Spring ~ Fall 2012 (Ind. study)
     - Research topic: seismic mainshock-aftershock databases and analysis
- Undergraduate Research Assistants, Advisor
  1) Chase Caleb, B.S. in Computer Science, in progress; Research Assistant (January 2015 ~ present)
     - Research Topic: Robotic Arm Design and 3D Printing for Small UAS System
  2) Mallory Tackett, B.S. in Physics, in progress; Research Assistant (January 2015 ~ present)

    - Research Topic: Disaster Scenes Database and Training Data Construction from the Moore Tornado and the South Napa Earthquake;
    - Hyperspectral imaging analysis for dentistry applications (UMKC Honors Scholar Program)
3) Leonardo Bueno, Civil Engineering (visiting student from Brazil), in progress; Independent Study (August 2014 ~ December 2014)
    - Research Topic: Building-integrated Photovoltaics (BIPV) Aided by Multi-view Drone Imaging and 3D Scene Reconstruction
4) Isaac Somogie, B.S. in Civil Engineering, December 2012, now Master's Student at University of Kansas; Independent Study (August 2012 ~ December 2012)
    - Research Topic: 3D Bathymetric Point Cloud Processing for Scoured Bridge Foundation
5) Kingsley Kantanka, B.S. in Civil Engineering, May 2013 (now Structural Engineers at KCPL); Teaching Assistant (August 2011 ~ December 2011)
    - Research Topic: Transmission Line Loading and Evaluation
6) Ryan Holmes, B.S. Civil Engineering, May 2014 (now Master Student at UMKC); Research Assistant
    - Research Topic: Hydraulic Flume Testing of Scoured Fluid-Soil-Structure Models
    - Awarded the UMKC Undergraduate Research Grant (SEARCH)
7) Ashlee Warnke, B.S. Civil Engineering, May 2015; Research Assistant (May 2013 ~ December 2013)
    - Research Topic: Global Disaster Scene Database Construction

- <u>Ph.D. Dissertation and M.S. Thesis Committee Member</u>
    1) Sashi Saripalle, Ph.D., Computer Engineering, in progress
        - Dissertation: A Multimodal Biometric Authentication for Smartphones
    2) Feichen Shen, Ph.D., Computer Science, in progress
        - Directed Reading: disaster scene big data and computing, Summer, 2014
    3) Cervente Sudduth, Ph.D., Civil Engineering, in progress
    4) Claire Nowasell, Ph.D., Civil Engineering, in progress
    5) Vikas Gottemukkula, Ph.D., Computer Engineering, August, 2014;
        - Dissertation: Biometrics for Smartphones Using Eyeprints
    6) Abdel-Rahman Abueladas, Ph.D., Geosciences, June 2014
        - Dissertation: Assessment of Seismic Hazards along the Northern Gulf of Aqaba (http://search.proquest.com.proxy.library.umkc.edu/docview/1611960430?pq-origsite=summon)
        - Directed Reading: Geotechnical Earthquake Engineering, Fall, 2011

7) Mayuri Patil, M.S., Civil Engineering, 2014
8) Rasekh Zadeh, M.S., Civil Engineering, 2011
9) Anirudha Kadambi, M.S., Civil Engineering, 2012
10) Bradley Gardner, M.S., Civil Engineering, 2012
11) Mohammad Bayazid, M.S., Hydraulic Engineering, 2012
12) Jacob Morgan, M.S., Hydraulic Engineering, 2013
13) Jacob Ambrose, M.S., Hydraulic Engineering, 2013
14) Shetye, Gunjan, M.S., Civil Engineering, 2013
15) Nalagotla, Jitesh Kumar Reddy, M.S., Civil Engineering, 2013

PUBLICATIONS

Google Scholar Citation -
https://scholar.google.com/citations?hl=en&user=DY58wUoAAAAJ
My ORCID Page: http://orcid.org/0000-0002-0793-0089

- **Refereed Journal Papers (book chapters)**
  *My name (**Chen, Z.**) in bold; and my students are underscored.*

J22. Olsen, M., Barbosa, A., **Chen, Z.**, Veletzos, M., Roe, G., and Tabrizi, K. Assessing, Coding, and Marking of Highway Structures in Emergency Situations. NCHRP Project 14-29 Final Report. In Press.

J21. Glasscoe, M.T., Parker, J.W., Wang, J., Pierce, M.E., Yoder, M.R., Eguchi, R.T., Huyck, C.K., Hu, Z., Bevington, J., Ghosh, S., Gill, S., **Chen, Z**., and Rosinski, A., E-DECIDER Decision Support Tools for Disaster Response, Applied Geology in California (book chapter), editor: Robert Anderson; in press.

J20. Zhai, C., Kong, J., Li, S., and **Chen, Z.** Experimental and finite element analytical investigation of seismic behavior of full-scale masonry infilled RC frames. Journal of Earthquake Engineering. DOI:10.1080/13632469.2016.1138171.

J19. Guo, X. and **Chen, Z**., Probabilistic Framework for Assessing Seismic and Scour Effects on Existing Bridge Structures. ASCE Journal of Bridge Engineering. Under review.

J18. Guo, X. and **Chen, Z.,** Life-cycle Multi-hazard Framework for Assessing Flood-scour and Earthquake Effects on Bridge Failure. ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A. 10.1061/AJRUA6.0000844.

