Lan Lin **Associate Professor**

CONTACT INFORMATION

Department of Computer Science
Ball State University

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RESEARCH INTERESTS

Software engineering, rigorous software specification, automated model-based statistical testing, automated verification, formal methods, theoretical computer science, combinatorics

EDUCATION

University of Tennessee, Knoxville, Tennessee USA

Ph.D., Computer Science, December, 2006
Dissertation Advisor: Dr. Jesse H. Poore (Ericsson-Harlan D. Mills Chair in Software Engineering)

University of British Columbia, Vancouver, British Columbia Canada

M.S., Computer Science, November, 2001

Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu China

M.E., Computer Science, March, 1999

Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu China

B.E., Computer Science, July, 1996

HONORS AND AWARDS

Best Oral Presentation award at the 7th International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS), Wuhan, China (moved to virtual due to the pandemic), January, 2023.

Best Oral Presentation award at the 9th International Workshop on Computer Science and Engineering (WCSE), Hong Kong, June, 2019.

Ball State University SUBMIT Funding, 2014, 2016 - 2022.

Ball State University ASPiRE International Travel Award, 2014, 2017.

Ball State University College of Science and Humanities Dean's Office Supplemental International Travel Award, 2014, 2017.

Nomination (by the Industry Advisory Board of NSF Security and Software Engineering Research Center) and Selected for Publication in the **2016 Compendium of Industry-Nominated Technological Breakthroughs for NSF I/UCRCs**, 2016.

Ball State University ASPiRE Reprint Award, 2016.

Fellowship Award for the 5th Annual Conference for Pre-Tenure Women at Purdue University, 2014.

University of British Columbia Faculty of Graduate Studies International Tuition Scholarship, 1999 - 2001.

EMPLOYMENT

Ball State University, Department of Computer Science, Muncie, Indiana USA

Associate Professor **July, 2018 - present**
Assistant Professor **August, 2012 - June, 2018**

University of Tennessee, Software Quality Research Laboratory, Department of Electrical Engineering and Computer Science, Knoxville, Tennessee USA

Research Scientist I **March, 2011 - August, 2012**
Post-doc Research Associate **December, 2006 - February, 2011**

Research and Teaching Grants

National Science Foundation (#2209834)

Principal Investigator (single PI at Ball State) **January 1, 2023 - December 31, 2026**
Collaborative Research: Frameworks: Building a Collaboration Infrastructure: CyberWater2 - A Sustainable Data/Model Integration Framework. $69,999.00.

Ball State University Provost Immersive Learning Pilot Grant

Co-Principal Investigator (PI N. L. Koontz) **Summer 2022 - Summer 2023**
App Development and Expansion of the Henry Gets Moving Project. $7,753.00.

National Science Foundation (#1464654)

Principal Investigator **October 5, 2020 - April 30, 2022**
Collaborative Research: I/UCRC Phase II: Security and Software Engineering Research Center (S^2ERC). Transferred from previous PI. Amendment effective on October 5, 2020.

Omni Sci

Principal Investigator **June 18, 2020 - April 30, 2022**
OmniSci S^2ERC Affiliation Agreement. Received as S^2ERC Director during transition. $591,680.00 software donation.

National Science Foundation (#1835602)

Principal Investigator (single PI at Ball State) **January 1, 2019 - December 31, 2022**
Framework: Software: Collaborative Research: CyberWater - An open and sustainable framework for diverse data and model integration with provenance and access to HPC. $39,996.00.

Air Force Research Laboratory

Principal Investigator (single PI) **May 14, 2018 - June 15, 2019**
Software *Science*: How Far Could Mathematics and Rigor Take Us? $38,826.00.

Ontario Systems

Principal Investigator (single PI) **November 1, 2016 - October 31, 2017**
Quantifying Software Quality through Rigorous Testing and Test Automation: From Theory to Practice. $30,000.00.

Rockwell Collins, Air Force Research Laboratory, and Ontario Systems

Principal Investigator (single PI) **November 1, 2014 - October 31, 2015**
Towards Scalable Modeling for Rigorous Software Specification and Testing. $50,000.00.

Lockheed Martin and Northrop Grumman

Principal Investigator (single PI) **January 1, 2013 - December 31, 2013**
Combining Rigorous Specification and Testing Methodologies to Achieve High Quality Assurance. $46,836.00.

Ball State University ASPiRE New Faculty Start-Up Program

Principal Investigator (single PI) **November, 2012 - December, 2013**
Towards Scalable Methods for Rigorous Software Specification and Testing. $1,500.00.

Selected NSF TB Compendium Publication

L. Lin. 2016. Scalable modeling for rigorous software specification and testing. *2016 Compendium of Industry-Nominated NSF I/UCRC Technological Breakthroughs*, 107-108.

Refereed Journal Publications

W. Zheng, F. Song, **L. Lin**, Z. Chen. 2018. Scaling up parallel computation of tiled QR factorizations by a distributed scheduling runtime system and analytical modeling. *Parallel Processing Letters* 28(1): 1850004-1-185004-17. (Extended version of the ICPADS 2016 paper)

L. Lin, Y. Xue, F. Song. 2016. An algorithm for forward reduction in sequence-based software specification. *International Journal of Software Engineering and Knowledge Engineering (Special Issue on Best Papers from SEKE 2016)* 26(9 & 10): 1431-1451. (Extended paper selected from SEKE 2016; only **11 best ranked papers out of 225 accepted papers** were selected and invited for submission)

R. Eschbach, **L. Lin (corresponding author)**, J. H. Poore. 2013. Applying string-rewriting to sequence-based specification. *Formal Methods in System Design* 43(3): 414-449.

L. Lin, S. J. Prowell, J. H. Poore. 2010. An axiom system for sequence-based specification. *Theoretical Computer Science* 411(2): 360-376.

L. Lin, S. J. Prowell, J. H. Poore. 2009. The impact of requirements changes on specifications and state machines. *Software - Practice and Experience* 39(6): 573-610.

L. Lin, J. H. Poore. 2008. Pushing requirements changes through to changes in specifications. *Frontiers of Computer Science in China* 2(4): 331-343. (Extended paper selected from TASE 2008)

Refereed Conference and Workshop Publications

L. T. Connelly, M. L. Hammel, **L. Lin**. 2023. Leveraging best industry practices to developing software for academic research. In: *Proceedings of the 7th International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS)*, 7-13. Acceptance rate: 50%.

L. T. Connelly, M. L. Hammel, B. T. Eger, **L. Lin**. 2022. Automated unit testing of hydrologic modeling software with CI/CD and Jenkins. In: *Proceedings of the 34th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 225-230. Acceptance rate: 39%.

L. Hao, X. Sun, **L. Lin**. 2021. Correctness argument for an SDN MAC learning algorithm. In: *Proceedings of the 33rd International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 51-56. Acceptance rate: 34%.

L. Hao, X. Sun, **L. Lin**, Z. Peng. 2020. Correct software by design for software-defined networking: A preliminary study. In: *Proceedings of the 32nd International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 127-134. Acceptance rate: 41%.

X. Sun, **L. Lin**. 2019. Leveraging rigorous software specification towards systematic detection of SDN control conflicts. In: *Proceedings of the 31st International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 193-198. Acceptance rate: 27%.

Y. Xue, **L. Lin**, J. C. Tucker, B. Hammons, M. Wolfe. 2019. A case study of applying rigorous testing in practice. In: *Proceedings of the 9th International Workshop on Computer Science and Engineering (WCSE)*, 475-481.

L. Lin, X. Sun. 2018. A case for systematic detection and rigorous location of SDN control conflicts. In: *Proceedings of the 43rd IEEE Conference on Local Computer Networks (LCN)*, 291-294. Acceptance rate 29.8%.

Y. Xue, **L. Lin**, X. Sun, F. Song. 2018. On a simpler and faster derivation of single use reliability mean and variance for model-based statistical testing. In: *Proceedings of the 30th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 635-640. Acceptance rate 35%.

W. Zheng, F. Song, **L. Lin**. 2017. Designing a synchronization-reducing clustering method on manycores: Some issues and improvements. In: *Proceedings of the 3rd Workshop on Machine Learning in High Performance Computing Environments (MLHPC)*, 9:1-9:8.

Y. Xue, **L. Lin**, J. C. Tucker, B. Hammons, M. Wolfe. 2017. Improving test adequacy and software reliability with practices of statistical testing. In: *Proceedings of the 2nd International Conference on Reliability Systems Engineering (ICRSE)*.

L. Lin, Y. Xue, F. Song. 2017. A simpler and more direct derivation of system reliability using Markov chain usage models. In: *Proceedings of the 29th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 462-466. Acceptance rate 35.3%.

W. Zheng, F. Song, **L. Lin**, Z. Chen. 2016. suCAQR: A simplified communication-avoiding QR factorization solver using the TBLAS framework. In: *Proceedings of the 22nd IEEE International Conference on Parallel and Distributed Systems (ICPADS)*, 1092-1099. Acceptance rate 30%.

L. Lin, Y. Xue. 2016. Merging software specifications focusing on different system boundaries. In: *Proceedings of the 14th International Conference on Software Engineering Research and Practice (SERP)*, 44-50. Acceptance rate 24%.

L. Lin, Y. Xue. 2016. An algorithm for forward reduction in sequence-based software specification. In: *Proceedings of the 28th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 309-316. Acceptance rate 29.7%.

P. Nagar, F. Song, L. Zhu, **L. Lin**. 2015. LBM-IB: A parallel library to solve 3D fluid-structure interaction problems on manycore systems. In: *Proceedings of the 44th International Conference on Parallel Processing (ICPP)*, 51-60. Acceptance rate 32.5%.

L. Lin, J. He, Y. Xue. 2015. An automated testing framework for statistical testing of GUI applications. In: *Proceedings of the 27th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, 72-79. Acceptance rate 29.0%.

L. Lin, J. He, Y. Zhang, F. Song. 2015. Quality assurance through rigorous software specification and testing. In: *Proceedings of the 2015 International Conference on Soft Computing and Software Engineering (SCSE)*, *Procedia Computer Science* 62: 257-265. Acceptance rate 37.4%.

L. Lin, J. He, F. Song. 2014. Usage modeling through sequence enumeration for automated statistical testing of a GUI application. In: *Proceedings of the 5th IEEE International Conference on Software Engineering and Service Science (ICSESS)*, 82-85. Acceptance rate 27.7%.

L. Lin, J. H. Poore, S. J. Prowell. 2014. A greedy reliability estimator for usage-based statistical testing. In: *Proceedings of the 5th IEEE International Conference on Software Engineering and Service Science (ICSESS)*, 86-89. Acceptance rate 27.7%.

L. Lin, J. H. Poore, R. Eschbach, R. M. Hierons, C. Robinson-Mallett. 2013. In: *Proceedings of the 16th International Conference on Fundamental Approaches to Software Engineering (FASE)*, *Lecture Notes in Computer Science* 7793: 179-193. Acceptance rate 23.2%.

T. W. Swain, J. M. Carter, C. J. Trammell, **L. Lin**. 2010. A course on software engineering for

safety-related systems. In: *Proceedings of the 7th International Topical Meeting on Nuclear Plant Instrumentation, Control and Human-Machine Interface Technologies (NPIC & HMIT).*

L. Lin, J. M. Carter, J. H. Poore. 2008. Using state machines to model and manage requirements changes and specification changes. In: *Proceedings of the 51st IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, 523-526. Acceptance rate 55.8%.

L. Lin, J. H. Poore. 2008. Pushing requirements changes through to changes in specifications. In: *Proceedings of the 2nd IFIP/IEEE International Symposium on Theoretical Aspects of Software Engineering (TASE)*, 289-296. Acceptance rate 16.8%.

J. M. Carter, **L. Lin**, J. H. Poore. 2008. Automated functional testing of Simulink control models. In: *Proceedings of the 1st Workshop on Model-Based Testing in Practice (MOTIP)*, 41-50.

M. A. Langston, **L. Lin**, X. Peng, N. E. Baldwin, C. T. Symons, B. Zhang. 2003. A combinatorial approach to the analysis of differential gene expression data. In: *Proceedings of the 4th International Conference for the Critical Assessment of Microarray Data Analysis (CAMDA)*, 223-238.

Refereed Book Chapter

J. H. Poore, **L. Lin**, R. Eschbach, T. Bauer. 2011. Automated statistical testing for embedded systems. In: *Model-Based Testing for Embedded Systems in the Series on Computational Analysis, Synthesis, and Design of Dynamic Systems*, 111-146. Editors: J. Zander, I. Schieferdecker, P. J. Mosterman. CRC Press - Taylor & Francis LLC.

Refereed Abstract

D. Luna, R. Chen, C. Yuan, Y. Liang, X. Liang, J. Bales, A. M. Castronova, I. Demir, R. P. Hooper, W. F. Krajewski, **L. Lin**, R. Mantilla, S. Pamidighantam, F. Song, Y. Zhang. 2019. CyberWater – An open and sustainable framework for diverse data and model integration. In: *The American Geophysical Union Fall Meeting 2019*, San Francisco, CA.

Conference Presentations

Leveraging best industry practices to developing software for academic research. In: *Proceedings of the 7th International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS)*, Wuhan, China (moved to virtual due to the pandemic), January, 2023. Received **Best Oral Presentation** award.

Correctness argument for an SDN MAC learning algorithm. In: *The 33rd International Conference on Software Engineering and Knowledge Engineering (SEKE)*, Pittsburgh, PA (moved to virtual due to the pandemic), July, 2021.

Correct software by design for software-defined networking: A preliminary study. In: *The 32nd International Conference on Software Engineering and Knowledge Engineering (SEKE)*, Pittsburgh, PA (moved to virtual due to the pandemic), July, 2020.

A case study of applying rigorous testing in practice. In: *The 9th International Workshop on Computer Science and Engineering (WCSE)*, Hong Kong, June, 2019. Received **Best Oral Presentation** award.

On a simpler and faster derivation of single use reliability mean and variance for model-based statistical testing. *The 30th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, San Francisco Bay, CA, July, 2018.

Improving test adequacy and software reliability with practices of statistical testing. *The 2nd International Conference on Reliability Systems Engineering (ICRSE)*, Beijing, China, July, 2017.

A simpler and more direct derivation of system reliability using Markov chain usage models. *The 29th*

International Conference on Software Engineering and Knowledge Engineering (SEKE), Pittsburgh, PA, July, 2017.

Merging software specifications focusing on different system boundaries. *The 14th International Conference on Software Engineering Research and Practice (SERP)*, Las Vegas, NV, July, 2016.

An algorithm for forward reduction in sequence-based software specification. *The 28th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, Redwood city, San Francisco Bay, CA, July, 2016.

An automated testing framework for statistical testing of GUI applications. *The 27th International Conference on Software Engineering and Knowledge Engineering (SEKE)*, Pittsburgh, PA, July, 2015.

Quality assurance through rigorous software specification and testing. *The 2015 International Conference on Soft Computing and Software Engineering (SCSE)*, Berkeley, CA, March, 2015.

Usage modeling through sequence enumeration for automated statistical testing of a GUI application. *The 5th IEEE International Conference on Software Engineering and Service Science (ICSESS)*, Beijing, China, June, 2014.

A greedy reliability estimator for usage-based statistical testing. *The 5th IEEE International Conference on Software Engineering and Service Science (ICSESS)*, Beijing, China, June, 2014.

Using state machines to model and manage requirements changes and specification changes. *The 51st IEEE International Midwest Symposium on Circuits and Systems (MWSCAS)*, Knoxville, Tennessee, August, 2008.

Pushing requirements changes through to changes in specifications. *The 2nd IFIP/IEEE International Symposium on Theoretical Aspects of Software Engineering (TASE)*, Nanjing, China, June, 2008.

Invited Talks

A path to high quality software through best industry practices and rigorous software engineering methodologies - A special assigned leave presentation. *Ball State University Department of Computer Science Colloquium Series 2021-2022*, Muncie, Indiana, November, 2021.

Statistical testing based on a Markov chain usage model. Tutorial at *Ontario Systems*, Muncie, Indiana, July, 2016.

An automated testing framework for statistical testing of GUI applications. *Ball State University Department of Computer Science Colloquium Series 2015-2016*, Muncie, Indiana, September, 2015.

Quality assurance through rigorous software specification and testing. *University of Tennessee Innovative Computing Laboratory 25 Years of Innovative Computing Workshop*, Knoxville, Tennessee, April, 2015.

Management of requirements changes in sequence-based software specifications. *Indiana University-Purdue University Indianapolis Department of Computer and Information Sciences Spring Colloquium Series*, Indianapolis, Indiana, February, 2013.

Professional Presentations

Converging or diverging: Leveraging statistical testing with combinatorial test design. New proposal presentation.

- *The 22nd Security and Software Engineering Research Center (S^2ERC) Virtual Showcase*, Muncie,

IN, November, 2020.
- *The 21st Security and Software Engineering Research Center (S^2ERC) Virtual Showcase*, Muncie, IN, June, 2020.

Leveraging rigorous software specification and testing to developing and orchestrating reliable applications for network softwarization. New proposal presentation (co-presented with X. Sun).

- *The 21st Security and Software Engineering Research Center (S^2ERC) Virtual Showcase*, Muncie, IN, June, 2020.
- *The 20th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, IN, November, 2019.
- *The 19th Security and Software Engineering Research Center (S^2ERC) Showcase*, Oulu, Finland, June, 2019.

Towards systematic resolution of control conflicts in SDN using rigorous software specification. Poster presentation (co-presented with X. Sun).

- *The 18th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., November, 2018.

Towards systematic detection and resolution of network control conflicts for high confidence and service assurance using rigorous software specification. New proposal presentation (co-presented with X. Sun).

- *The 17th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, Indiana, May, 2018.

Software *science*: How far could mathematics and rigor take us? Status report presentation.

- *The 21st Security and Software Engineering Research Center (S^2ERC) Virtual Showcase*, Muncie, IN, June, 2020.
- *The 20th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, IN, November, 2019.
- *The 19th Security and Software Engineering Research Center (S^2ERC) Showcase*, Oulu, Finland, June, 2019.
- *The 18th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., November, 2018.
- *The 17th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, Indiana, May, 2018.

Software *science*: How far could mathematics and rigor take us? New proposal presentation and poster presentation.

- *The 16th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., November, 2017.

Quantifying software quality through rigorous testing and test automation: From theory to practice. Status report presentation and poster presentation.

- *The 16th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., November, 2017.
- *The 15th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., May, 2017.
- *The 14th Security and Software Engineering Research Center (S^2ERC) Showcase*, Pensacola, Florida, November, 2016.

Quantifying software quality through rigorous testing and test automation: From theory to practice.

New proposal presentation and poster presentation.

- *The 13th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, Indiana, May, 2016.

A relook at the reliability analysis for statistical testing of software-intensive systems. New proposal presentation and poster presentation.

- *The 11th Security and Software Engineering Research Center (S^2ERC) Showcase*, Roanoke, Virginia, May, 2015.

Towards scalable modeling for rigorous software specification and testing. Status report presentation and poster presentation.

- *The 12th Security and Software Engineering Research Center (S^2ERC) Showcase*, Indianapolis, Indiana, November, 2015.
- *The 11th Security and Software Engineering Research Center (S^2ERC) Showcase*, Roanoke, Virginia, May, 2015.
- *The 10th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, Indiana, November, 2014.

Towards scalable modeling for rigorous software specification and testing. New proposal presentation and poster presentation.

- *The 9th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., May, 2014.
- *The 8th Security and Software Engineering Research Center (S^2ERC) Showcase*, Pensacola, Florida, November, 2013.

Combining rigorous specification and testing methodologies to achieve high quality assurance. Status report presentation and poster presentation.

- *The 9th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., May, 2014.
- *The 8th Security and Software Engineering Research Center (S^2ERC) Showcase*, Pensacola, Florida, November, 2013.
- *The 7th Security and Software Engineering Research Center (S^2ERC) Showcase*, Chicago, Illinois, May, 2013.

Combining rigorous specification and testing methodologies to achieve high quality assurance. New proposal presentation and poster presentation.

- *The 6th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, Indiana, November, 2013.
- *The 5th Security and Software Engineering Research Center (S^2ERC) Showcase*, Washington D.C., May, 2012.

Professional Service

NSF Site Visitor/Reviewer/Panelist:

- NSF Engineering Research Center (ERC) Site Visitor, 2022
- NSF Ad Hoc Reviewer, 2021
- NSF Panelist, 2016

Associate Editor:

- Frontiers of Computer Science, 2015 –

Conference General Co-Chair:

- The IEEE 14th International Conference on Software Engineering and Service Science (ICSESS),

2023.
- The IEEE 13rd International Conference on Software Engineering and Service Science (ICSESS), 2022.
- The 34th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2022.
- The IEEE 12th International Conference on Software Engineering and Service Science (ICSESS), 2021.
- The IEEE 11th International Conference on Software Engineering and Service Science (ICSESS), 2020.

Conference Program Co-Chair:

- The 33rd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2021.

Conference Publicity Chair/Co-Chair:

- The 32nd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2020. (as chair)
- The 31st International Conference on Software Engineering and Knowledge Engineering (SEKE), 2019. (as co-chair)

Conference Session Chair:

- The 34th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2022.
- The 33rd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2021. (served as a keynote session chair)
- The 30th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2018.
- The 29th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2017.
- The 14th International Conference on Software Engineering Research and Practice (SERP), 2016.
- The 28th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2016.
- The 27th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2015.
- The 2015 International Conference on Soft Computing and Software Engineering (SCSE), 2015. (served as a keynote session chair)

Program Committee member:

- The 35th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2023.
- The 34th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2022.
- The 33rd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2021.
- The IEEE 12th International Conference on Software Engineering and Service Science (ICSESS), 2021.
- The 32nd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2020.
- The 31st International Conference on Software Engineering and Knowledge Engineering (SEKE), 2019.
- The 11th International Conference on Future Computational Technologies and Applications (Future Computing), 2019.
- The 30th International Conference on Software Engineering and Knowledge Engineering (SEKE),

2018.
- The 10th International Conference on Future Computational Technologies and Applications (Future Computing), 2018.
- The 2018 International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS), 2018.
- The 29th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2017.
- The 9th International Conference on Future Computational Technologies and Applications (Future Computing), 2017.
- The 2017 International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS), 2017.
- The 28th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2016.
- The 8th International Conference on Future Computational Technologies and Applications (Future Computing), 2016.
- The 2015 International Conference on Software, Multimedia and Communication Engineering (SMCE), 2015.
- The 2015 International Conference on Soft Computing and Software Engineering (SCSE), 2015.
- The 7th International Conference on Future Computational Technologies and Applications (Future Computing), 2015.
- The 4th Workshop on Model-Based Testing in Practice (MOTIP), 2012.
- The 7th Workshop on Advances in Model-Based Testing (A-MOST), 2011.

NSF Security and Software Engineering Research Center (S^2ERC) showcase organizer:

- *The 25th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, IN virtual event, March, 2022.
- *The 24th Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, IN virtual event, November, 2021.
- *The 23rd Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, IN (moved to virtual due to the pandemic), May, 2021.
- *The 22nd Security and Software Engineering Research Center (S^2ERC) Showcase*, Muncie, IN (moved to virtual due to the pandemic), November, 2020.

Journal reviewer:

- IEEE Software (2017)
- International Journal of Software Engineering and Knowledge Engineering (2016)
- IEEE Software (2016)
- Information Resources Management Journal (2016)
- Frontiers of Computer Science (2015)
- Information and Software Technology (2011)
- Software Testing, Verification and Reliability (2008)

Conference reviewer:

- The 35th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2023.
- The 34th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2022.
- The 33rd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2021.
- The 32nd International Conference on Software Engineering and Knowledge Engineering (SEKE), 2020.
- The 31st International Conference on Software Engineering and Knowledge Engineering (SEKE), 2019.

- The 11th International Conference on Future Computational Technologies and Applications (Future Computing), 2019.
- The 30th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2018.
- The 2018 International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS), 2018.
- The 10th International Conference on Future Computational Technologies and Applications (Future Computing), 2018.
- The 9th International Conference on Future Computational Technologies and Applications (Future Computing), 2017.
- The 29th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2017.
- The 2017 International Conference on Management Engineering, Software Engineering and Service Sciences (ICMSS), 2017.
- The 28th International Conference on Software Engineering and Knowledge Engineering (SEKE), 2016.
- The 8th International Conference on Future Computational Technologies and Applications (Future Computing), 2016.
- The 2015 International Conference on Software, Multimedia and Communication Engineering (SMCE), 2015.
- The 2015 International Conference on Soft Computing and Software Engineering (SCSE), 2015.
- The 7th International Conference on Future Computational Technologies and Applications (Future Computing), 2015.
- The 4th Workshop on Model-Based Testing in Practice (MOTIP), 2012.
- The IEEE International Conference on Industrial Technology (ICIT), 2012.
- The 7th Workshop on Advances in Model-Based Testing (A-MOST), 2011.
- The 6th Workshop on Advances in Model-Based Testing (A-MOST), 2010.
- The 43rd Hawaii International Conference on Systems Science (HICSS), 2010.
- The 3rd Workshop on Model-Based Testing in Practice (MOTIP), 2010.
- The 2nd Workshop on Model-Based Testing in Practice (MOTIP), 2009.
- The 1st Workshop on Model-Based Testing in Practice (MOTIP), 2008.
- The 1st International Conference on Software Testing, Verification, and Validation (ICST), 2008.
- The 6th IEEE International Conference on Software Engineering and Formal Methods (SEFM), 2008.
- The 23rd IEEE International Conference on Software Maintenance (ICSM), 2007.
- The 3rd ACS/IEEE International Conference on Computer Systems and Applications (AICCSA), 2005.

University and Community Service

Administrative Duties

- Director of the NSF I/UCRC Security and Software Engineering Research Center (S^2ERC), July 1, 2020 – April 30, 2022

School Coordinator for Ball State University

- The 2016 Indiana Celebration of Women in Computing Conference (InWIC), 2016.
- The 2015 Indiana Celebration of Women in Computing Conference (InWIC), 2015.

University Committee/Council member, Ball State University

- Advisory Council on Scholarship for the Vice Provost for Research (July 2020 –)
- Participated in College of Science and Humanities Leadership Academy launched by Dean McCarthy (Fall 2020 – Spring 2021)
- Graduate Education Committee (Full Committee 2017 – 2019 and Faculty Affairs Sub-Committee 2018 – 2019)

Departmental Committee member, Computer Science Department, Ball State University

- Colloquium & Collaboration Committee (as member and secretary), 2021 – 2022
- Tenure Line Merit Committee (as member), 2020 – 2021
- Tenure Line Merit Committee (as chair), 2021 – 2022
- Graduate Committee (as member), 2013 – 2019, 2022
- Graduate Committee (as chair), 2023
- Promotion and Tenure Committee (as member and secretary), 2018 – 2019, 2022 – 2023
- Chair Search Committee (as member), 2019 – 2020
- Search Committee (as member), 2013 – 2017, 2022 – 2023

Organizer/Coordinator, Computer Science Department, Ball State University

- Ball State University Department of Computer Science Colloquium Series Spring 2016 – Spring 2019

Attended the virtual Grace Hopper Celebration (vGHC) 2021 (September 27 – October 1, 2021) to celebrate women technologists from across the globe

Served as a panelist on live experiences of multi-cultural perspectives in the work force for ICS 600 (Survey of Management; course taught by Dr. Rebecca Hammons at Center for Information and Communication Sciences at BSU) on June 13th, 2018

Met with the Peer Review team from the National Council of University Research Administrators (NCURA) sharing feedback and suggestions on November 2nd, 2018, as invited by the Sponsored Projects Administration (SPA) at BSU

Attended the Graduate Program Task Force Meeting as a Departmental Substitute on November 30th, 2018

Teaching Experience

Ball State University

- CS439: Rigorous Software Specification and Testing, *Spring21*, *Spring23* special topic seminar
- CS495: Software Engineering I, *Fall12*, *Fall13*, *Fall14*, *Fall15*, *Fall16*, *Fall17*, *Fall18*, *Fall19*, *Fall21* undergraduate core class
- CS496/498: Software Engineering II, *Spring13*, *Spring14*, *Spring15*, *Spring16*, *Spring17*, *Spring18*, *Spring19*, *Spring20*, *Spring22* undergraduate core class
- CS224: Design and Analysis of Algorithms, *Fall19*, undergraduate core class
- CS124: Discrete Structures, *Spring14*, *Fall22*, *Spring23* undergraduate core class
- CS499/CS499A/CS380: Independent Study, *Spring13 (James M. Romelfanger)*, *Fall13 (Travis D. Schwipps)*, *Summer14 (Yufeng Xue)*, *Fall14 (Yufeng Xue)*, *Spring15 (Yufeng Xue)*, *Summer17 (Saad Abubakr, Turky Alsanie)*, *Spring20 (Mera A. Alfawares)*, *Fall20 (Alan D. Bauer)*, *Spring21 (Alan D. Bauer, Levi T. Connelly)*, *Fall21 (Andrew M. Thomas, Benjamin T. Eger)*, *Fall22 (Melody L. Hammel)*, *Spring23 (Melody L. Hammel)*
- CS699: Independent Study, *Summer13 (Jia He)*, *Fall13 (Jia He)*, *Spring14 (Xin Guo)*, *Fall15 (Yuhang Zhang, Shangyue Zhu)*, *Spring17 (Yufeng Xue)*, *Summer17 (Yufeng Xue)*, *Summer18 (Yufeng Xue)*, *Spring19 (Liang Hao)*, *Summer19 (Liang Hao)*
- CS695: Software Engineering Capstone, *Spring19 (Zedong Peng)*

University of Tennessee (Taught with Dr. Jesse H. Poore)

- CS340: Foundations of Software Engineering, *Fall07*, *Fall08*, *Fall09*, *Fall10*, undergraduate core class
- CS525: Building Dependable Software Systems, *Spring09*, *Spring10*, *Spring11*

University of Kaiserslautern, Fraunhofer Institute for Experimental Software Engineering, Germany (Taught with Dr. Jesse H. Poore)

- Module B-M.2: Software Development for Embedded Systems, *Winter08*, *Winter09*, *Winter10*, *Winter11*, core class for the Master of Software Engineering Distance Education Program

Advising Graduate and Undergraduate Students

M.Sc. student (Thesis committee chairperson)

- Yufeng Xue, Quantifying software quality with rigorous testing: Advances in theory and new practices, 2017-2018

M.Sc. students (Thesis committee member)

- Brian Cromis, Ransomware, a system centric detection approach, 2016-2017
- Hussam Almoharb, Enhancing code clone identification by measuring the distance between code clones, 2015-2016
- Ran An, Smart device user behavior classification and learning with hidden Markov model, 2015-2016
- Ronald D. Smith, A polynomial time heuristic algorithm for certain instances of 3-partition, 2012-2013
- Lixing Song, Adaptive wireless rate control driven by fine-grained channel assessment, 2013-2014

Undergraduate students (Honors thesis advisor)

- Benjamin T. Eger, Leveraging NLP to develop an investment account Q&A chatbot, 2022
- James M. Romelfanger, DiscoverBSU, 2012-2013
- Ryan Wiesjahn, DeveloperTown house locator: A touchscreen web application, 2014-2015
- Jason R. Toomey, Indiana music business directory: An overview of a web development project, 2014-2015

Undergraduate student (Honors Undergraduate Fellowship research advisor)

- Benjamin T. Eger, A path to software quality assurance: Theory and practice, 2021-2022

Undergraduate student (Indiana Louis Stokes Alliance for Minority Participation student summer research advisor)

- Eric E. Vester, Automated unit testing of CyberWater modules, June - July 2021
  Note: Eric's summer research was presented in the poster session at the **Louis Stokes Midwest Regional Center of Excellence (LSMRCE) Conference**, ***Empowering Diverse STEM Innovators***, virtually on October 23, 2021. It was **selected as 1 of 15 poster submissions by LSMRCE** that were invited to submit to the **Eaton Tech Poster Session** for the "Eaton Experience Week" held virtually on November 15-19, 2021. (Eaton representatives selected these posters based upon the innovation of the poster content and the student's area of concentration. The goal of this Eaton Tech Poster Session is to demonstrate to the Eaton R&D scientists the rich pipeline of STEM talent coming out of the LSAMP community.)

Undergraduate students (Ball State University Student Symposium faculty mentor)

- Hailey Leonard, Monika Krcoski, Caleb Van Lue, Brian Walker, A mobile fitness application for iOS and Android, 2022
- Melody Hammel, Automated unit testing with CI/CD of workflow software for hydrologic modeling studies, 2022

Professional Membership

Member of the ACM