

Curriculum Vitae

Wenbing Zhao

Professor

Chair, Graduate Affairs Committee (College)

Chair, Graduate Program Committee (Department)

Director, Master of Science in Electrical Engineering

ABET Coordinator, Bachelor of Science in Computer Science

Department of Electrical Engineering and Computer Science, Cleveland State University

Email: wenbing@ieee.org and w.zhao1@csuohio.edu Web: http://academic.csuohio.edu/zhao_w

2121 Euclid Ave., FH 317, Cleveland, OH 44115 Tel: (216) 523-7480 Fax: (216) 687-5405

MAJOR FIELDS OF COMPETENCE

- **Smart and Connected Healthcare**
 - **Computer Vision and Motion Analysis**
 - **Machine Learning**
 - **Dependable Distributed Computing**
-

EDUCATION

06/2002 **Ph.D. in Electrical and Computer Engineering**

University of California, Santa Barbara

06/1998 **M.S. in Electrical and Computer Engineering**

University of California, Santa Barbara

07/1993 **M.S. in Physics**

Peking University, P. R. China

07/1990 **B.S. in Physics**

Peking University, P. R. China

RESEARCH & DEVELOPMENT EXPERIMENTENCE

08/2016-present **Professor**, Department of Electrical Engineering and Computer Science, Cleveland State University

08/2010-08/2016 **Associate Professor**, Department of Electrical and Computer Engineering, Cleveland State University

08/2004-08/2010 **Assistant Professor**, Department of Electrical and Computer Engineering, Cleveland State University

01/2003-08/2004 **Post-Doctoral Researcher**, Department of Electrical and Computer Engineering, University of California, Santa Barbara

12/2000-07/2004 **Chief Architect/Senior Research Engineer and Co-founder**, Eternal Systems, Inc.

TEACHING EXPERIENCE

08/2016-present **Professor**, ECE Department, Cleveland State University

08/2010-08/2016 **Associate Professor**, ECE Department, Cleveland State University

08/2004-08/2010 **Assistant Professor**, ECE Department, Cleveland State University

- “Mobile Application Development” (CIS470), Spring 2018
- “Kinect Application Development” (EEC492/592), Spring 2014
- “Applied Computing Vision with Depth Cameras” (EEC693/793), Spring 2014, Spring 2015, Spring 2016, Summer 2016, Spring 2017, Summer 2017
- “Senior Design” undergraduate course (EEC490), Spring 2012
- “iPhone Application Development” undergraduate course (EEC492), Fall 2010
- “*Distributed Computing Systems*” graduate-level course (EEC681/781), Fall 2004, Spring 2006, Fall 2006, Fall 2008
- “*Computer Networks*” undergraduate/graduate-level course (EEC484/584), Spring 2005, Fall 2005, Fall 2006, Spring 2007, Fall 2007, Spring 2008, Fall 2008, Spring 2009, Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011, Spring 2012, Fall 2012, Fall 2013, Fall 2014, Spring 2015
- “*Modeling and Performance Evaluation of Computer Systems*” graduate-level course (EEC685/785), Fall 2005
- “*Secure and Dependable Computing*” graduate-level course (EEC693/793, approved as EEC688/788), Spring 2006, Spring 2007, Spring 2008, Spring 2009, Fall 2009, Spring 2011, Fall 2013, Fall 2014, Summer 2015, Fall 2015, Summer 2016, Fall 2016, Summer 2017, Fall 2017

AWARDS AND HONORS

- Cleveland State University *Distinguished Faculty Award* in Teaching, 2017
 - Cleveland State University *Golden Apple Award*, 2017
 - **Best Paper Award** of the 2016 2nd *International Conference on IT and Education Innovations*. Paper Title: “Enhancing Undergraduate Research Experience with Cutting Edge Technologies”
 - Significant Research Citation by Science of Security Virtual Organization (<http://cps-vo.org/group/SoS>) for two of my papers titled “Application-Aware Byzantine Fault Tolerance” and “Towards Trustworthy Complex Event Processing”, 2015
 - **Top 10 Smart World Challenges** (my entry titled “*Smart Software Infrastructure for Smart Worlds*”), selected by the Open Forum on Top10Cs, as part of the 2015 Smart World Congress, August 10-14, Beijing, China. (Selection result: <http://www.cybermatics.org/SmartWorldCongress2015/SWC2015/Top10Cs/index.php?action=results>)
 - **The Best Paper Award** of the 2012 *International Conference on Distributed Computing Engineering*. Paper Title: “Concurrent Byzantine Fault Tolerance for Software-Transaction-Memory Based Applications”
 - **Most Promising Research Award** of the 2007 *Middleware for Web Services Workshop*. Paper Title: “BFT-WS: A Byzantine Fault Tolerance Framework for Web Services”
 - **Best Paper Award on Computer Systems** of the 2002 *International Symposium on Performance Evaluation of Computer and Telecommunication Systems*. Paper Title: "End-to-end latency analysis and evaluation of a fault-tolerant CORBA infrastructure", with L. E. Moser and P. M. Melliar-Smith
 - **Fenn College Distinguished Faculty Teaching Award**, Cleveland State University, May 2007.
 - **Merit-Based Award**, Cleveland State University, 2008, 2009, 2012, 2013, 2014, 2016, 2017
 - **National Chi-Sun Yeh Thesis Award on Experimental Physics**, for my M.S. thesis, P. R. China, 1993
-

PATENTS

- **Consistent Time Service for Fault-Tolerant Distributed Systems, US Patent 7,334,014B2** with L. E. Moser and P. M. Melliar-Smith, Availigent, Inc.
 - **Systems and Methods for Privacy-Aware Motion Tracking with Notification Feedback**, Appl. No.: 15/190,669, U.S. Utility Patent filed on 6/23/2016, as sole inventor, Cleveland State University
 - **Privacy-Aware Vision-Based Human Motion Tracking**, provisional patent filed on June 23, 2015, as sole inventor, application number 62/183,515, Cleveland State University
 - **Systems and Methods for Providing Computer-Based Therapeutic Exercise Guidance**, provisional patent filed on Feb 28, 2013 with Ann Reinthal, Debbie Espy, and Nigamanth Sridhar, Cleveland State University
-

THESES AND DISSERTATION

- **Unification of Replication and Transaction Processing**
Ph.D. Dissertation, University of California, Santa Barbara, June 2002
 - **Epitaxial C₆₀ Thin Films: Synthesis, Interaction, Electronic-Transport Property and Transmission Electron Microscopy**
M.S. Thesis, Peking University, Beijing, P. R. China, July 1993
 - **Synthesis and Measurement of YBCO Superconducting Thick Films**
B.S. Thesis, Peking University, Beijing, P. R. China, July 1990
-

RESEARCH GRANTS

External

- **A Privacy-Aware Compliance Tracking System with Realtime Feedback**, As PI \$100,000. Cleveland State University/Kent State University TeckFund, 01/01/2018-04/30/2019.
- **A Privacy-Aware Compliance Tracking System with Realtime Feedback**. As PI. \$15,000. Ohio i-Corps Program, Ohio Department of Higher Education, 4/2017-3/2018.
- **Drughelp.care: A Web app designed to more quickly match substance users with needed treatment**. As co-PI with Miyuki Tedor and Patricia Dare. \$20,000. Woodruff Foundation. 3/2018-2/2019.
- **Safe Patient Handling among STNA's in Nursing Homes: Compliance, Monitoring, and Continuous Quality Improvement of Best Practices**. Ohio Bureau of Workers' Compensation, Award amount \$246,462, as PI from 5/18/2017-8/31/2017, as co-PI from 6/1/2015-5/17/2017, with Drs. Goodman, Espy, Reinthal, Ekelman, Niederriter. 6/1/2015-8/31/2017.
- **Privacy-Aware Human Motion Tracking and Its Application in Safe Patient Handling**, as PI. NSF Smart and Connected Health (SCH) Aspiring Investigators Workshop, June 30, 2015. Up to \$1,500 to cover the cost of attending the workshop.
- **MRI: Acquisition of Equipment to Establish a Secure and Dependable Computing Infrastructure for Research and Education at Cleveland State University**. As lead PI (with Dr. Nigamanth Sridhar, Chansu Yu and Yongjian Fu). National Science Foundation Major Research Instrumentation Program, 2008-2012. Award amount \$150,000 (with cost-sharing from CSU of the amount of \$93,914).

- **Byzantine Fault Tolerance as a Service**, REU Supplement Grant to MRI: Acquisition of Equipment to Establish a Secure and Dependable Computing Infrastructure for Research and Education at Cleveland State University. As lead PI (with Dr. Nigamanth Sridhar, Chansu Yu and Yongjian Fu). National Science Foundation Major Research Instrumentation Program, 2012. Award amount \$16,000.
- **Byzantine Fault Tolerant Event Stream Processing**, REU Supplement Grant to MRI: Acquisition of Equipment to Establish a Secure and Dependable Computing Infrastructure for Research and Education at Cleveland State University. As lead PI (with Dr. Nigamanth Sridhar, Chansu Yu and Yongjian Fu). National Science Foundation Major Research Instrumentation Program, 2010. Award amount \$16,000.
- **Towards a Lightweight Highly Dependable Storage System for Home Networks**, REU Supplement Grant to MRI: Acquisition of Equipment to Establish a Secure and Dependable Computing Infrastructure for Research and Education at Cleveland State University. As lead PI (with Dr. Nigamanth Sridhar, Chansu Yu and Yongjian Fu). National Science Foundation Major Research Instrumentation Program, 2009. Award amount \$16,000.
- **Enhancing the DriveSafety Driving Simulator for Research on Short-Term Construction Work Zones**. As PI, United States Department of Transportation (via CSU Transportation Center), 2/2010-8/2011. Award amount \$44,767.

Internal

- **Virtual Reality Based Serious Games for STNA Training**. As PI. CSU USRA summer 2018, \$3,780.
- **FRD-IoT: A Multi-Modal Sensing Platform for Behavior and Emotion Monitoring**. As PI, CSU FRD-IoT, 2017-2018, \$8,000.
- **FRD-IoT: Development of a Web-Based System for Supporting Home-Based Care and Treatment of Children with Autism Spectrum Disorder (ASD)**. As co-PI, with Xiongyi Liu, CSU FRD-IoT, 2017-2018, \$8,000.
- **FRD-IoT: Development of a Mobile App/Web**, as Co-PI with Miyuki Tedor, Patricia Stoddard-Dare, CSU FRD-IoT, 2017-2018, \$8,000.
- **BUDDY: A Virtual Reality Based Computer System for Children with Autism Spectrum Disorders**. As PI (with Dr. Xiongyi Liu), CSU USRA summer 2017, \$8,000.
- **Human Gait Analysis Using Wearable Sensors**. As faculty advisor (student researcher: Venkat Padaraju). Spring 2017. \$1,000. CSU undergraduate research award program.
- **A Multi-Modal Sensing Platform for Behavior and Emotion Monitoring**. As faculty advisor (student researcher: Gabriel Madison). Fall 2017. \$1,000. CSU undergraduate research award program.
- **Enhancing Multidirectional Harnessed Mobility Training with Realtime Sensing and Feedback**. As PI (with R. Reinthal), CSU Faculty Research Development (FRD) Program, 2016, Award amount: \$25,000.
- **Development of the Technology for the Exercise Tutor: A System for Proxy Exercise Guidance**. As Co-PI (with D. Espy, A. Reinthal, and N. Sridhar), CSU Faculty Research Development (FRD) Program, 2012, Award amount: \$18,236.00.

- **A Human Centered Activity Tracking Service towards a Healthier Workplace.** As PI, CSU Undergraduate Summer Research Award Program, 2016. Award amount: \$4,780.
- **Towards a More Dependable Integrated Clinical Environment.** As PI, CSU Undergraduate Summer Research Award Program, 2016. Award amount: \$4,380.
- **Towards Safer Patient Handling among Workers in Nursing Homes.** As PI with Dr. Goodman. CSU Undergraduate Summer Research Award Program, 2015. Award amount: \$8,500.
- **Building Highly Dependable Distributed Systems.** As PI. CSU Scholarship Initiate Research Program, 2010. Award amount \$5,000.
- **Towards Secure and Dependable Computing.** As PI. CSU Faculty Research Development (FRD) Program, 2006. Award amount \$12,314 (with cost-sharing from Department of Electrical and Computer Engineering of the amount of \$13,230).
- **Use of Computer Gaming as an Adjunct during Outpatient Stroke Rehabilitation to Obtain Task Specific Upper Extremity Practice Repetitions.** As Co-PI (with A. Reinthal, M. Milidonis, and N. Sridhar), CSU Faculty Research Development (FRD) Program, 2009, Awarded \$12,816.49.
- **Improving Work Zone Safety using Sensor Networks: Undergraduate Research Experience in Computer Engineering.** As Co-PI with Drs. Pong Chu, Yongjian Fu, Nigamanth Sridhar, Chansu Yu, and Ye Zhu. Engaged Learning: CSU Undergraduate Research Program, 2008. Award amount \$18,187.20.
- **Touch-Based Pervasive Computing Exploration.** As lead PI. Engaged Learning: CSU Undergraduate Research and Creative Achievement program, 2009. Award amount \$16,370.40.
- **Enabling Pervasive Participatory Sensing Application.** As Co-PI with Drs. Pong Chu, Yongjian Fu, Nigamanth Sridhar, Chansu Yu, and Ye Zhu. Engaged Learning: CSU Undergraduate Research Program, 2008. Award amount \$16,692.00.
- **Participatory Sensing for Intelligent Transportation Systems.** As PI with Drs. Pong Chu, Yongjian Fu, Nigamanth Sridhar, Chansu Yu, and Ye Zhu. Engaged Learning: CSU Undergraduate Research Program, 2011. Award amount \$9,093.60.
- **A Low Cost Motion Analysis System Based on Kinect.** As PI with Drs. Sridhar, Reinthal, and Epsy. Engaged Learning: CSU Undergraduate Research and Creative Achievement Program, 2012. Award amount: \$13,154.
- **An American Sign Language Translation System Based on Kinect.** As PI. CSU Undergraduate Summer Research Award Program, 2013. Award amount: \$8,160.

EDUCATION GRANTS

- **Interactive Algorithm Visualization for Computer Networks.** As PI. CSU Teaching Enhancement Award, \$1,000. 2014-2015.
- **A New Course on Kinect Application Development.** As PI. CSU Teaching Enhancement Award, \$4,000. 2013-2014.
- **Kinect for Education: Making the Senior Design More Relevant, More Cutting-Edge, and More Fun.** As PI. CSU Teaching Enhancement Award, \$2,385. 2011-2012.

- **A New Course on iPhone/iPod Touch Application Development.** As PI (with Co-PI Dr. Nigamanth Srdihar). CSU Teaching Enhancement Award, \$5,000. 2009-2010.
- **Bringing the Fun and Excitement of iPod Touch into Classroom: An Engaged Learning Experience for EEC484/584 Students.** As PI. CSU Teaching Enhancement Award, \$3,939. 2008-2009.
- **Information Literacy Education in EEC484/584 Computer Networks.** As sole PI. CSU Information Literacy Small Grant, \$1,000, 2007.

AUTHORED RESEARCH MONOGRAPHS

- 1) **W. Zhao**, *Building Dependable Distributed Systems*, Scrivener Publishing (a Wiley Imprint), March 2014.

EDITED BOOKS

- 2) **W. Zhao**, X. Luo, and T. Qiu, *Recent Development in Smart Healthcare*, MDPI, March 2018. <http://www.mdpi.com/books/pdfview/book/494>.
- 3) L. Wang, T. Qiu, and **W. Zhao**, Quality, Reliability, Security and Robustness in Heterogeneous Systems (the 13th International Conference, QShine 2017 Dalian, China, December 16–17, 2017 Proceedings), Springer, LNICST, volume 234, <https://link.springer.com/book/10.1007%2F978-3-319-78078-8>.

PEER-REVIEWED JOURNAL PUBLICATIONS

- 4) **Wenbing Zhao**, D. Espy, A. Reinthal, “Assessment of Sit-to-Stand Movements Using a Single Kinect Sensor: A Preliminary Study in Healthy Subjects,” *International Journal of Healthcare Information Systems and Informatics*, in press.
- 5) Tie Qiu, Ning Chen, Keqiu Li, Mohammed Atiquzzaman, and **Wenbing Zhao**. "How Can Heterogeneous Internet of Things Build our Future: A Survey." *IEEE Communications Surveys & Tutorials* (2018). In press.
- 6) Weiping Wang, Meiqi Wang, Xiong Luo, Lixiang Li, **Wenbing Zhao**, Linlin Liu, and Yuan Ping. "Passivity of memristive BAM neural networks with leakage and additive time-varying delays." *Modern Physics Letters B*, vol.32, no.4, 1850041, February 2018.
- 7) Weiping Wang, Meiqi Wang, Xiong Luo, Lixiang Li, and **Wenbing Zhao**, “Passivity of Memristive BAM Neural Networks with Probabilistic and Mixed Time-Varying Delays,” *Mathematical Problems in Engineering*, vol. 2018, Article ID 5830160, 25 pages, April 2018. doi:10.1155/2018/5830160.
- 8) Luo X, Xu Y, Wang W, Yuan M, Ban X, Zhu Y, **Zhao W**. Towards Enhancing Stacked Extreme Learning Machine with Sparse Autoencoder by Correntropy. *Journal of the Franklin Institute*, vol.355, no.4, pp. 1945-1966, March 2018.
- 9) **Wenbing Zhao**, Qing Wu, Ann Reinthal and Nian Zhang, “Design, Implementation, and Field Testing of a Privacy-Aware Compliance Tracking System for Bedside Care in Nursing Homes,” *Applied System Innovation*, vol.1, no.1, pp.3, 2018.
- 10) **Wenbing Zhao**, R. Lun, C. Gordon, A. Fofana, D. Espy, A. Reinthal, B. Ekelman, G. Goodman, J. Niederriter, X. Luo, “A Human-Centered Activity Tracking System: Towards a Healthier Workplace,” *IEEE Transactions on Human-Machine Systems*, vol. 47, no. 3, pp. 343-355, June 2017, doi: 10.1109/THMS.2016.2611825.
- 11) B. Krupp, N. Sridhar, and **Wenbing Zhao**, “SPE: Security and Privacy Enhancement Framework for Mobile Devices,” *IEEE Transactions on Dependable and Secure Computing*, vol.14, no.3, pp. 433-446, July-August, 2017.

- 12) **Wenbing Zhao**, M. Ann Reinthal, Deborah D. Espy, Xiong Luo, "Rule-Based Human Motion Tracking for Rehabilitation Exercises: Realtime Assessment, Feedback, and Guidance," *IEEE Access*, vol. 5, issue 1, pp. 21382-21394, October 2017, doi:10.1109/ACCESS.2017.2759801.
- 13) **Wenbing Zhao**, Jianhua Ma, Kevin I-Kai Wang and Jun Wang, "Report of the 2017 IEEE Cyber Science and Technology Congress," *Applied Sciences*, vol. 7, no. 12, 1299; doi:10.3390/app7121299, December 2017.
- 14) **Wenbing Zhao**, Xiong Luo, and Tie Qiu, "Smart Healthcare," *Applied Sciences*, vol. 7, no. 11, 1176, doi:10.3390/app7111176.
- 15) W. Wang, M. Yu, X. Luo, L. Liu, M. Yuan, & **W. Zhao**. "Synchronization of memristive BAM neural networks with leakage delay and additive time-varying delay components via sampled-data control," *Chaos, Solitons & Fractals*, vol.104, pp. 84-97. November 2017.
- 16) Xiongyi Liu, Qing Wu, **Wenbing Zhao**, and Xiong Luo, "Technology-Facilitated Diagnosis and Treatment of Individuals with Autism Spectrum Disorder: An Engineering Perspective," *Applied Sciences*, vol. 7, no. 10, 1051, doi:10.3390/app7101051, October 2017.
- 17) **Wenbing Zhao**, Mary Yang, "Dependability enhancing mechanisms for integrated clinical environments," *The Journal of Supercomputing*, vol. 73, no. 10, pp. 4207-4220, doi:10.1007/s11227-017-2003-0, October 2017.
- 18) X. Luo, J. Deng, W. Wang, J. H. Wang, & **W. Zhao**. "A Quantized Kernel Learning Algorithm Using a Minimum Kernel Risk-Sensitive Loss Criterion and Bilateral Gradient Technique," *Entropy*, vol.19, no.7, pp.365. July 2017.
- 19) **W. Zhao**, "Enhancing Undergraduate Research Experience with Cutting Edge Technologies," *International Journal of Information and Education Technology*, vol. 7, no. 7, pp. 495-501, July 2017.
- 20) Mamdouh Babi, **Wenbing Zhao**, "Towards trustworthy collaborative editing," *Computers*, vol. 6, no. 2, 13; doi:10.3390/computers6020013, March 2017.
- 21) **Wenbing Zhao**, Xiong Luo, HuaPing Liu, Kun Hua, and Chaomin Luo, "Scientific Programming towards a Smart World," *Scientific Programming*, vol. 2017, Article ID 3706232, March 2017. doi:10.1155/2017/3706232.
- 22) Y. Xu, X. Luo, W. Wang, and **W. Zhao**, "Efficient DV-HOP Localization for Wireless Cyber-Physical Social Sensing System: A Correntropy-Based Neural Network Learning Scheme," *Sensors*, vol. 17, 135; January 2017, doi:10.3390/s17010135.
- 23) **W. Zhao**, R. Lun, C. Gordon, A. Fofana, D. Espy, A. Reinthal, B. Ekelman, G. Goodman, J. Niederriter, C. Luo, X. Luo, LiftingDoneRight: A Privacy-Aware Human Motion Tracking System for Healthcare Professionals, *International Journal of Handheld Computing Research*, vol. 7, no. 3, pp. 1-15, July-September 2016.
- 24) **W. Zhao**, X. Luo, Y. Zhu, and H. Chai, "On Intention Preservation in Deterministic Multithreading: A Partial Solution," *IET Software*, vol. 10, no. 6, pp. 155-163, December 2016.
- 25) **W. Zhao**, W. Yang, H. Zhang, J. Yang, X. Luo, Y. Zhu, M. Yang, and C. Luo, High Throughput State-Machine Replication Using Software Transactional Memory, *The Journal of Supercomputing*, vol. 72, no.11, pp. 4379-4398, November 2016.
- 26) **W. Zhao**, "A Concise Tutorial on Human Motion Tracking and Recognition with Microsoft Kinect," *Science China Information Sciences*, vol. 59, no.9, pp. 93101, September 2016.
- 27) **W. Zhao**, Optimistic Byzantine Fault Tolerance, *The International Journal of Parallel, Emergent and Distributed Systems*, vol. 31, no.3, pp. 254-267, June 2016.
- 28) X. Luo, Y. Lv, M. Zhou, W. Wang, and **W. Zhao**, "A Laguerre neural network-based ADP learning scheme with its application to tracking control in the Internet of Things," *Personal and Ubiquitous Computing*, vol.20, no.3, pp. 361-372, June 2016.

- 29) **W. Zhao**, "Performance Engineering of Byzantine Fault Tolerance Systems: A Review," *Journal of Systems and Software*, vol. 112, pp. 96-109, February 2016.
- 30) R. Lun and **W. Zhao**, "A Survey of Applications and Human Motion Recognition with Microsoft Kinect," *International Journal of Pattern Recognition and Artificial Intelligence*, vol.29, no.5, pp. 1555008, August 2015.
- 31) **W. Zhao**, "Fast Paxos Made Easy: Theory and Implementation," *International Journal of Distributed Systems and Technologies*, vol. 6, no. 1, pp. 15-33, Jan-March 2015.
- 32) **W. Zhao**, Roanna Lun, Deborah D. Espy, and M. Ann Reinthal, "Realtime Motion Assessment for Rehabilitation Exercises: Integration of Kinematic Modeling with Fuzzy Inference," *Journal of Artificial Intelligence and Soft Computing Research*, vol.4, no.4, pp. 267-285, October 2014.
- 33) **W. Zhao**, "A Novel Approach to Building Intrusion Tolerant Systems," *International Journal of Performability Engineering*, vol. 10, no .2, pp. 123-132, March 2014.
- 34) H. Chai, H. Zhang, **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Towards Trustworthy Coordination for Web Services Business Activities," *IEEE Transactions in Services Computing*, vol.6, no.2, pp. 276-288, 2013.
- 35) H. Zhang, H. Chai, **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Trustworthy Coordination for Web Services Atomic Transactions," *IEEE Transactions in Parallel and Distributed Systems*, vol. 23, no. 8, pp.1551-1565, 2012.
- 36) **W. Zhao**, P. M. Melliar-Smith, L. E. Moser, "Low Latency Fault Tolerance System," *The Computer Journal*, vol. 57, no. 6, pp.716-740, 2013.
- 37) H. Chai and **W. Zhao**, "Byzantine Fault Tolerance for Session-Oriented Multi-Tiered Applications," *International Journal of Web Services*, vol.2, no.1/2, pp.113-125, 2013.
- 38) H. Zhang and **W. Zhao**, "Concurrent Byzantine Fault Tolerance for Software-Transactional-Memory Based Applications," *International Journal of Future Computer and Communication*, vol.1, no.1, pp. 47-50, June 2012. (*Proceedings of the 2012 International Conference on Distributed Computing Engineering*, Hongkong, June 2-3, 2012.) (**Won the Best Paper Award**)
- 39) H. Zhang, **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Design and Implementation of a Byzantine Fault Tolerance Framework for Non-Deterministic Applications", *IET Software*, vol. 5, no. 3, 2011, pp. 342-356.
- 40) H. Chai and **W. Zhao**, "Recovering Lagging Replicas in a Fault Tolerant System," *International Journal of Performability Engineering, Short Communications*, vol. 7, no. 2, March 2011, pp. 195-197.
- 41) **W. Zhao**, "Building Highly Dependable Wireless Web Services," *Journal of Electronic Commerce in Organizations*, Vol. 8, no. 4, 2010, pp. 1-16.
- 42) **W. Zhao**, "Design and Implementation of a Byzantine Fault Tolerance Framework for Web Services," *Journal of Systems & Software*, Vol. 82, 2009, pp. 1004-1015.
- 43) **W. Zhao** and H. Zhang, "Proactive Service Migration for Long-Running Byzantine Fault Tolerant Systems," *IET Software*, vol. 3, no. 2, April 2009, pp. 154-164.
- 44) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "A Reservation-Based Extended Transaction Protocol," *IEEE Transactions on Parallel and Distributed Systems*, vol. 19, no. 2, 2008, pp. 188-203.
- 45) **W. Zhao**, H. Zhang, and H. Chai, "A Lightweight Fault Tolerance Framework for Web Services," *Web Intelligence and Agent Systems: An International Journal*, Vol. 7, no. 3, 2009, pp. 255-268.
- 46) **W. Zhao**, F. Kart, L. E. Moser and P. M. Melliar-Smith, "A Reservation-Based Extended Transaction Protocol for Coordination of Web Services," *International Journal of Web Services Research*, vol. 5, no. 3, 2008, pp. 64-95.

- 47) **W. Zhao**, "A Game Theoretical View of Byzantine Fault Tolerance Design," *International Journal of Performability Engineering, Short Communications*, vol. 3, no. 4, October 2007, pp. 498-500.
- 48) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Unification of Transactions and Replication in Three-Tier Architectures Based on CORBA," *IEEE Transactions on Dependable and Secure Computing*, vol. 2, no. 1, 2005, pp. 20-33.
- 49) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "End-to-End Latency of a Fault-Tolerant CORBA Infrastructure," *Performance Evaluation*, vol.63, no. 4-5, 2006, pp.341-363.
- 50) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Design and Implementation of a Consistent Time Service for Fault-Tolerant Distributed Systems," *International Journal of Computer Systems Science and Engineering*, vol.19 no. 5, 2004, pp. 315-323.
- 51) L. E. Moser, P. M. Melliar-Smith and **W. Zhao**, "Building Dependable and Secure Web Services," *Journal of Software*, Academy Publisher, vol. 2, no. 1, February 2007, pp. 14-26.
- 52) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Design and Implementation of a Pluggable Fault Tolerant CORBA Infrastructure," *Cluster Computing: The Journal of Networks, Software Tools and Applications*, Special issue on Dependable Distributed Systems, vol. 7, no. 4, 2004, pp. 317-330.
- 53) B. X. S. Alexander, Richard Rarick, **Wenbing Zhao**, Lili Dong, "Simulation and Analysis of an Extended State Observer for Levitation Control of a Rotor-Bearing System," *International Journal of Engineering and Simulation*, vol. 9, no. 1, 2009.

PEER-REVIEWED CONFERENCE/WORKSHOP PUBLICATIONS

- 54) Elham Akbari, Qing Wu, **Wenbing Zhao**, Hamid R. Arabnia, Mary Qu Yang, "From Blockchain to Internet-Based Voting," *Proceedings of the International Conference on Computational Science and Computational Intelligence*, Las Vegas, NV, December 14-16, 2017, pp. 218-221.
- 55) Q. Wu and **W. Zhao**, "Towards a Technology-Enabled Environment of Care for Nursing Homes," *Proceedings of the IEEE Cyber Science and Technology Congress*, Orlando, FL, November 6-10, 2017, pp. 299-302.
- 56) X. Liu and **W. Zhao**, "Buddy: A Virtual Life Coaching System for Children and Adolescents with High Functioning Autism," *Proceedings of the IEEE Cyber Science and Technology Congress*, Orlando, FL, November 6-10, 2017, pp. 293-298.
- 57) Qing Wu and W. Zhao. "Small-Cell Lung Cancer Detection Using a Supervised Machine Learning Algorithm." *Proceedings of the International Symposium on Computer Science and Intelligent Controls (ISCSIC)*, pp. 88-91. IEEE, 2017
- 58) **W. Zhao**, Q. Wu, V. Padaraju, M. Bbela, A. Reinthal, D. Espy, X. Luo, and T. Qiu, "A Privacy-Aware Compliance Tracking System for Skilled Nursing Facilities," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3568-3573.
- 59) **W. Zhao**, Q. Wu, A. Reinthal, D. Espy, X. Luo, and T. Qiu, "Enhancing Body Mechanics Training for Bedside Care Activities with a Kinect-Based System," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3558-3562.
- 60) Q. Wu, **W. Zhao**, H. Sharma, and T. Qiu, "Movie Trailer Quality Evaluation Using Real-time Human Electroencephalogram," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3553-3557.
- 61) Q. Wu, Ben Foote-Huth, Stephan Steidl, Hui Ye, and **Wenbing Zhao**, "EEG Analysis Reveals Reduced Seizure Activity by Optogenetic Inhibition of GABAergic Interneurons," *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3563-3567.
- 62) **W. Zhao**, Q. Wu, D. Espy, A. Reinthal, X. Luo, and Y. Peng, "A Feasibility Study on Using a Kinect-Based Human Motion Tracking System to Promote Safe Patient Handling," *Proceedings of the IEEE*

International Conference on Electro Information Technology, May 14-17, 2017, pp. 462-466.
Lincoln, Nebraska.

- 63) **W. Zhao**, X. Liu, C. Luo, and X. Luo, Enhancing Communication with Students Using a Teaching Method Based on Topical Guide Objectives, *Proceedings of the ASEE Annual Conference & Exposition*, June 25-28, 2017, Columbus, OH, USA, paper ID #18838.
- 64) **W. Zhao**, X. Luo, C. Luo, and Y. Peng, Design and Implementation of Project-Based Courses on Cutting-Edge Computer Technologies, *Proceedings of the ASEE Annual Conference & Exposition*, June 25-28, 2017, Columbus, OH, USA, paper ID #18940.
- 65) J. Wang, C. Luo, **W. Zhao**, and X. Li, Empowering Students with Self-Regulation in a Project-Based Embedded Systems Course, *Proceedings of the ASEE Annual Conference & Exposition*, June 25-28, 2017, Columbus, OH, USA, paper ID #18283.
- 66) C. Luo, J. Wang, **W. Zhao**, and L. Wang, Multi-Lab-Driven Learning Method Used for Robotics ROS Study, *Proceedings of the ASEE Annual Conference & Exposition*, June 25-28, 2017, Columbus, OH, USA, paper ID #18254.
- 67) **W. Zhao** and R. Lun, "A Kinect-Based System for Promoting Healthier Living at Home," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Budapest, Hungary, October 9-12, 2016, pp. 258-263.
- 68) R. Lun, C. Gordon, **W. Zhao**, "The Design and Implementation of a Kinect-Based Framework for Selective Human Activity Tracking," *Proceedings of the IEEE International Conference on Systems, Man, and Cybernetics*, Budapest, Hungary, October 9-12, 2016, pp. 2890-2895.
- 69) R. Lun, C. Gordon, **W. Zhao**, "Tracking the Activities of Daily Lives: An Integrated Approach," *Proceedings of the Future Technologies Conference*, San Francisco, December 6-7, 2016, pp. 466-475.
- 70) **W. Zhao**, R. Lun, C. Gordon, A. Fofana, D. Espy, A. Reinthal, B. Ekelman, G. Goodman, J. Niederriter, C. Luo, X. Luo, "A Privacy-Aware Kinect-Based System for Healthcare Professional," *Proceedings of the IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 205-210, May 19-21, 2016.
- 71) **W. Zhao**, "On Automatic Assessment of Rehabilitation Exercises with Realtime Feedback," *Proceedings of the IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 376-381, May 19-21, 2016.
- 72) **W. Zhao** and M. Babi, "Byzantine Fault Tolerance for Collaborative Editing with Commutative Operations," *Proceedings of the IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 246-351, May 19-21, 2016.
- 73) M. Babi and **W. Zhao**, "Selective Merged Undo for Real-Time Collaborative Editing," *Proceedings of the IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 330-335, May 19-21, 2016.
- 74) C. Luo, H. Mo, F. Shen, and **W. Zhao**, "Multi-goal Motion Planning of an Autonomous Robot in Unknown Environments by an Ant Colony Optimization Approach," *Proceedings of the 7th International Conference on Swarm Intelligence*, Bali, Indonesia, pp. 519-527, June 25-30, 2016.
- 75) X. Luo, J. Deng, J. Liu, A. Li, W. Wang, and **W. Zhao**, "A Novel Entropy Optimized Kernel Least-Mean Mixed-Norm Algorithm," *Proceedings of the International Joint Conference on Neural Networks*, Vancouver, Canada, pp. 1716-1722, July 24-29, 2016.
- 76) X. Luo, Y. Lv, W. Wang, Mi. Zhou, and **W. Zhao**, "Direct Heuristic Dynamic Programming Design with Extreme Learning Machine," *Proceedings of the International Joint Conference on Neural Networks*, Vancouver, Canada, 1961-1967, July 24-29, 2016.
- 77) G. Liu, C. Luo, X. Luo, and **W. Zhao**, "H Infinite State Estimation for Neutral-Type Neural Networks with Continuously Distributed Delays," *Proceedings of the 12th World Congress on Intelligent Control and Automation*, Guilin, China, pp. 2098-2102, June 12-15, 2016.

- 78) C. Luo, A. Zhu, H. Mo, and **W. Zhao**, "Planning Optimal Trajectory for Histogram-enabled Mapping and Navigation by an Efficient PSO Algorithm." *Proceedings of the 12th World Congress on Intelligent Control and Automation*, Guilin, China, pp. 1099-1104, June 12-15, 2016.
- 79) C. Luo, X. Li, J. Wang, and **W. Zhao**, "Enhancement of Electrical Engineering Education by a Mentoring Scheme," *Proceedings of the IEEE International Conference on Teaching, Assessment, and Learning for Engineering*, pp. 72-76, December 10-12, 2015.
- 80) **W. Zhao** et al., "Enable Concurrent Byzantine Fault Tolerance Computing with Software Transactional Memory," *Proceedings of the 8th International Conference on Advanced Software Engineering & Its Applications*, Jeju, South Korea, Nov 25-28, 2015, pp. 67-72.
- 81) **W. Zhao**, D. Espy, A. Reinthal, B. Ekelman, G. Goodman, J. Niederriter, "Privacy-Aware Human Motion Tracking with Realtime Haptic Feedback," *Proceedings of the 4th IEEE International Conference on Mobile Services*, New York, NY, USA, June 27-July 2, 2015, pp. 446-453.
- 82) **W. Zhao**, "Towards Trustworthy Integrated Clinical Environments," *Proceedings of the 12th IEEE International Conference on Advanced and Trusted Computing*, Beijing, China, August 10-14, 2015, pp. 452-459.
- 83) **W. Zhao**, Enriching Engineering Curricula with a Course on Cutting-Edge Computer Technologies, *Proceedings of the IEEE Integrated STEM Education Conference*, Princeton, NJ, March 7, 2015, pp. 44-48.
- 84) **W. Zhao**, Intention Preservation in Deterministic Multithreading, in *Proceedings of the 8th International Conference on Future Generation Communication and Networking*, Hainan Island, China, December 20-23, 2014, pp. 29-32.
- 85) **W. Zhao**, D. Espy, M. A. Reinthal, and H. Feng, A Feasibility Study of Using a Single Kinect Sensor for Rehabilitation Exercises Monitoring: A Rule Based Approach, in *Proceedings of the IEEE Symposium on Computational Intelligence in Healthcare and e-Health*, Orlando, Florida, USA, December 9-12, 2014, pp. 1-8.
- 86) **W. Zhao**, R. Lun, D. Espy, and M. A. Reinthal, Rule Based Realtime Motion Assessment for Rehabilitation Exercises, in *Proceedings of the IEEE Symposium on Computational Intelligence in Healthcare and e-Health*, Orlando, Florida, USA, December 9-12, 2014, pp. 133-140.
- 87) H. Chai and **W. Zhao**, Byzantine Fault Tolerance for Services with Commutative Operations, in *Proceedings of the 11th IEEE International Conference on Services Computing*, Anchorage, Alaska, USA, June 27 – July 2, 2014, pp. 219-226.
- 88) H. Chai and **W. Zhao**, Byzantine Fault Tolerant Event Stream Processing for Autonomic Computing, in *Proceedings of the 12th IEEE International Conference on Dependable, Autonomic and Secure Computing*, Dalian, China, August 24-27, 2014, pp. 109-114.
- 89) **W. Zhao**, Application-Aware Byzantine Fault Tolerance, in *Proceedings of the 12th IEEE International Conference on Dependable, Autonomic and Secure Computing*, Dalian, China, August 24-27, 2014, pp. 45-50.
- 90) **W. Zhao**, H. Feng, R. Lun, D. Espy, and A. Reinthal, A Kinect-Based Rehabilitation Exercise Monitoring and Guidance System, in *Proceedings of the 5th IEEE International Conference on Software Engineering and Service Science*, Beijing, China, June 27-29, 2014, pp. 762-765.
- 91) H. Chai and **W. Zhao**, Towards Trustworthy Complex Event Processing, in *Proceedings of the 5th IEEE International Conference on Software Engineering and Service Science*, Beijing, China, June 27-29, 2014, pp. 758-761.
- 92) **W. Zhao**, On the Quorum Requirement and Value Selection Rule for Fast Paxos, in *Proceedings of the 5th IEEE International Conference on Software Engineering and Service Science*, Beijing, China, June 27-29, 2014, pp. 406-409.

- 93) B. Krupp, N. Sridhar, and **W. Zhao**, *An Ontology for Enforcing Security and Privacy Policies on Mobile Devices*, Proceedings of the 6th International Conference on Knowledge Engineering and Ontology Development, October 21-24, 2014.
- 94) B. Krupp, N. Sridhar, and **W. Zhao**, *A Proposed Framework for Enhancing Security and Privacy on Unmodified Mobile Operating Systems*, Proceedings of the 1st International Workshop on Mobile Cloud and Social Computing, Philadelphia, pp.404-409, July 2013.
- 95) **W. Zhao** and M. Babi, Byzantine Fault Tolerant Collaborative Editing, in *Proceedings of the IET International Conference on Information and Communications Technologies*, pp. 233-240, Beijing, China, April 27-29, 2013.
- 96) **W. Zhao**, Towards Practical Intrusion Tolerant Systems, in *Proceedings of the IET International Conference on Information and Communications Technologies*, pp. 280-287, Beijing, China, April 27-29, 2013.
- 97) Hua Chai and **W. Zhao**, Byzantine Fault Tolerance as a Service, in *Proceedings of WSE 2012, Springer CCIS Vol. 342, Computer Applications for Web, Human Computer Interaction, Signal and Image Processing, and Pattern Recognition*, pp. 173-179, November 2012.
- 98) Hua Chai and **W. Zhao**, Interaction Patterns for Byzantine Fault Tolerance, in *Proceedings of WSE 2012, Springer CCIS Vol. 342, Computer Applications for Web, Human Computer Interaction, Signal and Image Processing, and Pattern Recognition*, pp. 180-188, November 2012.
- 99) **W. Zhao**, P. M. Melliar-Smith, and L. E. Moser, "Leader-Determined Membership Protocol," in *Proceedings of the IEEE International High Assurance Systems Engineering Symposium*, 2011, pp. 124-129.
- 100) **W. Zhao**, P. M. Melliar-Smith, and L. E. Moser, Fault Tolerance Middleware for Cloud Computing, in *Proceedings of the IEEE International Conference on Cloud Computing*, Miami, FL, July 5-10, 2010, pp. 67-74.
- 101) **W. Zhao**, "Integrity-Preserving Replica Coordination for Byzantine Fault Tolerant Systems", in *Proceedings of the IEEE International Conference on Parallel and Distributed Systems*, Melbourne, Victoria, Australia, December 8-10 2008, pp. 447-454.
- 102) **W. Zhao** and Honglei Zhang, "Byzantine Fault Tolerant Coordination for Web Services Business Activities," in *Proceedings of the IEEE International Conference on Services Computing*, Honolulu, Hawaii, July 8-11 2008, pp. 407-414. (18% acceptance rate for research track papers).
- 103) **W. Zhao** and F. Eugenio Villaseca, "Byzantine Fault Tolerance for Electric Power Grid Monitoring and Control," in *Proceedings of the International Conference on Embedded Software and Systems*, Chengdu, Sichuan, China, July 29-31 2008, pp. 129-135. (16% acceptance rate for regular papers).
- 104) **W. Zhao**, "Towards Practical Intrusion Tolerant Systems: A Blueprint," in *Proceedings of the Cyber Security and Information Intelligence Research Workshop*, Oak Ridge National Laboratory, May 12-14, 2008.
- 105) **W. Zhao**, "BFT-WS: A Byzantine Fault Tolerance Framework for Web Services," *Proceedings of the Middleware for Web Services Workshop*, Annapolis, MD, October 2007, pp. 89-96. (**Won Most Promising Research Award**)
- 106) **W. Zhao**, "A Lightweight Fault Tolerance Framework for Web Services," *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*, Silicon Valley, CA, November 2007, pp. 542-548. (16% acceptance rate for regular papers)
- 107) **W. Zhao**, "Byzantine Fault Tolerant Coordination for Web Services Atomic Transactions," *Proceedings of the 5th International Conference on Service-Oriented Computing*, Vienna, Austria,

September 2007, *Lecture Notes in Computer Science*, vol. 4749, pp. 307-318. (21% acceptance rate for full papers)

- 108) **W. Zhao**, "A Byzantine Fault Tolerant Distributed Commit Protocol," *Proceedings of the 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing*, Loyola College Graduate Center, Columbia, MD, USA, September 2007, pp. 37-44.
- 109) **W. Zhao**, "Byzantine Fault Tolerance for Nondeterministic Applications," *Proceedings of the 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing*, Loyola College Graduate Center, Columbia, MD, USA, September 2007, pp. 108-115.
- 110) L. E. Moser, P. M. Melliar-Smith and **W. Zhao**, Making Web Services Dependable, *Proceedings of the First International Conference on Availability, Reliability and Security, the International Dependability Conference Bridging Theory and Practice*, Vienna University of Technology, Austria, April 2006, pp. 440-448.
- 111) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, A Reservation-Based Coordination Protocol for Web Services, *Proceedings of the IEEE International Conference on Web Services*, Orlando, Florida, July 2005, pp. 49-56. (17% acceptance rate for regular papers)
- 112) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Design and Implementation of a Consistent Time Service for Fault-Tolerant Distributed Systems, *Proceedings of the IEEE International Conference on Dependable Systems and Networks*, San Francisco, CA, June 2003, pp. 341-350.
- 113) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, On Bootstrapping Replicated Applications, *Proceedings of the IEEE International Computer Software and Applications Conference*, Oxford, UK, August 2002, pp. 239-245.
- 114) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, End-to-end latency analysis and evaluation of a fault-tolerant CORBA infrastructure, *Proceedings of the International Symposium on Performance Evaluation of Computer and Telecommunication System*, San Diego, CA, July 2002, pp. 821-830. **(Won Best Paper Award)**
- 115) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Unification of Replication and Transaction Processing in Three-Tier Architectures, *Proceedings of the IEEE International Conference on Distributed Computing Systems*, Vienna, Austria, July 2002, pp. 290-297. (17% acceptance rate)
- 116) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, End-to-End Latency of a Fault-Tolerant CORBA Infrastructure, *Proceedings of the IEEE International Symposium on Object-Oriented Real-Time Distributed Computing*, Washington, D.C., April-May 2002, pp. 189-198.
- 117) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Design and Implementation of a Pluggable Fault Tolerant CORBA Infrastructure, *Proceedings of the International Parallel and Distributed Processing Symposium*, Fort Lauderdale, FL, April 2002.
- 118) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Integrating Fault Tolerant CORBA and the CORBA Object Transaction Service, *Proceedings of the International Conference on Software and Systems Engineering and their Applications*, Paris, France, December 2001.
- 119) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Increasing the Reliability of Three-Tier Applications, *Proceedings of the IEEE International Symposium on Software Reliability Engineering*, Hong Kong, China, November 2001, pp. 138-147.
- 120) **W. Zhao**, P. Narasimhan, L. E. Moser and P. M. Melliar-Smith, Experimental Evaluation of a Fault Tolerant CORBA System, *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications*, Las Vegas, NV, June 2001, pp. 390-396.

INVITED WORKSHOP PUBLICATIONS

- 121) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Deterministic Scheduling for Multithreaded Replicas, *Proceedings of the IEEE International Workshop on Object-oriented Real-time Dependable Systems*, Sedona, Arizona, February 2005, pp. 74-81.

NON-PEER-REVIEWED CONFERENCE PUBLICATIONS

- 122) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Checkpointing and Logging for Intrusion Analysis and Recovery, Supplement Proceedings of the IEEE International Conference on Dependable Systems and Networks, June 2004, 110-111.

PEER-REVIEWED BOOK CHAPTERS

- 123) **W. Zhao**, Enhancing the Resiliency of Smart Grid Monitoring and Control, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 3056-3065. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch267.
- 124) **W. Zhao**, Consistency is not Enough in Byzantine Fault Tolerance, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 1238-1247. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch107.
- 125) **W. Zhao**, Cyber Security Protection for Online Gaming Applications, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 1647-1655. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch143.
- 126) R. Lun and **W. Zhao**, Kinect Applications in Healthcare, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 5876-5885. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch511.
- 127) **W. Zhao**, Intrusion Tolerance Techniques, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 4927-4936. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch427.
- 128) **W. Zhao**, Toward Trustworthy Web Services Coordination, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 8056-8065. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch701.
- 129) **W. Zhao**, D. Espy, A. Reinthal, and H. Feng, A Validation Study of Rehabilitation Exercise Monitoring Using Kinect, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 5941-5954. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch517.
- 130) **W. Zhao**, Fault Tolerant Data Management for Cloud Services, *Encyclopedia of Information Science and Technology*, Fourth Edition, 2018, pp. 1091-1100. Hershey, PA: IGI Global. doi:10.4018/978-1-5225-2255-3.ch094.
- 131) **W. Zhao**, Database Replication and Clustering for High Availability, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 1748-1755.
- 132) **W. Zhao**, An Overview of Intrusion Tolerance Techniques, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 4231-4238.
- 133) **W. Zhao**, Enhancing Service Integrity of Byzantine Fault Tolerant Applications, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 2827-2834.
- 134) **W. Zhao**, Enhancing the Trustworthiness of Web Services Coordination, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 7614-7622.
- 135) **W. Zhao**, Byzantine Fault Tolerant Monitoring and Control for Electric Power Grid, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 2677-2685.

- 136) **W. Zhao**, Increasing the Trustworthiness of Online Gaming Applications, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 3062-3069.
- 137) R. Lun and **W. Zhao**, A Survey of Using Microsoft Kinect in Healthcare, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 3279-3287.
- 138) **W. Zhao**, D. Espy, A. Reinthal, and H. Feng, Feasibility Study of Using Microsoft Kinect for Physical Therapy Monitoring, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 5542-5554.
- 139) M. Babi and **W. Zhao**, Conflicts and Resolutions in Computer Supported Collaborative Work Applications, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 567-575.
- 140) M. Babi and **W. Zhao**, Increasing the Trustworthiness of Collaborative Applications, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 4317-4324.
- 141) B. Krupp, **W. Zhao**, N. Sridhar, A Survey of Security and Privacy Protection in Mobile Devices, *Encyclopedia of Information Science and Technology*, Third Edition, 2014, pp. 4221-4230.
- 142) **W. Zhao**, F. Kart, L. E. Moser and P. M. Melliar-Smith, A Reservation-Based Extended Transaction Protocol for Coordination of Web Services, in *Web Services Research for Emerging Applications: Discoveries and Trends*, Advances in Web Services Research series, 2010, pp. 590-619, Information Science Reference.
- 143) **W. Zhao**, Concurrency Control in Real-Time E-Collaboration Systems, as Chapter 2.6 in *E-Collaboration: Concepts, Methodologies, Tools, and Applications*, Ed. Ned Kock, Information Science Reference, 2009, pp. 211-218.
- 144) **W. Zhao**, "Increasing the Performability of Wireless Web Services," as Chapter XLVIII, in *Handbook of Research in Mobile Business: Technical, Methodological, and Social Perspectives*, 2nd Edition, Idea Group Publishing, 2008, pp. 518-528.
- 145) B. Chen and **W. Zhao**, "Building Secure and Dependable Online Gaming Applications," *Encyclopedia of Information Science and Technology*, 2nd Edition, Idea Group Publishing, 2008, pp. 428-432.
- 146) H. Zhang and **W. Zhao**, "Web Services Coordination for Business Transactions," *Encyclopedia of Information Science and Technology*, 2nd Edition, Idea Group Publishing, 2008, pp. 4070-4076.
- 147) **W. Zhao**, "Intrusion Tolerance in Information Systems," *Encyclopedia of Information Science and Technology*, 2nd Edition, Idea Group Publishing, 2008, pp. 2239-2243.
- 148) **W. Zhao**, "Highly Available Database Management Systems," *Encyclopedia of Information Science and Technology*, 2nd Edition, Idea Group Publishing, 2008, pp. 1733-1737.
- 149) **W. Zhao**, "Concurrency Control in Real-Time E-Collaboration Systems," *Encyclopedia of E-Collaboration*, Idea Group Publishing, 2008, pp. 95-101.
- 150) **W. Zhao**, "Anonymous Peer-to-Peer Systems," *Encyclopedia of Information Ethics and Security*, Idea Group Publishing, 2007, pp. 23-29.
- 151) **W. Zhao**, "Building Secure and Dependable Information Systems," *Encyclopedia of Information Ethics and Security*, Idea Group Publishing, 2007, pp. 62-67.
- 152) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "Transparent Fault Tolerance for Distributed and Networked Applications," *Encyclopedia of Information Science and Technology*, Idea Group Publishing, January 2005, pp. 1190-1197.
- 153) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, "High Availability and Data Consistency for Three-Tier Enterprise Applications," *Encyclopedia of E-Commerce, E-Government and Mobile Commerce*, Idea Group Publishing, March 2006, pp. 552-558.
-

JOURNAL PUBLICATIONS IN PHYSICS

- 154) **W. Zhao**, P. Stenius and A. Imamoglu, "Kinetics of condensation in trapped exciton gases," *Physical Review B (Condensed Matter)*, Vol. 56, No. 9, September 1997, pp. 5306-5315.
- 155) P. Stenius, **W. Zhao** and A. Imamoglu, "Condensation of excitons in a two-dimensional harmonic trap," *Physica Status Solidi A*, Vol. 164, No. 1, Akademie Verlag, December 1997, pp. 365-370.
- 156) W. Zhao, J. Wu, J. Chen, K. Wu, J. Zhang, C. Li, D. Yin, Z. Gu, X. Zhou and Z. Jin, "A new approach to probe the interactions between C₆₀ and non-alkali-metals," *Natural Science Journal of Peking University*, Vol. 32, No. 1, 1996, pp. 51-56.
- 157) J. Q. Wu, **W. B. Zhao**, J. Chen, K. Wu, Z. J. Wang, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, Z. X. Jin and X. H. Zhou, "Nonlinear resistivity and critical behavior of metal-overlayer percolation systems on epitaxial fullerene films," *Physical Review B (Condensed Matter)*, Vol. 54, No. 14, October 1996, pp. 9840-9845.
- 158) J. Chen, D. Yin, C. Y. Li, **W. B. Zhao**, K. Wu and J. L. Zhang, "The scaling law of the pinning force and anomalous Hall effect in the high-T_c superconductors," *Journal of Physics: Condensed Matter*, Vol. 7, No. 43, October 1995, pp. 8331-8335.
- 159) C. Y. Li, J. Chen, J. Q. Wu, **W. B. Zhao**, K. Wu, J. L. Zhang and D. L. Yin, "The scaling law of the pinning force in the mixed state of HTSC," *Chinese Journal of Low Temperature Physics*, Vol. 17, No. 6, Science Press, November 1995, pp. 420-424.
- 160) J. L. Zhang, Q. Z. Yao, J. Chen, **W. B. Zhao**, C. Y. Li and D. L. Yin, "A new formulation for the flux creep rate based on the extended creep model," *Chinese Journal of Low Temperature Physics*, Vol. 17, No. 2, March 1995, pp. 124-129.
- 161) K. M. Chen, Y. Q. Jia, S. X. Jin, K. Wu, **W. B. Zhao**, C. Y. Li, Z. N. Gu and X. H. Zhou, "Heterojunctions of solid C₆₀ and crystalline silicon: rectifying properties and energy-band models," *Journal of Physics: Condensed Matter*, Vol. 7, No. 14, April 1995, pp. L201-207.
- 162) K. M. Chen, Y. Q. Jia, S. X. Jin, K. Wu, X. D. Zhang, **W. B. Zhao**, C. Y. Li and Z. N. Gu, "The bias-temperature effect in a rectifying Nb/C₆₀/p-Si structure: Evidence for mobile negative charges in the solid C₆₀ film," *Journal of Physics: Condensed Matter*, Vol. 6, No. 27, July 1994, pp. L367-372.
- 163) **W. B. Zhao**, J. Chen, K. Wu, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "In situ electronic transport measurement as a tool for investigating the 2D doping in metal-C₆₀ interfacial systems," *Journal of Physics: Condensed Matter*, Vol. 6, No. 41, October 1994, pp. L631-636.
- 164) X. D. Zhang, **W. B. Zhao**, K. Wu, Z. Y. Ye, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "Surface enhanced electronic transport. A new method to probe the possible interactions between C₆₀ and non-alkali metals," *Chemical Physics Letters*, Vol. 228, No. 1-3, September 1994, pp. 100-105.
- 165) **W. B. Zhao**, X. D. Zhang, Z. Y. Ye, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, X. H. Zhou and Z. X. Jin, "Study of epitaxial growth of C₆₀," *Chinese Journal of Low Temperature Physics*, Vol. 15, 1994, pp. 325.
- 166) **W. B. Zhao**, X. D. Zhang, K. Wu, C. Y. Li, D. L. Yin, Z. N. Gu, X. H. Zhou and Z. X. Jin, "Anomalous variation of resistivity in rare-earth metal Ce-C₆₀ multilayer thin film," *Chinese Journal of Low Temperature Physics*, Vol. 14, 1994, pp. 401.

- 167) **W. B. Zhao**, X. D. Zhang, K. Wu, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "Study of microstructure of epitaxial fullerenes films," *Thin Solid Films*, Vol. 240, No. 1-2, March 1994, pp. 14-21.
- 168) **W. B. Zhao**, X. D. Zhang, K. J. Luo, J. Chen, Z. Y. Ye, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "Growth and structure of C₆₀ thin films on NaCl, glass and mica substrates," *Thin Solid Films*, Vol. 232, No. 2, September 1993, pp.149-153.
- 169) **W. B. Zhao**, X. D. Zhang, J. Chen, J. Tan, K. Wu, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "Rubidium-doped epitaxial C₆₀ thin films: Synthesis and electronic transport," *Journal of Physics: Condensed Matter*, Vol. 5, No. 33, August 1993, pp. L409-414.
- 170) **W. B. Zhao**, X. D. Zhang, K. Z. Y. Ye, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "Synthesis of K₃C₆₀ single crystal thin films with high critical currents," *Solid State Communications*, Vol. 85, No. 11, March 1993, pp. 945-947.
- 171) **W. B. Zhao**, X. D. Zhang, Z. Y. Ye, J. L. Zhang, C. Y. Li, D. L. Yin, Z. N. Gu, H. Zhou and Z. X. Jin, "Epitaxial thin films of C₇₀: growth and structure characterization," *Solid State Communications*, Vol. 85, No. 4, January 1993, pp. 311-315.
- 172) **W. Zhao**, K. Luo, J. Cheng, C. Li, D. Yin, Z. Gu, X. Zhou and Z. Jin, "A possible interaction between nonalkali metals and C₆₀ thin films," *Journal of Physics: Condensed Matter*, Vol. 4, No. 40, October 1992, pp. L513-514.
- 173) **W. B. Zhao**, K. J. Luo, J. Chen, Z. Y. Ye, C. Y. Li, D. L. Yin, Z. N. Gu, X. H. Zhou and Z. X. Jin, "Anomalous variation of resistivity in Sn-C₆₀ multilayer thin films," *Chinese Journal of Low Temperature Physics*, Vol. 14, 1994, pp. 401.
- 174) **W. Zhao**, K. Luo, J. Chen, J. Zhang, C. Li, D. Yin, Z. Gu, X. Zhou and Z. Jin, "Study of microstructure and anomalous variation of resistivity in metal-C₆₀ multilayer thin films," *Solid State Communications*, Vol. 83, No.11, September 1992, pp. 853-855.

INVITED KEYNOTE

- The IEEE International Conference on Applied System Innovation (ICASI 2018), Chiba, Tokyo, Japan, April 13-17, 2018.
- The 2018 International Conference on Computing and Big Data (ICCBD 2018), College of Charleston, Charleston, South Carolina, USA, September 08-10, 2018.
- Human Motion Recognition and Application with Microsoft Kinect, the 2017 International Symposium on Computer Science and Intelligence Controls, Budapest, Hungary, October 20-22, 2017
- Enhancing Communication with Students with a Teaching Method Based on Topical Guide Objectives, the International Conference on Digital Technology in Education, Taipei, Taiwan, August 6-8, 2017.
- Enriching Engineering Curriculum with Courses on Cutting-Edge Technologies, the 4th International Conference on Behaviours, Education and Psychology, San Francisco, 23-25, 2016.

INVITED TUTORIALS

- **W. Zhao**, Building Human-Centered Systems with Depth Cameras and Wearable Sensors, IEEE Cyber Science Congress 2017, Orlando, FL, Nov. 6, 2017. <http://cyber-science.org/2017/tutorial.html>

- **W. Zhao**, Building Human-Centered Systems with Depth Cameras and Wearable Sensors, IEEE SMC 2017, Banff, Canada, October 5, 2017. <http://www.smc2017.org/?q=tutorial>
- **W. Zhao**, Human Motion Tracking and Recognition with Microsoft Kinect, The 12th IEEE International Conference on Ubiquitous Intelligence and Computing, August 10-14, 2015, Beijing, China. (tutorial announcement page: http://cybermatix.org/SWC2015/Keynotes/Tutorial_WenbingZhao.htm)
- **W. Zhao**, Building Dependable Distributed Systems, The 2015 World Congress in Computer Science, Computer Engineering and Applied Computing, July 27-30, Las Vegas, NV. (tutorial announcement page: http://www.world-academy-of-science.org/worldcomp15/ws/tutorials/tutorial_zhao1)
- **W. Zhao**, Human Motion Tracking and Recognition with Microsoft Kinect, The 2015 World Congress in Computer Science, Computer Engineering and Applied Computing, July 27-30, Las Vegas, NV. (tutorial announcement page: http://www.world-academy-of-science.org/worldcomp15/ws/tutorials/tutorial_zhao2)

INVITED TALKS

- W. Zhao, Human-Centered Research with Microsoft Kinect, Beijing Wuzi University, Beijing, China, 3/2017.
- W. Zhao, How to Write Good Research Papers, School of Computer and Communication Engineering, University of Science and Technology Beijing (USTB), Beijing, China, 3/2017.
- W. Zhao, Human-Centered Research with Microsoft Kinect, School of Computer and Communication Engineering, University of Science and Technology Beijing (USTB), Beijing, China, 11/2015.
- W. Zhao, Human Motion Tracking and Recognition with Microsoft Kinect, Department of Computer Science, Kent State University, 9/2015

PRESENTATIONS

- 1) Q. Wu and **W. Zhao**, Towards a Technology-Enabled Environment of Care for Nursing Homes, *IEEE Cyber Science and Technology Congress*, Orlando, FL, November 6-10, 2017, pp. 299-302.
- 2) X. Liu and **W. Zhao**, Buddy: A Virtual Life Coaching System for Children and Adolescents with High Functioning Autism, *IEEE Cyber Science and Technology Congress*, Orlando, FL, November 6-10, 2017, pp. 293-298.
- 3) **W. Zhao**, Q. Wu, V. Padaraju, M. Bbela, A. Reinthal, D. Espy, X. Luo, and T. Qiu, "A Privacy-Aware Compliance Tracking System for Skilled Nursing Facilities," *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3568-3573.
- 4) **W. Zhao**, Q. Wu, A. Reinthal, D. Espy, X. Luo, and T. Qiu, "Enhancing Body Mechanics Training for Bedside Care Activities with a Kinect-Based System," *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3558-3562.
- 5) Q. Wu, **W. Zhao**, H. Sharma, and T. Qiu, "Movie Trailer Quality Evaluation Using Real-time Human Electroencephalogram," *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3553-3557.
- 6) Q. Wu, Ben Foote-Huth, Stephan Steidl, Hui Ye, and **Wenbing Zhao**, "EEG Analysis Reveals Reduced Seizure Activity by Optogenetic Inhibition of GABAergic Interneurons," *IEEE International Conference on Systems, Man, and Cybernetics*, Banff, Canada, October 5-8, 2017, pp. 3563-3567.
- 7) **W. Zhao**, Q. Wu, D. Espy, A. Reinthal, X. Luo, and Y. Peng, "A Feasibility Study on Using a Kinect-Based Human Motion Tracking System to Promote Safe Patient Handling," *IEEE International Conference on Electro Information Technology*, May 14-17, 2017, pp. 462-466. Lincoln, Nebraska.

- 8) **W. Zhao** and R. Lun, "A Kinect-Based System for Promoting Healthier Living at Home," *IEEE International Conference on Systems, Man, and Cybernetics*, Budapest, Hungary, October 9-12, 2016.
- 9) R. Lun, C. Gordon, **W. Zhao**, "The Design and Implementation of a Kinect-Based Framework for Selective Human Activity Tracking," *IEEE International Conference on Systems, Man, and Cybernetics*, Budapest, Hungary, October 9-12, 2016.
- 10) **W. Zhao**, et al., "A Privacy-Aware Kinect-Based System for Healthcare Professional," *IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 205-210, May 19-21, 2016.
- 11) **W. Zhao**, "On Automatic Assessment of Rehabilitation Exercises with Realtime Feedback," *IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 376-381, May 19-21, 2016.
- 12) **W. Zhao** and M. Babi, "Byzantine Fault Tolerance for Collaborative Editing with Commutative Operations," *IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 246-351, May 19-21, 2016.
- 13) M. Babi and **W. Zhao**, "Selective Merged Undo for Real-Time Collaborative Editing," *IEEE International Conference on Electro Information Technology*, Grand Fork, ND, pp. 330-335, May 19-21, 2016.
- 14) **W. Zhao**, D. Espy, A. Reinthal, B. Ekelman, G. Goodman, "Privacy-Aware Human Motion Tracking with Realtime Haptic Feedback," *The 4th IEEE International Conference on Mobile Services*, New York, NY, USA, June 27-July 2, 2015, pp. 446-453.
- 15) **W. Zhao**, "Towards Trustworthy Integrated Clinical Environments," *The 12th IEEE International Conference on Advanced and Trusted Computing*, August 10-14, 2015, Beijing, China.
- 16) **W. Zhao**, Enriching Engineering Curricula with a Course on Cutting-Edge Computer Technologies, *IEEE Integrated STEM Education Conference*, Princeton, NJ, March 7, 2015.
- 17) **W. Zhao**, D. Espy, M. A. Reinthal, and H. Feng, A Feasibility Study of Using a Single Kinect Sensor for Rehabilitation Exercises Monitoring: A Rule Based Approach, *IEEE Symposium on Computational Intelligence in Healthcare and e-Health*, Orlando, Florida, USA, December 9-12, 2014.
- 18) **W. Zhao**, R. Lun, D. Espy, and M. A. Reinthal, Rule Based Realtime Motion Assessment for Rehabilitation Exercises, *IEEE Symposium on Computational Intelligence in Healthcare and e-Health*, Orlando, Florida, USA, December 9-12, 2014.
- 19) H. Chai and **W. Zhao**, Byzantine Fault Tolerant Event Stream Processing for Autonomic Computing, the *12th IEEE International Conference on Dependable, Autonomic and Secure Computing*, Dalian, China, August 24-27, 2014.
- 20) **W. Zhao**, Application-Aware Byzantine Fault Tolerance, *the 12th IEEE International Conference on Dependable, Autonomic and Secure Computing*, Dalian, China, August 24-27, 2014.
- 21) **W. Zhao** and M. Babi, Byzantine Fault Tolerant Collaborative Editing, in *Proceedings of the IET International Conference on Information and Communications Technologies*, pp. 233-240, Beijing, China, April 27-29, 2013.
- 22) **W. Zhao**, Towards Practical Intrusion Tolerant Systems, in *Proceedings of the IET International Conference on Information and Communications Technologies*, pp. 280-287, Beijing, China, April 27-29, 2013.
- 23) **W. Zhao**, P. M. Melliar-Smith, and L. E. Moser, Fault Tolerance Middleware for Cloud Computing, in *Proceedings of the IEEE International Conference on Cloud Computing*, Miami, FL, July 5-10, 2010.
- 24) **W. Zhao** and Honglei Zhang, "Byzantine Fault Tolerant Coordination for Web Services Business Activities," *IEEE International Conference on Services Computing*, Honolulu, Hawaii, July 8-11 2008.

- 25) **W. Zhao**, "Towards Practical Intrusion Tolerant Systems: A Blueprint," *Cyber Security and Information Intelligence Research Workshop*, Oak Ridge National Laboratory, May 12-14, 2008.
- 26) **W. Zhao**, "Highly Concurrent Fault Tolerance Computing using Software Transactional Memory," *Northeast Ohio Networking Workshop*, Ohio Aerospace Institute, Cleveland, OH, USA, April 9, 2008.
- 27) **W. Zhao**, "BFT-WS: A Byzantine Fault Tolerance Framework for Web Services," *Middleware for Web Services Workshop*, Annapolis, MD, October 2007.
- 28) **W. Zhao**, "A Lightweight Fault Tolerance Framework for Web Services," *IEEE/WIC/ACM International Conference on Web Intelligence*, Silicon Valley, CA, November 2007.
- 29) **W. Zhao**, "Byzantine Fault Tolerant Coordination for Web Services Atomic Transactions," *the 5th International Conference on Service-Oriented Computing*, Vienna, Austria, September 19, 2007.
- 30) **W. Zhao**, "A Byzantine Fault Tolerant Distributed Commit Protocol," *the 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing*, Loyola College Graduate Center, Columbia, MD, USA, September 25, 2007.
- 31) **W. Zhao**, "Byzantine Fault Tolerance for Nondeterministic Applications," *the 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing*, Loyola College Graduate Center, Columbia, MD, USA, September 26, 2007.
- 32) **W. Zhao**, "Integration of Anonymous Communication and Service Migration for Intrusion Tolerance," *Northeast Ohio Networking Workshop*, Baldwin Wallace College, OH, USA, April 16, 2007.
- 33) **W. Zhao**, "Magnetic Levitation," Cleveland State University, August 16, 2006.
- 34) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, A Reservation-Based Coordination Protocol for Web Services, *IEEE International Conference on Web Services*, Orlando, Florida, July 2005.
- 35) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Deterministic Scheduling for Multithreaded Replicas, *IEEE International Workshop on Object-oriented Real-time Dependable Systems*, Sedona, Arizona, February 2005.
- 36) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Design and Implementation of a Consistent Time Service for Fault-Tolerant Distributed Systems, *IEEE International Conference on Dependable Systems and Networks*, San Francisco, CA, June 2003.
- 37) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, On Bootstrapping Replicated Applications, *IEEE International Computer Software and Applications Conference*, