

WILLIAM N. COLLINS, PH.D., P.E.

Chair's Council Assistant Professor
Department of Civil, Environmental, and Architectural Engineering
University of Kansas
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EDUCATION

- Ph.D., 2014*** **Virginia Polytechnic Institute and State University (Virginia Tech)** – Blacksburg, VA
Major: Civil Engineering, Structural Engineering and Materials
- M.S., 2010*** **Virginia Polytechnic Institute and State University** – Blacksburg, VA
Major: Civil Engineering, Structural Engineering and Materials
- B.S., 2006*** **Virginia Polytechnic Institute and State University** – Blacksburg, VA
Major: Civil Engineering, Structures, Foundations, and Construction

PROFESSIONAL EXPERIENCE

- 2019 – Present Chair's Council Assistant Professor **University of Kansas**
Lawrence, KS
- 2015 – Present Assistant Professor **University of Kansas**
Lawrence, KS
- 08/2014 – 07/2015 Research Engineer **Purdue University**
West Lafayette, IN
- 08/2008 – 08/2014 Research / Teaching Assistant **Virginia Tech**
Blacksburg, VA
- 02/2008 – 08/2008 Timberwright **Blue Ridge Timberwrights**
Christiansburg, VA
- 06/2006 – 02/2008 Construction Superintendent **Prospect Homes of Richmond**
Richmond, VA

PROFESSIONAL LICENSURE

- Licensed Professional Engineer in the State of Kansas.

PROFESSIONAL ORGANIZATIONS

- Transportation Research Board (TRB)
 - TRB Committee on Steel Bridges (AKB20). Member, 2014 – Present; Committee Liaison to TRB Committee AKC70, 2018 – Present
 - TRB Committee on Fabrication and Inspection of Metal Structures (AKC70). Member, 2014 – Present; Committee Communications Coordinator, 2017 – Present
- American Institute of Steel Construction (AISC), Member
- American Society of Civil Engineers (ASCE), Member
- ASTM International, Member
 - Committee E08 on Fatigue and Fracture; Chairman, E08.07.05 on Ductile Crack Initiation and Growth, 2020 – Present
 - Committee E28 on Mechanical Testing
- National Steel Bridge Alliance (NSBA)
 - Fracture Critical Task Group, 2017 – 2020
 - NSBA/AASHTO Collaboration, 2018 – Present

AWARDS AND HONORS

- AISC Milek Fellowship, 2021
- Outstanding Young Alumni, Charles E. Via, Jr. Dept. of Civil and Env. Eng., Virginia Tech, 2020
- Tier 1 SEI Young Professional Scholarship, ASCE, 2020
- University of Kansas CEAE Department Chair's Council, 2019
- University of Kansas School of Engineering Miller Scholar Recipient, 2018
- AISC Early Career Faculty Award, 2018
- University of Kansas Center for Teaching Excellence Faculty Seminar, 2017
- University of Kansas School of Engineering Miller Scholar Recipient, 2016
- Best Paper ASEE-SE Conference, 2014
- ASTM E08 Student Presentation Competition Winner, 2013
- Virginia Tech Graduate Student Service Award, 2012
- Via Ph.D. Fellowship, 2010 – 2013

PUBLICATIONS

Peer-Reviewed Papers

- Al-Salih, H., Juno, M., Collins, W., Bennett, C., and Li, J. (2021). “Application of a Digital Image Correlation Bridge Inspection Methodology on Geometrically Complex Bifurcated Distortion-Induced Fatigue Cracking.” *Fatigue & Fracture of Engineering Materials & Structures*. Wiley, 1-16.
- Yount, T., Sorensen, T., Collins, W., and Maguire, M. (2021). “An Investigation into the Mechanical Properties and Fracture Behavior of Welded-Wire Reinforcement.” *J. Materials in Civil Engineering*, ASCE, 33(4).
- Lequesne, R. and Collins, W. (2020). “Load Rating Reinforced Concrete Bridges without Plans: State-of-the Practice.” *SP-342*, American Concrete Institute.
- Sherman, R., Collins, W., and Connor, R. (2020). “Large-Scale Axial Fracture Experiments of High-Toughness Steel.” *J. Bridge Eng.*, ASCE, 25(10).
- Dellenbaugh, L., Kong, X., Al-Salih, H., Collins, W., Bennett, C., Li, J., and Sutley, E. (2020). “Development of a Distortion-Induced Fatigue Crack Characterization Methodology using Digital Image Correlation.” *J. Bridge Eng.*, ASCE, 25(9).
- Lequesne, R., Collins, W., Lucon, E., Darwin, D., and Poudel, A. (2020). “Interlaboratory Study of Standard Methods for Testing Multi-Wire Steel Prestressing Strand.” *PCI Journal*, Precast/Prestressed Concrete Institute, 65(4).
- Sherman, R., Collins, W., and Connor, R. (2019). “Large-Scale Flexure Fracture Experiments on High-Toughness Steel.” *J. Bridge Eng.*, ASCE, 24(7).
- Sherman, R., Collins, W., and Connor, R. (2019). “Material Characterization of High-Toughness Steel.” *Structures*, Elsevier, 20.
- Collins, W., Sherman, R., Leon, R. and Connor, R. (2019). “Fracture Toughness Characterization of High Performance Steel for Bridge Girder Applications.” *J. Materials in Civil Engineering*, ASCE, 31(4).
- Jeong, J., Xu, J., Jo, H., Li, J., Kong, X., Collins, W., Bennett, C., and Laflamme, S. (2019). “Development of Wireless Sensor Node Hardware for Large-area Capacitive Strain Monitoring.” *Smart Materials and Structures*, IOPScience, 28(1).
- Kong, X., Li, J., Bennett, C., Collins, W., Laflamme, S., and Jo, H. (2019). “Thin-film sensor for fatigue crack monitoring in steel bridges under varying crack propagation rate and random traffic load.” *J. Aerosp. Eng.*, ASCE, 32(1).
- Dorafshan, S., Maguire, M., and Collins, W. (2018). “Infrared Thermography for Real-time, In-line Weld Inspection: Feasibility and Application.” *Infrastructures*, MDPI, 3(45).
- Kong, X., Li, J., Collins, W., Bennett, C., Laflamme, S., and Jo, H. (2018). “Sensing distortion-induced fatigue cracks in steel bridges with capacitive skin sensor arrays.” *Smart Materials and Structures*, IOPScience, 27(11).
- Kong, X., Li, J., Collins, W., Bennett, C., Laflamme, S. and Jo, H. (2017) “A large-area strain sensing technology for monitoring fatigue cracks in steel bridges.” *Smart Materials and Structures*, IOPScience, 26(8).
- Collins, W., Sherman, R., Leon, R. and Connor, R. (2016) “State-of-the-Art Fracture Characterization. I: Master Curve Analysis of Legacy Bridge Steels.” *J. Bridge Eng.*, ASCE, 21(12).

- Collins, W., Sherman, R., Leon, R. and Connor, R. (2016) “State-of-the-Art Fracture Characterization. II: Correlations between Charpy V-Notch and the Master Curve Reference Temperature, T_0 .” *J. Bridge Eng.*, ASCE, 21(12).
- Kong, X., Li, J., Bennett, C., Collins, W., and Laflamme, S. (2016). “Numerical simulation and experimental validation of a large area capacitive strain sensor for fatigue crack monitoring,” *Measurement Science and Technology*, IOPScience, 27(12).
- Maguire, M., Chang, M., Collins, W., and Sun, Y. (2016) “Stress Increase of Unbonded Tendons in Continuous Posttensioned Members.” *J. Bridge Eng.*, ASCE, 22(2).
- Maguire, M., Collins, W., Halbe, K., Roberts-Wollmann, C. (2016) “Multi-Span Members with Unbonded Tendons: Ultimate Strength Behavior and Recommendations.” *ACI Structural Journal*, American Concrete Institute, 113(2).
- Collins, W. and Maguire, M. (2013) “Toward Improving Concrete in Developing Countries.” *Concrete International*, American Concrete Institute, 35(8).

Conference Proceedings

- Al-Salih, H., Bennett, C., Matamoros, A., Collins, W., and Li, J. (2020). “Repairing Distortion-Induced Fatigue in Steel Bridges using a CFRP-Steel Retrofit.” *SEI Structures Congress 2020*.
- Juno, M., Al-Salih, H., Collins, W., Bennett, C., Li, J., and Sutley, E. (2020). “Investigating Lighting and Focus Limitations of Digital Image Correlation as a Bridge Inspection Tool.” *SEI Structures Congress 2020*.
- Al-Salih, H., Juno, M., Collins, W., Bennett, C., Li, J., and Sutley, E. (2019). “Evaluation of a Digital Image Correlation Bridge Inspection Methodology on Complex Distortion-Induced Fatigue Cracking.” In *Procedia Structural Integrity*, 17, 682-689.
- Bridwell, L., Collins, W., Bennett, C., and Li, J. (2019). “Mechanical Treatment of Crack-Arrest Holes Subjected to Distortion-Induced Fatigue.” In *Procedia Structural Integrity*, 17, 674-681.
- Kong, X., Jeong, J., Asadollahi, P., Fu, Y., Jo, H., Bennett, C., Collins, W., Laflamme, S., and Li, J. (2019). “Wireless Soft Elastomeric Capacitor Sensor Network for Long-term Fatigue Crack Monitoring of Steel Bridges.” In *9th International Conference on Structural Health Monitoring of Intelligent Infrastructure (ISHMII-9)*.
- Taher, S., Li, J., Bennett, C., & Collins, W. (2019). “UAV-based Non-contact Fatigue Cracking Monitoring of Steel Structures.” In *12th International Workshop on Structural Health Monitoring (IWSHM)*.
- Andalib, Z., Caputo, P., Dorafshan, S., Maguire, M., and Collins, W. (2018). “Investigation into the Behavior of an Open Web Steel Joist Bridge.” In *Proc. International Bridge Conference*.
- Jeong, J., Xu, J., Jo, H., Li, J., Kong, X., Collins, W., Bennett, C., & Laflamme, S. (2018). Capacitance-based wireless strain sensor development. In *Proc. SPIE Smart Structures/NDE*.
- Kong, X., Li, J., Bennett, C., Collins, W., Laflamme, S., and Jo, H. (2018). “Large-scale strain sensing approach for detecting fatigue cracks in steel bridges.” In *Proc. IABMAS Conference*.
- Kong, X., Li, J., Collins, W., Bennett, C., Jo, H., Jeong, J., and Laflamme, S. (2018). “Dense capacitive sensor array for monitoring distortion-induced fatigue cracks in steel bridges.” *Proc. of the SPIE Smart Structures / NDE Conference, SPIE*.

- Li, J., Kong, X., Bennett, C., Collins, W., Jo, H., Jeong, J., & Laflamme, S. (2018). Sensing fatigue damage in steel bridges using strain-based skin sensor networks. In *Proc. 7th World Conference on Structural Control and Monitoring*.
- McVey, M., Bennett, C., Collins, W., Lequesne, R., Luchies, C., Wilson, S., Sutley, E., Fadden, M., and Melgares, C. (2018). “Peer Mentoring for All: Investigating the Feasibility of a Curricular-Embedded Peer Mentoring Structure.” *Proc. of the American Society of Engineering Education (ASEE) Conference*.
- Sherman, R., Collins, W., and Connor, R., (2018) “A potential framework for exploiting the benefits of high-toughness steel.” *Proc. World Steel Bridge Symposium*.
- Kong, X., Li, J., Collins, W., Bennett, C., Laflamme, S. and Jo, H. (2017) “A robust signal processing method for quantitative high-cycle fatigue crack monitoring using soft elastomeric capacitor sensors.” *Proceedings of SPIE Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems*.
- Bennett, C., Collins, W., and McVey, M. (2017). “A Tiered Mentoring Model for Deepening Student Learning Across Undergraduate and Graduate Design Courses.” *Proc. of the American Society of Engineering Education (ASEE) Conference*.
- Kong, X., Li, J., Collins, W., Bennett, C., Laflamme, S., and Jo, H. (2017). “A robust signal processing method for quantitative high-cycle fatigue crack monitoring using soft elastomeric capacitor sensors.” *Proc. of the SPIE Smart Structures / NDE Conference, SPIE*.
- Collins, W., Sherman, R., and Connor, R., (2016) “Advancing the State of Practice in Steel Bridge Evaluation: Application of the Master Curve and Fitness-for-Service for Existing Structures.” *Proc. World Steel Bridge Symposium*.
- Sherman, R., Collins, W., and Connor, R., (2016) “Toward an integrated fracture control plan.” *Proc. World Steel Bridge Symposium*.
- Kong, X., Li, J., Bennett, C., Collins, W., and Laflamme, S. (2016). “Model calibration for a soft elastomeric capacitor sensor considering slippage under fatigue cracks,” *Proceedings of the SPIE Smart Structures / NDE Conference, SPIE*.
- D’Alessandro, K., Swenty, M., and Collins, W., (2014) “Integrating History into Engineering Curriculum.” *ASEE Southeast Conference*.
- Capelli, M., Moen, E., and Collins, W., (2012) “Educating Engineers for the Challenges of the Developing World Through Service Learning in Ti Peligre, Haiti” *ASEE Conference and Exposition*.
- Collins, W., Petroff, S., Bapat, A., Hodson, D., Cousins, T., Halling, M., Barr, P., Roberts-Wollmann, C. (2010). “Analyses of Live Load Tests Performed on Three Bridges for the LTBP Program.” *Proceedings, 2010 FHWA Bridge Engineering Conference: Highways for LIFE and Accelerated Bridge Construction*.

Papers in Review

- Boadi-Danquah, E., Yount, T., Collins, W., and Fadden, M. (in review). “Cyclic Behavior of Single Shear Steel-to-Steel Screws and Powder-Actuated Fastener Connections.” *Engineering Structures*. Elsevier.
- Yu, D., Bennett, C., Li, J., and Collins, W. (in review). “Fatigue Performance of Overhead Truss Sign Structure Coupler Connections.” *J. of Performance of Constructed Facilities*. ASCE.
- Liu, H., Laflamme, S., Li, J., Bennett, C., Collins, W., Downey, A., Ziehl, P., and Jo, H. (in review). “Investigation of Surface Textured Sensing Skin for Fatigue Crack Localization and Quantification.” *Smart Materials and Structures*. IOPScience.

- Yu, D., Bennett, C., Li, J., and Collins, W. (in review). “Fatigue Performance of Saddle Connections in Aluminum Overhead Truss Sign Structures.” *J. of Performance of Constructed Facilities*. ASCE.

Reports

- Yu, D., Bennett, C., Li, J., Collins, W., & Sutley, E. (2020). Analytical Investigation of Saddle Connections for Overhead Sign Trusses with Respect to Strength and Fatigue Performance. *Final Report to the Kansas Department of Transportation, Project KU-16-1. SM Report No. 144*. Lawrence, KS: University of Kansas Center for Research, Inc.
- Yu, D., Bennett, C., Li, J., Collins, W., & Sutley, E. (2020). Determination of Fatigue Resistance of Coupler Connections in Aluminum Overhead Truss Structures. *Final Report to the Kansas Department of Transportation, Project KU-18-1. SM Report No. 137*. Lawrence, KS: University of Kansas Center for Research, Inc.
- Lequesne, R. and Collins, W. (2019). “Synthesis of Rating Methodologies for Concrete Bridges without Plans.” University of Kansas Center for Research, Inc., Lawrence, KS.
- Lequesne, R., Collins, W., Lucon, E., Poudel, A., and Darwin D. (2019). “Development of a Precision and Bias Statement for ASTM A1061.” University of Kansas Center for Research, Inc., Lawrence, KS.
- Li, J., Bennett, C., Collins, W., Laflamme, S., & Jo, H. (2019). “Strain-based Fatigue Crack Monitoring of Steel Bridges using Wireless Elastomeric Skin Sensors.” *Final Report for TPF-5(328)*.
- Senior, H., Bennett, C., Collins, W., Li, J., Ewing, M., & Fadden, M. (2019). Dynamic Performance of Cantilevered Sign Trusses for Fatigue. *Final Report to the Kansas Department of Transportation, Project KU-18-3. SM Report No. 133*. Lawrence, KS: University of Kansas Center for Research, Inc.
- Connor, R., Sherman, R., and Collins, W. (2017). “Design and Fabrication Standards to Eliminate Fracture Critical Concerns in Two-Girder Bridge Systems. Phase 2: Experimental Testing.” *Final Report Part 2 for TPF-5(238)*, Purdue University, West Lafayette, IN.
- Collins, W., Sherman, R. and Connor, R. (2015). “Fracture Characterization of High Performance Steel,” *Final Report Part 1 for TPF-5(238)*, Purdue University, West Lafayette, IN.

PRESENTATIONS

- “The Future of Fatigue Crack Detection and Monitoring.” *Virginia Tech SEM Graduate Seminar*, Blacksburg, VA, April 1, 2020. (Invited)
- “Advances in Fatigue Crack Detection and Monitoring,” *KU Structural Engineering Conference*, Lawrence, KS, March 5, 2020. (Invited)
- “Development of an Automated Bridge Inspection Methodology using Digital Image Correlation,” *Mid-America Transportation Center Infrastructure Workshop*, Lincoln, NE, February 21, 2020. (Invited)
- “Mechanical Treatment of Crack-Arrest Holes Subjected to Distortion-Induced Fatigue,” *3rd International Conference on Structural Integrity*, Madeira, Portugal, September 4, 2019.
- “Evaluation of a Digital Image Correlation Bridge Inspection Methodology on Complex Distortion-Induced Fatigue Cracking,” *3rd International Conference on Structural Integrity*, Madeira, Portugal, September 2, 2019.
- “Extending the Benefits of Peer Mentoring to All Students,” *KU Teaching Summit*, Lawrence, Kansas, August 2019.

- “Fatigue Behavior of Sign and Light Structures,” Tsinghua University, Beijing, China, July 2, 2019. (Invited)
- “Peer Mentoring For All: Extending the Benefits of Peer Mentoring to More Students,” *KU School of Engineering, Engineering Teaching Workshop*, Lawrence, Kansas, April 2019.
- “Exploring the Performance of Digital Image Correlation on Complex Loading and Test Geometries,” *Structures Congress*, Orlando, FL, April 2019.
- “Evaluation of Digital Image Correlation for Detecting Distortion-Induced Fatigue Cracks in Steel Bridge Girders,” *World Steel Bridge Symposium*, St. Louis, MO, April 4, 2019.
- “Mechanical Treatment of Crack-Arrest Holes,” *KSU Bridge Design Workshop*, Manhattan, KS, scheduled for October 5, 2018. (Invited)
- “Steel Research at the University of Kansas.” SSAB Americas, Muscatine, IA. November 11, 2017.
- “The Future of Fracture Critical- Latest Research on Fracture Critical Members,” *KSU Bridge Design Workshop*, Manhattan, KS, October 13, 2017. (Invited)
- “Fracture Critical Members- Latest Research,” *Pacific NW Steel Collaboration Meeting*, Vancouver, WA, July 25, 2017. (Invited)
- “Advancing the State of Practice in Steel Bridge Evaluation: Application of the Master Curve and Fitness-for-Service for Existing Structures,” *World Steel Bridge Symposium*, Orlando, FL, April 14, 2016.
- “Re-thinking Fracture Critical,” *KU Professional Development Series*, Kansas City, MO, March 14, 2016. (Invited)
- “Towards a Performance Based Toughness Specification: Eliminating Fracture Critical Concerns in Steel Bridge Members,” *ASTM E08 Student Presentation Competition*, Jacksonville, FL, November 13, 2013.
- “Ultimate Strength and Detailing Considerations for Continuous Members with Unbonded Tendons,” *ACI Conference*, Dallas, TX, March 22, 2012.
- “Concrete for Kids,” *Engineering Education Workshop, ASEE Conference and Exposition*, Vancouver, Canada, June 25, 2011.
- “Bridges to Prosperity at Virginia Tech,” *Bridge Research Advisory Committee (BRAC)*, Charlottesville, VA, April 22, 2011.
- “Concrete for Kids,” *ACI Conference*, Tampa, FL, April 3-7, 2011.
- “Analyses of Live Load Tests Performed on Three Bridges for the LTBP Program.” *Proceedings, 2010 FHWA Bridge Engineering Conference: Highways for LIFE and Accelerated Bridge Construction*, Orlando, FL, April 8-9, 2010.

RESEARCH GRANTS

(Principal Investigator unless otherwise noted)

- “Innovative Steel Deck System for Highway Bridge Applications.” Funded for \$200,000 by the American Institute of Steel Construction (AISC) Milek Fellowship. Project Duration: 08/15/2021 – 08/14/2025.
- “Re-decking Prestressed Concrete Phase I: State-of-the-Practice and Preliminary Analysis Recommendations.” Funded for \$73,329 by the Kansas Department of Transportation (KDOT). Project Duration: 08/15/2021 – 01/14/2023. Co-PI with PI: Rémy Lequesne.

- “Development of Condition Factors and Bridge Load Ratings through Statistical Analysis of the NBI Database.” Funded for \$46,500.72 by the Kansas Department of Transportation (KDOT). Project Duration: 08/15/2021 – 08/14/2022. Co-PI with PI: Admin Husic; Co-PI Rémy Lequesne; Co-PI Joshua Roundy.
- “Fatigue Crack Inspection Using Computer Vision and Augmented Reality.” Funded for \$135,000 by the Transportation Research Board NCHRP IDEA Program. Project Duration: 01/01/2021 – 12/31/2021. Co-PI with PI: Jian Li; Co-PI: Caroline Bennett; Co-PI Fernando Moreu.
- “Robust Wireless Skin Sensor Networks for Long-term Fatigue Crack Monitoring of Bridges (Phase I).” Funded for \$540,000, Subcontract from Iowa State University. Transportation Pooled Fund (TPF) Study. Participating partners: IA, KS, NC, SC. Project Duration: 05/15/2020 – 05/14/2023. Co-PI with PI: Jian Li; Co-PI: Caroline Bennett.
- “Evaluation of Vibration Mitigation Techniques for KDOT High Mast Illumination Poles.” Funded for \$117,119 by the Kansas Department of Transportation (KDOT). Project Duration: 07/01/2020 – 06/30/2022. Co-PI with PI: Jian Li; Co-PI Caroline Bennett.
- “Steel Pickling for Hot-Dip Galvanizing: Effects of Zinc and Iron on Hydrochloric and Sulfuric Acid Pickling Rates.” Funded for \$9,998 by the American Galvanizers Association. Project Duration: 10/01/2019 – 09/30/2020. Co-PI with PI: Caroline Bennett; Co-PI: J. Li; Co-PI: Ted Peltier.
- “Computational Fluid Dynamics Investigation of high Mast Illumination Poles: Influence of Light Fixtures.” Funded for \$100,000 by the Kansas Department of Transportation (KDOT). Project Duration: 09/01/2019 – 12/31/2020. Co-PI with PI: Caroline Bennett; Co-PI: J. Li; Co-PI: Mark Ewing.
- “Evaluation of Vibration Mitigation Techniques for KDOT Cantilever and Butterfly Sign Structures.” Funded for \$116,774 by the Kansas Department of Transportation (KDOT). Project Duration: 07/01/2019 – 06/30/2021. Co-PI with PI: Caroline Bennett; Co-PI: J. Li.
- “Determination of Micropile Connection Flexural Resistance.” Funded for \$69,981.87 by the Kansas Department of Transportation (KDOT). Project Duration: 06/01/2019 – 05/31/2021. Co-PI: Caroline Bennett; Co-PI: Jie Han; Co-PI Robert Parsons.
- “Fatigue Characterization and Improvement of Cantilevered Sign Structure Box Connections.” Funded for \$155,870 by the Kansas Department of Transportation (KDOT). Project Duration: 06/01/2019 – 05/31/2022. Co-PI: Caroline Bennett; Co-PI: Jian Li.
- “Rapid Investigation of High Mast Illumination Pole Failures.” Funded for \$60,887.75 by the Kansas Department of Transportation (KDOT). Project Duration: 03/20/2019 – 03/19/2020. Co-PI with PI: Caroline Bennett; Co-PI: J. Li.
- “Thin Composite Two-Way Flooring Systems for Steel Structural Systems.” Funded for \$200,000 by the American Institute of Steel Construction (AISC). Matthew Fadden PI 2015 – 2018; William Collins PI 08/17/2018 – 12/31/2019.
- “Synthesis of Rating Methodologies for Concrete Bridges without Plans.” Funded for \$39,487.80 by the Kansas Department of Transportation (KDOT) and the Federal Highway Administration (FHWA) State Transportation Innovation Council (STIC) Incentive Program. Project Duration: 02/1/2018 – 01/31/2019. Co-PI with PI: Rémy Lequesne.
- “Evaluation of StopCrackEX Technology for Treating Crack-Arrest Holes under Distortion-Induced Fatigue.” Funded for \$82,276 by the Kansas Department of Transportation (KDOT). Project Duration: 05/01/2018 – 12/31/2020. Co-PI with PI: Caroline Bennett; Co-PI: J. Li.
- “Development of Precision and Bias Statement for ASTM A1061,” Funded for \$105,288 by the Precast/Prestressed Concrete Institute (PCI). Project Duration: 10/1/2017 – 09/30/2018. Co-PI with PI: Rémy Lequesne; Co-PI: David Darwin.

- “Analytical Investigation of Saddle Connections for Overhead Sign Trusses with Respect to Strength and Fatigue Performance,” Funded for \$47,405 by the Kansas Department of Transportation (KDOT). Project Duration: 10/1/2017 – 09/30/2019. Co-PI with PI: Jian Li; Co-PI: Caroline Bennett; Co-PI: Elaina Sutley.
- “Dynamic Performance of Cantilever Sign Trusses for Fatigue,” Funded for \$63,335 by the Kansas Department of Transportation (KDOT). Project Duration: 10/1/2017 – 09/30/2019. Co-PI with PI: Caroline Bennett; Co-PI: Mark Ewing; Co-PI: Jian Li.
- “Development of an Automated Bridge Inspection Methodology using Digital Image Correlation,” Funded for \$252,387 by the Mid America Transportation Center (MATC), Renewable for 3 more years at \$84,129/yr. Project Duration (Yrs 1-3): 08/2017 – 12/2020. Co-PI: Caroline Bennett; Co-PI: Jian Li; Co-PI: Elaina Sutley.
- “Toughness Requirements for Heat-Affected Zones of Welded Structural Steels for Highway Bridges,” Funded for \$425,000 by the National Cooperative Highway Research Program (NCHRP). Project Duration: 09/19/2016 – 12/31/2020. Co-PI: Stan Rolfe.
- “Determination of Fatigue Resistance of Coupler Connection in Aluminum Overhead Truss Sign Supports,” Funded for \$144,846 by the Kansas Department of Transportation (KDOT). Project Duration: 10/1/2015 – 03/1/2019. Co-PI with PI: Caroline Bennett; Co-PI: Jian Li; Co-PI: Elaina Sutley.
- “Strain-based Fatigue Crack Monitoring of Steel Bridges using Wireless Elastomeric Skin Sensors,” Funded for \$405,000. Transportation Pooled Fund (TPF) Study. Participating partners: KS, MN, NC, OK, PA, TX. Project Duration: 09/1/2015 – 08/31/2018. Co-PI with PI: Jian Li; Co-PI: Caroline Bennett; Co-PI: Stan Rolfe.

TEACHING EXPERIENCE

Classroom Experience

Course Title	Semester(s) Taught	
CE 562, Design of Steel Structures	Fa 15 – 20	University of Kansas
CE 767, Intro. to Fracture Mechanics	Sp 17 – 21	University of Kansas
CE 766, Adv. Steel Design – Bridge Structures	Sp 18 – 19, 21	University of Kansas
CE 310/QUT 011503, Material Mechanics	Sum 19, 21	Qingdao Univ. of Technology
CE 765, Adv. Steel Design – Building Structures	Sp 16, 20	University of Kansas
CEE 3404, Theory of Structures	Fa 13	Virginia Tech
CEE 3684, Civil Eng. Materials Lab	Fa 10, Sp 11	Virginia Tech

Teaching Improvement and Leadership Activities

- Presentation and Breakout Session Moderation with Elaina Sutley at KU Teaching Summit: “Extending the Benefits of Peer Mentoring to All Students,” August 2019
- Presentation and Breakout Session Moderation with Elaina Sutley at Engineering Teaching Workshop: “Peer Mentoring for All: Extending the Benefits of Peer Mentoring to More Students,” April 2019
- Poster presentation at KU Center for Teaching Excellence (CTE) C21 Consortium, 2018

- Presentation at Hillcrest Elementary School: “Structural Engineering,” Lawrence, KS, 2017 – Present
- University of Kansas Center for Teaching Excellence Faculty Seminar, 2017
- Poster presentation at KU Center for Teaching Excellence (CTE) C21 Consortium, 2017
- Development of Tiered Mentoring Program within CEAE Department, 2017 – Present
- Recipient of \$960 Course Transformation Grant through KU Center for Teaching Excellence (CTE), 2016
- Engineering Education Graduate Certificate, Virginia Tech 2014
- Future Professoriate Graduate Certificate, Virginia Tech 2014

UNIVERSITY SERVICE

University

- KU Athletics Student-Athlete Mentor, 2016 – Present

School of Engineering

- Structural Engineering Reviewer for KU Architecture Arch 508 Final Projects, 2018 – Present
- Faculty Advisor, KU Student Chapter, Society of American Military Engineers (SAME), 2016 – Present
- Judge, Graduate Engineering Association (GEA) Research Competition, 2017

Department of Civil, Environmental, and Architectural Engineering

- KU Structural Engineering Conference Planning Committee
 - Committee Member, 2015 – Present
 - Bridge Session Moderator, 2016 – 2018, 2021
- Awards Committee of the CEAE Advisory Board, 2015 – Present
- CEAE QUT/China Ad Hoc Committee, 2016 – Present
- Structural Laboratories Sustainable Operations Initiative, 2016 – 2020
- Development of Graduate Certificates in Structural Design and Analysis, 2016

LAST REVISION DATE

May 12, 2021