J17. Zhai, C., Jiang, S., and **Chen, Z.** [2015]. ”Dimensional Analysis of the Pounding

Response of an Oscillator Considering Contact Duration." ASCE Journal of Eng. Mech., 141(4).

J16. Zhai, C. H., Wen, W. P., Li, S., **Chen, Z**., Chang, Z., & Xie, L. L. (2014). The damage investigation of inelastic SDOF structure under the mainshock–aftershock sequence-type ground motions. *Soil Dynamics and Earthquake Engineering*, *59*, 30-41.

J15. Chen, J. and **Chen, Z**., Mobile Imaging and Computing for Intelligent Structural Damage Inspection. Advances in Civil Engineering. Volume 2014 (2014), Article ID 483729, 14 pages; http://dx.doi.org/10.1155/2014/483729.

J14. **Chen, Z**., Chen, J., Shen, F., and Lee, Y. [2013]. Collaborative Mobile-Cloud Computing for Civil Infrastructure Condition Inspection. Journal of Computing in Civil Engineering, 10.1061/(ASCE)CP.1943-5487.0000377.

J13. Beard, C., **Chen, Z**. Q., Kumar, V., Lee, Y., Leon–Salas, W. D., and Rao, P. [2013]. SAVEUS: SAving Victims in Earthquakes through Unified Systems. International Journal of Communication Networks and Distributed Systems, 10(4), 402-420.

J12. **Chen, Z**., Trombetta, N.W., Hutchinson, T.C., Mason, H.B., Bray, J.D., and Kutter, B.L., [2013]. Seismic System Identification for Centrifuge-based Nonlinear Building Models. Journal of Earthquake Engineering, Volume 17, No. 4, pages 469-496.

J11. Chang, Z., Zhai, C., **Chen, Z.,** Li, S. and Xie, Li., [2013]. Quantitative Identification of Near-Fault Pulse-like Ground Motions Based on Energy. Bulletin of the Seismological Society of America; No. 5; Vol. 103; Pg. 2591-2603; DOI: 10.1785/0120120320.

J10. Zhai, C., Wen, W., **Chen, Z**., Li, S., and Xie, L., [2013]. Damage Spectra for the mainshock-aftershock sequence-type ground motions. Soil Dynamics and Earthquake Engineering, Volume 45, 2013, Pg.1–12.

J9. Trombetta, N.W., Mason, H.B., **Chen, Z.,** Hutchinson, T.C., Bray, J.D., and Kutter, B.L. [2013]. Nonlinear dynamic foundation and frame structure response observed in geotechnical centrifuge experiment. Soil Dynamics and Earthquake Engineering; Volume 50, July 2013, Pages 117–133.

J8. Mason, H.B., Trombetta, N.W., Bray, J.D., **Chen, Z.,** Hutchinson, T.C., and Kutter, B.L. [2013]. Seismic soil–foundation–structure interaction observed in geotechnical centrifuge experiments. Soil Dynamics and Earthquake Engineering, Volume 48, May 2013, Pages 162–174.

J7. Olsen, M., **Chen, Z**., Hutchinson, T.C. and Kuester, F. [2013]. Optical techniques for multiscale damage assessment; Geomatics, Natural Hazards and Risk, Vol. 4, No. 1, pp. 49-70.

J6. **Chen, Z.** and Hutchinson, T.C. [2011]. Structural Damage Detection using Bi-temporal Optical Satellite Images, International Journal of Remote Sensing, Vol. 32, No. 17, pp. 4973-4997.

J5. **Chen, Z**. and Hutchinson, T.C., [2010]. Image-based Framework for Concrete Surface Crack Monitoring and Quantification, Journal of Advances in Civil Engineering, doi:10.1155/2010/215295.

J4. **Chen, Z.** and Hutchinson, T.C. [2009]. Probabilistic Urban Structural Damage Classification Using Bitemporal Satellite Images, Earthquake Spectra (EERI), Vol. 26(1), pp. 87-109.

J3. **Chen, Z.** and Hutchinson, T.C. [2007]. Urban Damage Estimation Using Statistical Processing of Satellite Images, Journal of Computing in Civil Engineering, ASCE, Vol. 21(3), pp. 187-199.

J2. Hutchinson, T. C. and **Chen, Z.** [2006]. Improved Image Analysis for Evaluating Concrete Damage, Journal of Computing in Civil Engineering, ASCE, Vol. 20(3), pp. 210-216.

J1. Hutchinson T. C. and **Chen, Z**. [2005]. Optimized Estimated Ground Truth for Object-based Urban Damage Estimation Using Satellite Images, Earthquake Spectra (EERI), Vol.21 (S1), pp. s239-s254.

- **Journal Papers in Preparation**

P11. **Chen, Z.,** Hutchinson, T.C., Bray, J.D. Seismic intensity and damage effects correlation using progressive centrifuge-based soil-foundation-structure testing data. To submit to Soil Dynamics and Earthquake Engineering, 2015.

P10. Chen, J. and **Chen, Z.** Smartphone and Micro-UAV Imaging for Intelligent Human and Built Environment Interactive Applications: A Case Study. To submit to Smart and Sustainable Built Environment, 2015.

P9. **Chen, Z.** and Parker, J. Improved Wildfire Perimeter Detection using UAVSAR Images. To submit to IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, 2015.

P8. **Chen, Z**. "UAV-based earthquake disaster scene sensing and processing". To submit to Earthquake Spectra.

P7. **Chen, Z.** "Mathematical evidence-theoretic fusion of crowd-based disaster damage assessment". To submit to ASCE Computing in Civil Engineering.

P6. Chen, J. and **Chen, Z**., "Micro-UAV and Wireless Sensor Network Integration for Monitoring in Challenging Earth Environment". To submit to Sensor.

P5. **Chen, Z.** "Structure from Motion: critical review and applications to multi-view civil infrastructure imaging". To submit to ASCE Journal of Computing in Civil Engineering.

P4. **Chen, Z.,** Richardson, J., and Somogie, I., A Data-enabled Approach to Scoured Bridge Safety Assessment using Bathymetric 3D Point Cloud and Finite-element Analysis. To submit to *ASCE Journal of Performance of Constructed Facilities.*

P3. **Chen, Z**. Structural Damage Detection in Bitemporal Satellite Images Considering Different Disasters: A Critical Review. To submit to *ASPRS Photogrammetric Engineering and Remote Sensing.*

P2. **Chen, Z.,** Rapid Remote Sensing-based Classification of Hurricane Sandy Damage using Post-event Images. Technical note to submit to *ASCE Journal of Computing in Civil Engineering*.

P1. **Chen, Z.,** Disaster Object Banks and Learning of Salient Damage in Post-disaster Multi-view Images. To submit to *IEEE Transaction of Geosciences and Remote Sensing*.

- **Conferences with Full Papers in Proceedings**

C28. **Chen, Z**. and Guo, X. [2016]. PBSE-Bridge: Performance-based Scour and Earthquake Demand Analysis for River-Crossing Bridges. The Geotechnical and Structural Engineering Congress 2016, Phoenix, AZ.

C27. **Chen, Z.** [2016]. From Satellite, UAV, to Smartphone-based Disaster Scene Understanding: A Critical Review of Computational Damage Detection Methods. The Geotechnical and Structural Engineering Congress 2016, Phoenix, AZ.

C26. Zhan, W. and **Chen, Z**. [2015]. ML-MOEA/SOM: A Manifold-Learning-Based Multi-objective Evolutionary Algorithm via Self-Organizing Maps. The 2015 International Conference on Fuzzy System and Data Mining, Shanghai, China.

C25. **Chen, Z.** [2015]. Robotic Opportunistic Aerial-Imaging and Ground-Sensing Network for Use in Emergency Situations. The Joint 6th International Conference on Advances in Experimental Structural Engineering (6AESE) and 11th International Workshop on Advanced Smart Materials and Smart Structures Technology (11ANCRiSST), Champaign, IL.

C24. **Chen, Z.** and Guo, X. [2015]. Multi-hazard Life-cycle Analysis of Flood-Scour Effects on Seismic Bridge Performance. Proceedings of the ASCE Structures Congress, Portland, Oregon.

C23. Guo, X. and **Chen, Z**. [2015]. Response Modeling of Scoured Bridges under Near-Fault Ground Motions. Earth and Space 2014: pp. 632-641.

C22. **Chen, Z.** [2014]. "A Micro-UAV Approach to Earthquake Disaster Scene Sensing and Proof-of-Concept Studies", 10th U.S. National Conference on Earthquake Engineering, Anchorage, Alaska.

C21. **Chen, Z.** and Chen, J. [2014]. "Collaborative Mobile-Cloud Disaster Scene Computing for Rapid Post-disaster Response", 10th U.S. National Conference on Earthquake Engineering, Anchorage, Alaska.

C20. Homles, R., **Chen, Z**., Tripath, R., and Chen, J [2013]. 1-g Scale Hydraulic Flume-based Soil-Fluid-Structure Model Testing and Evaluation of Surging and Scouring Effects. Structures Congress 2013: pp. 2394-2409.

C19. **Chen, Z.** and Chen, J. [2012]. Collaborative Mobile Sensing and Computing for Civil Infrastructure Condition Assessment: Framework and Applications, International Symposium on Smart Structures and Materials & NDE and Health Monitoring, San Diego, CA, USA.

C18. Mason, H.B. and **Chen, Z.** [2012]. Progressive simulation and performance assessment of soil-foundation-structure systems due to main-shocks and successive aftershocks, the 2012 NZSEE Annual Conference, Christchurch, New Zealand.

C17. Pang, W. and **Chen, Z.** [2012]. Failure Risk of 230 kV Electricity Transmission Lines in South Carolina under Hurricane Wind Hazards, ATC & SEI Advances in Hurricane Engineering Conference, Miami, FL, USA.

C16. **Chen, Z.** and Guo, X. [2012]. Numerical Investigation of Dynamic Properties of Scoured Shallow Foundation and Impact on Seismic Response of Structures. The 6th International Conference on Scour and Erosion, Paris, France.

C15. Swanson, E., **Chen, Z.** and Sprague, H. [2012]. Seismic response characterization for raised access floor and equipment system considering horizontal and vertical ground motion, Structures Congress 2012, Chicago, IL, USA.

C14. Mason, H., Jones, K., Zupan, J., Bray, J., Trombetta, N., Hutchinson, T., **Chen, Z.,** Choy, B., Puangnak, H., and Kutter, B. Examining Structure-Soil-Structure Interaction Using Dynamic Centrifuge Testing. Proceedings of 2011 NSF Engineering Research and Innovation Conference.

C13. **Chen, Z**., Derakhshani, R. R., Halmen, C., & Kevern, J. T. [2011]. A texture-based method for classifying cracked concrete surfaces from digital images using neural networks. In Neural Networks (IJCNN), The 2011 International Joint Conference on (pp. 2632-2637). IEEE.

C12. **Chen, Z.,** Raychowdhury P. and Hutchinson, T.C. [2010]. Effects of Foundation

Configuration Variation on Seismic Response of Moment-Frame Buildings, 19th Analysis & Computation Specialty Conference, Structures Congress 2010, Orlando, FL, USA.

C11. Mason, H.B., **Chen, Z.,** Jones, K.C, Trombetta, N.W., Bray, J.D, Hutchinson, T.C., Bolisetti, C., Whittaker, A.S., Choy, B.Y, Kutter and Fiegel, G.L. [2010]. Soil-Foundation-Structure-Interaction Effects of Model Buildings within A Geotechnical Centrifuge, Proceedings of 9th US National and 10th Canadian Conference on Earthquake Engineering, Toronto, Canada.

C10. **Chen, Z.,** Hutchinson, T.C., Trombetta, Mason, H.B., Bray, J.D, Jones, K.C, N.W., Choy, B.Y, Kutter, B.L., Fiegel, G.L., Montgomery, J., Patel, R.J., Reitherman, R.D., Bolisetti, C. and Whittaker, A.S. [2010]. Seismic Performance Assessment of Nonlinear Building-Foundation Systems in a Centrifuge Test, Proceedings of Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, USA.

C9. Mason, H.B., Bray, J.D, Jones, K.C, **Chen, Z.,** Hutchinson, T.C., Trombetta, N.W., Choy, B.Y, Kutter, B.L., Fiegel, G.L., Montgomery, J., Patel, R.J., Reitherman, R.D., Bolisetti, C. and Whittaker, A.S. [2010]. Earthquake Input Motions and Seismic Site Response in Centrifuge Tests Examining SFSI Effects, Proceedings of Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, USA.

C8. **Chen, Z.** and Hutchinson, T.C. [2008]. Probabilistic Representation of Structural Integrity of Urban Buildings in Remotely Sensed Images. IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Boston, MA, USA.

C7. **Chen, Z.** and Chang, B. and Hutchinson, T.C. [2008]. Image-based Monitoring of Structural Damage: Concrete Surface Cracks, 15th International Symposium on Smart Structures and Materials & NDE and Health Monitoring, San Diego, CA, USA.

C6. **Chen, Z**. and Hutchinson, T.C. [2007]. Application of PDE methods for Image-based Concrete Surface Damage Detection, 14th Annual International Symposium on Smart Structures and Materials & Nondestructive Evaluation and Health Monitoring, San Diego, CA, USA.

C5. **Chen, Z.** and Hutchinson, T.C. [2007]. Probabilistic Classification Framework for Urban Structural Damage Estimation Using Satellite Images, 4th IEEE GRASS & ISPRS Joint Workshop on Remote Sensing and Data Fusion over Urban areas, Paris, France.

C4. **Chen, Z**. and Hutchinson, T.C. [2007]. Empirical Evaluation of Dissimilarity Measures for Use in Urban Structural Damage Detection, IS&T/SPIE Symposium on Electronic Imaging Science and Technology, San Jose, CA, USA.

C3. **Chen, Z.** and Hutchinson, T.C. [2005]. Urban Damage Estimation Using Statistical Processing of Satellite Images: 2003 Bam, Iran Earthquakes, IS&T/SPIE Symposium on Electronic Imaging Science and Technology, San Jose, CA, USA.

C2. Hutchinson, T.C., and **Chen, Z.** [2004]. Statistical Methods Applied to Image Analysis for Improved Evaluation of Concrete Damage. NSF-ANCER Workshop, Oahu, HI, USA.

C1. **Chen, Z.** and Ahlborn, T.M. [2003]. Statistical Analysis of Prestress Losses for Two HPC Girders. Proceedings of the 3rd PCI / FHWA International Symposium On High Performance Concrete (CD-ROM), Orlando, FL, USA.

- **Other Conferences** (Oral/Poster Presentation Only)
  O17. Alabsi, M., Chen, J. and Chen, Z. [2015]. Integrated UAV (drone) Imaging and SfM Computing for Rapid Detection of Seismic Rupture in the Aftermath of the 2014 South Napa Earthquake. 2015 SCEC Annual Meeting, Palm Spring, CA, USA.

  O16. Glasscoe, M., Donnellan, A., Parker, J., Grant, R., Lyzenga G., Pierce, M., Wang J. , Ludwig, L.G., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yorder, M., Rosinski, A. [2015]. Disaster Response Tools for Data Discovery and Decision Support – GeoGateway and E-DECIDER. 2015 SCEC Annual Meeting, Palm Spring, CA, USA.

  O15. Glasscoe, M., Donnellan, A., Parker, J., Grant, R., Lyzenga G., Pierce, M., Wang J. , Ludwig, L.G., Eguchi, R., Huyck, C., Hu, Z., Chen, Z., Yorder, M., Rosinski, A. [2015]. Disaster Response Tools for Decision Support and Data Discovery - E-DECIDER and GeoGateway. 2015 AGU Annual Meeting, San Francisco, CA, USA.

  O14. Chen, Z. [2015]. Development of a Micro-UAV Hyperspectral Imaging Platform for Assessing Agricultural and Post-Wildfire Soil-Water Hazards. 2015 AGU Annual Meeting, San Francisco, CA.

  O13. Chen, Z. and Bian, Y. [2015]. PaveRank: Crowdsourcing and Cloud Computing towards Trustful Pavement Condition Ranking. 5th International Transportation Systems Performance Measurement and Data Conference, Denver, Colorado.

  O12. Glasscoe, M.T., Parker, J.W., Pierce, M.E., Wang, J., Eguchi, R.T., Huyck, C.K., Hu, Z., Chen, Z., Yoder, M.R., Rundle, J.B., and Rosinski A., [2015]. Decision Support and Data Discovery Tools for Disaster Response – E-DECIDER & GeoGateway. SSA's 2015 Annual Meeting.

  O11. Glasscoe, M., Parker, J., Pierce, M., Wang, J., Eguchi, R., **Chen, Z**., Yoder, M., and Rosinski, A., [2014]. E-DECIDER Rapid Response to the M 6.0 South Napa Earthquake, AGU Annual Fall Conference, San Francisco, CA.

O10. Glasscoe, M., Parker, J., Pierce, M., Wang, J., Eguchi, R., **Chen, Z**., Yoder, M., and Rosinski, A., [2014]. E-DECIDER Disaster Response and Decision Support Cyber-infrastructure: Technology and Challenges, AGU Annual Fall Conference, San Francisco, CA.

O9. Tripathi, R., **Chen, Z**. and Richardson, J. [2014]. "Parametric Modeling of Soil-Structure Oscillators for Rapid Coastal Disaster Response", ASCE Earth and Space Conference.

O8. Chen, Z., [2014]. Mathematical Evidence-theoretic Framework for Information Fusion of Disaster Scene Big Data, AGU Annual Fall Conference.

O7. , Glasscoe, M.T., Parker, J.W., Pierce, M.E., Wang, J., Eguchi, R.T., Huyck, C.K., Hu, Z., Chen, Z., Yoder, M.R., Rundle, J.B., and Rosinski A., [2014]. E-DECIDER Disaster Response and Decision Support Platform. Southern California Earthquake Center Annual Meeting, Palm Spring, CA.

O6. **Chen, Z.** and Bian, Y. [2014]. "Emerging and Trustful Citizen Scientist Technologies for Disaster Data Collection and Mapping", 2nd Integrated Research on Disaster Risk Conference, Beijing, China.

O5. **Chen, Z.** and Guo, X. [2014]. "Probabilistic Multi-hazard Fragility Framework for Bridge Structures Incorporating Earthquake and Scour", GeoShanghai International Conference, Shanghai, China.

O4. **Chen, Z**. [2013]. Mobile-Cloud Crowdsourcing-enabled Image Understanding and GIS Fusion for Rapid Post-disaster Response. CaGIS/ASPRS 2013 Specialty Conference, San Antonio, Texas.

O3. **Chen, Z.** [2013]. Multi-hazard Fragility Analysis of Tsunami-Scoured Coastal Bridges considering Aftershocks, ASCE EMI 2013, Chicago.

O2. Bian, Y. and **Chen, Z.** [2013]. Overview of Helical Pile and Grouted Helical Pile for Use in Wind Turbine. Structures Congress.

O1. H. B. Mason, J. D. Bray, G. Fiegel, T. C. Hutchinson, B. L. Kutter, R. Reitherman, A. Whittaker, **Z. Chen,** B. Choy, & N. Trombetta. [2009]. "NEESR-SG: Seismic Performance Assessment in Dense Urban Environments", NSF CMMI Engineering Research and Innovation Conference 2009 & 2009 NEES 7th Annual Meeting", Honolulu, Hawaii.

- **Invited Seminars/ Conference Presentations**

S26. Chen, Z. [2015]. "Civil Infrastructure Condition and Disaster Understanding: from

Data-enabled to Big-Data Computing", University of Nebraska, Lincoln.

S25. Chen, Z. [2014]. "Disaster Scene Big Data and Analytics for Disaster Resilience". Colloquium in Department of Physics, UMKC.

S24: Chen, Z. [2014]. "Seminar: Disaster Resilience through Big-data Centric Technologies and Multi-hazard Modeling". Ha'erbin Institute of Technology (HIT), Ha'erbin, China, http://civil.hit.edu.cn/show.php?id=3957.

S23: Chen, Z. [2014]. "Seminar: Life-Cycle Seismic Assessment of Scoured Bridge Systems and Big-data Enabled Disaster Resilience". Xiamen University, Xiamen, China, http://archt.xmu.edu.cn/articles.asp?aid=3564.

S22: Chen, Z. [2014]. "Seminar: Disaster Resilience through Big-data Centric Technologies and Multi-hazard Modeling". Institute of Engineering Mechanics, Ha'erbin, China Earthquake Administration.
http://www.cea.gov.cn/publish/dizhenj/984/100061/20140611104029676776213/;
http://www.iem.net.cn/zhxw/20140611.htm;
http://www.csi.ac.cn/publish/main/1/100260/20140611124600658795551/index.html;
http://ancer.org.cn/zhxw/20140611.htm.

S21: Chen, Z. [2014]. "Seminar: Big-data Enabled Disaster Response for Climatic Disaster Resilience". School of Atmosphere Sciences, Nanjing University, Nanjing, China, http://as.nju.edu.cn/newDetial.aspx?MType=WZSY&MenuType=WZSY-KYDT&CId=20140605-09010896-c97a5145

S20. Chen, Z. [2014]. "Seminar: Disaster Resilience through Big-data Centric Technologies and Multi-hazard Modeling". Southeast University, Nanjing, China.

S19. Chen, Z. [2014]. "Seminar: Disaster Resilience through Sensing, Modeling, and Computing at a Geospatial Scale", New Jersey Institute of Technology.

S18. Chen, Z. [2014]. "Invited talk: Disaster Resilience through Collaborative Remote Sensing and Crowdsourcing", The Western Chapter Missouri Society of Professional EngineersMSPE meeting, Kansas City, MO.

S17. Chen, Z. and Zheng, W. [2014]. "Introduction of UMKC Soil-Structure Interaction (SSI) Class", Kansas City ASCE Geotechnical Seminar, Kansas City, MO.

S16. Chen, Z. [2013]. "Emerging Imaging and Information Technologies for Natural Disaster Response". Invited presentation at University of Oklahoma, Norman.

S15. Chen, Z. [2013]. "Novel Remote Sensing and Computing Technologies for Disaster Damage Assessment". Invited visit at NASA/JPL lab.

S14. Chen, Z. [2012]. "Seismic System Identification using Centrifuge-based Soil-Structure Interaction Test Data. Quake Summit, Boston.

S13. Chen, Z. [2012]. "Remote Sensing and GIS Integration for Disaster Impact and Civil Infrastructure". UMKC GIS Symposium.

S12. Chen, Z. [2012]. "Wind Energy Basics". Invited lecture speaker to ME111, UMKC's Gen-Ed class 'Environmental Sustainability'.

S11. Guo, X. and Chen, Z. [2012]. "Seismic Performance of Scoured Bridge Systems: Preliminary Findings", EERI Annual Meeting (Poster).

S10. Chen, Z. [2011,2012]. "Structural Performance Evaluation for Civil Structures - A Systems and Multi-disciplinary Approach". Invited lecture speaker to ME111, UMKC

S9. Chen, Z. [2010]. "Novel Remote Sensing and Computing Technologies for Disaster Damage Assessment"; ImageCat, Inc., Long Beach.

S8. Chen, Z. and Hutchinson, T.C. [2011]. Characterization of Disaster Effects Using Satellite Imagery for A Coastal Town Struck By The 2010 Chile Tsunami, EERI Annual Meetings, San Diego, California (poster).

S7. Mason, B., Chen, Z., Choy, B., Montgomery, J., Trombetta, N., Bray, J., Fiegel, G., Hutchinson, T., Kutter, B., and Whittaker, A. [2009]. "NEESR-SG Project: Seismic Assessment in Dense Urban Environments." http://nees.org.

S6. Chen, Z. [2009]. Probabilistic Classification and Uncertain Quantification in Image-based Urban Damage Assessment, 7th International Workshop on Remote Sensing and Disaster Response, Austin, TX (invited presentation).

S5. Chen, Z. and Hutchinson, Tara. [2010]. Identifying Structural Damage from Images. Department Report, University of California, San Diego.

S4. Trombetta N. and Chen Z. [2009]. The Shaking of a City Block – Seismic Performance in Dense Urban Environments, the 27th Jacobs School of Engineering Research Expo, UCSD (poster).

S3. Chen, Z. [2008]. Scale-Space Dissimilarity-based Urban Structural Damage Detection, IEEE International Geoscience and Remote Sensing Symposium (IGARSS), Boston, Massachusetts (invited poster presentation).

S2. Chen, Z. [2008]. Post-disaster Urban Damage Analysis Using Remotely Sensed Images, the 27th Jacobs School of Engineering Research Expo, UCSD (poster).

S1. Chen, Z. [2008]. Visual Computing-based Monitoring of Structural Damage, the 8th Annual All-Grad Research Symposium, UCSD (presentation).

SOFTWARE, CODES AND APPS DEVELOPMENT

- **OpenSees-based Development**
  - **LIFE-Sim:** LIfe-cycle Probabilistic Multi-hazard Flood-Scour and Earthquake Simulation for Bridge Structures (http://info.umkc.edu/digitlab/life-sim: currently under construction and planned to be released August 2015). This toolbox software is the result of the UMRB-funded project)
  - Nonlinear single and coupled multiple soil-structure oscillators simulation codes
  - Centrifugal soil-box and foundation-structure simulation codes
- **Developed Matlab (C++ if noted) Toolboxes**
  - Soil-structure system identification toolbox
  - Probabilistic relevance-vector machine-based multi-class classification toolbox
  - Conventional and Kernel-based non-parametric fragility modeling toolbox
  - Level-set image segmentation toolbox
  - FreeFEM++ based finite element-based level set methods (C++)
  - Linear and nonlinear dimensionality reduction toolbox
  - Nonlinear manifold learning toolbox
  - Digital change detection toolbox for optical images
  - Digital change detection toolbox for inSAR images
  - Disaster ObjectBank – an object-bank approach to disaster scene recognition and classification
  - Evidence-theoretic (Dempster-Shafer theory-based) data fusion toolbox for crowdsourced disaster-damage inference
- **Mobile-cloud Smart Apps and GeoViewer Analyitics**
  - DS-Crowd: Disaster Scene Crowdsourcing for Disaster-induced Damage Assessment (http://info.umkc.edu/digitlab/smart-app-disaster-scene-crowdsourcing; an improved version will be released in May 2015 – currently archived at https://github.com/bgz82/DSCROWD)
  - RT-DSA GeoViewer: Real-Time Disaster Scene Analytics GeoViewer, (http://lasir.umkc.edu:8080/RT-DSA-GeoViewer/)
  - GreenGarden: Green Infrastructure Performance Assessment through Smart Technology (https://github.com/bgz82/GreenGarden)
- Research Database
  - GDS-Data: Global Disaster Scene Database (a global disaster imagery database, which currently includes ground-level disaster imagery from several recent disaster events, including the 2011 Japan Earthquake, the 2013 Moore Tornado, and the 2014 South Napa Earthquake). Web address: https://sites.google.com/site/globaldisasterscenes/ (A new web interface for this

database is being established)

- The first disaster scene database in the world based on an extensive literature search
- The database will be open to global research communities for facilitating disaster scene learning

RESEARCH COLLABORATORS

- **Industries, National Labs, and Government**

  Mr. Ron Eguchi, President at ImageCat Inc.
  Ms. Margaret Glasscoe at the Solid Earth Group, Jet Propulsion Lab, NASA
  Dr. Shay Har-Noyat, Director at DigitalGlobe, Inc.
  Dr. Xiuhong Sun at NextGen Imaging Technologies, Inc.
  Mr. Harold Sprague, Principal Technical Consultant, Parsons Corporation

- **Academies**

  UMKC

  Dr. Xiaobo Chen (nanomaterials synthesis, characterization, and modifications)
  Dr. Yugi Lee (mobile-cloud computing); Dr. Rao Praveen (big data and databases); Dr. Sejung Song (embedded systems); Dr. Jejung Lee (geosciences); Dr. Debeora O'bannon (green infrastructure); Dr. Jerry Richardson (bridge scour; river engineering)

  Other Universities

  Dr. Xiaoming He (Applied mathematics), University of Missouri Science and Technology; Dr. WeiChiang Pang (Hurricane modeling and risk analysis), Clemson University; Dr. Hussam Mahmoud (Hybrid simulation), Colorado State University; Dr. Brian Phillips (Hybrid simulation), University of Maryland; Dr. Yang Hong (Disasters and remote Sensing), University of Oklahoma; Drs. Mike Olsen, Andrea Barbosa, Ben Mason at Oregon State University; Dr. Edwin Chow, Texas State University
  Dr. Yang (Cindy) Yi (Wireless power delivery/real-time embedded computing), University of Kansas

- **International Collaborators**

  Prof. Eyal Ben-Dor, Chair, Professor at the Department of Geography, Tel-Aviv University
  Prof. Rony Wallach, Faculty of Agriculture, Food and Environment, the Department of Soil and Water Sciences, The Hebrew University of Jerusalem
  Dr. Patrick Doherty, President at UASTech.com and Professor at Linköping University (UAS/UAV technologies and computing)
  Dr. Thomas Esch, German Aerospace Center (DLR) (inSAR imaging and disaster response)
  Dr. Jian Zhang, Professor, Institute of Urban Engineering, Southeast University, China

(Smart City and Mega-structure monitoring)
Drs. Quan Gu (soil-structure interaction), Ying Lei (structural health monitoring); Xiamen University
Dr. Changhai Zhai, Professor, Harbin Institute of Technology, China (Earthquake Engineering)

PROFESSIONAL ACTIVITIES

- **Reviewer for Funding Agencies and Journals**
  The Icelandic National Research Fund, 2010, 2011, 2013
  NASA EPSCoR Program, 2015
  University of Missouri System Research Board Fund, 2011, 2012, 2013, 2014
  Book review: Integrating Scale in Remote Sensing and GIS, CRC Press. 2015.
  IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
  IEEE Geosciences and Remote Sensing Letter
  IEEE Transaction of Geoscience and Remote Sensing
  Journal of Composite Materials
  ASCE Journal of Computing in Civil Engineering
  ASCE Journal of Bridge Engineering
  Advances in Civil Engineering
  Mathematical Problems in Engineering
  Shock and Vibration
  Earthquake Engineering and Engineering Vibration
  Soil Dynamics and Earthquake Engineering
  Structural Engineering and Mechanics, International Journal
  Computers and Concrete
  Earthquake Spectra
  Water Science and Engineering
  Agricultural Water Management
  Automation in Construction
  Frontiers in Environmental Science
  Researches and Applications in Mechanical Engineering
  Structural Engineering International
- **Editorial and Academic Services**
  Session Organizer and Chair, 2014 US National Conference on Earthquake Engineering, Anchorage, Alaska

Session Organizer and Chair in 2012 Structures Congress, Chicago, IL
Session Chair in IEEE International Geoscience & Remote Sensing Symposium, July 6-11, 2008, Boston, MA

- **Professional Society**
  - American Society of Civil Engineers (ASCE), 2004 – present
    - ASCE Structural Engineering Institute
      Member of ASCE Performance-Based Design of Structures Committee
      Member of ASCE Multiple Hazard Mitigation Subcommittee
    - ASCE Infrastructure Resilience Division (IRD)
      Member of Disaster Response and Recovery Committee
    Member of Emerging Technologies Committee
  - Institute of Electrical and Electronics Engineers (IEEE), 2006 - present
  - Earthquake Engineering Research Institute (EERI), 2007 – present
  - Chi Epsilon, 2010 – present
- **UMKC, School and Department Services**
  - KC STEM Competition Judge, 2016
  - UMKC SEARCH Symposium Judge, 2014
  - Environmental Studies Affiliated Faculty member, 2012-present
  - UMKC SEARCH grants reviewer, 2013
  - Judge for UMKC Community of Scholar, 2012, 2014
  - Participated in numerous SCE organized students and K-12 outreach, 2010-2015
- **Outreach Activities and Community Services**
  - Dr. Chen presented to Kansas City Summer Transportation Institute on Jun 24, 2015 on small/micro UAV or drone technologies and policy implications. See slides here: Drone Technologies and Policy and a thanks note.
  - Global Earthquake Disasters, Damage Mapping and Crowdsourcing, Middle School Week, Apr. 2013
  - Black and Veatch Scholars, Small-scale soil-structure shaking and real-time mobile imaging and computing for Prep-KC students, Dec. 2012
  - Interactive dynamic demonstration of liquefaction, outreach for Women in Engineering and Technology Program, May 2011
  - 'Champion' for reporting regional civil infrastructure report card in Kansas City area: Energy Infrastructure, Dec. 2012
  - Volunteer for EERI's GEO-CAN Community: Haiti earthquake damage assessment from aerial imagery, Feb. 2010
  - Volunteer for USUCGER: Liquefaction effects in Haiti identified from aerial imagery, Mar. 2010

TECHNICAL TRAINING

- UAV/UAS Operation Training, Unmanned Expert LLC, San Antonia, TX, 2013
- OpenSees Parallel Computing for Large-scale Geotechnical and Structural Engineering Simulation, Richmond, CA, May 2009
- Geotechnical Centrifuge Research and Physical Modeling, Davis, CA, Sep. 2009

HONORS AND OTHER AWARDS

- University of Missouri Faculty Scholar, 2013
- USUCGER's Early Career Travel Award, 2012
- In-kind Software Support from Google, 2010
- Imagery Data Award from Geoeye Foundation, 2011
- Travel Award from NSF for Real-Time Hybrid Simulation Workshop, 2011
- Travel Award for NSF CMMI Proposal Workshop, Lincoln NE, 2010
- Travel Award for NSF-NEES Geotechnical Workshop, 2009
- Fellowship from Chancellor's Interdisciplinary Collaboratories Program, University of California, San Diego, 2008
- Calit2 Graduate Fellow and The Holmes Foundation Fellowship, University of California, Irvine, 2004 & 2005
- University Graduate Fellowship, Michigan Technological University, 2001
- Outstanding Academic Scholarships, Southeast University (China), 1994 -1997

MEDIA COVERAGE

- Local TV
    - "KC researcher's idea to aid tornado rescue could soon be reality", KSHB 41 TV News -- http://www.kshb.com/dpp/news/local_news/kc-researchers-idea-to-aid-tornado-rescue-could-be-reality-soon, May 22, 2013.
    - Live interview at the KCTV5's Morning Show and discussion of remote sensing research for real-time rescue and recovery (interviewed by Dave Hall, david.hall@kctv5.com), May 22, 2013, http://www.kctv5.com/.
- National
    - NASA's E-DECIDER Rapid Disaster Decision Support Products. http://www.jpl.nasa.gov/spaceimages/details.php?id=PIA18797
- UMKC
    - UMatters: "Professor Receives Seed Grant to Create Hydrophobicity Sensing Prototype" http://info.umkc.edu/umatters/professor-receives-seed-grant-to-create-hydrophobicity-sensing-prototype/

- "Dr. ZhiQiang Chen works to prevent scour -- the number one cause of bridge collapse" -- http://www.umkc.edu/news/news-release.asp?id=1027

- School of Computing and Engineering
  - Dr. ZhiQiang Chen Researcher in National Earthquake Disaster Response Project. http://sce.umkc.edu/2013/11/05/dr-zhiqiang-chen-researcher-in-national-earthquake-disaster-response-project/
  - Damage Mapping on the Go. http://info.umkc.edu/scenews/2013/10/03/damage-mapping-on-the-go/
  - Invited speaker for the MSPE WC Meeting http://info.umkc.edu/scenews/2014/04/08/professors-chen-and-kevern-speak-at-mspe-wc-meeting/
  - ZhiQiang Chen's Remote Sensing Research Will Help First Responders. http://info.umkc.edu/scenews/2013/05/22/zhiqiang-chens-remote-sensing-research-will-help-first-responders/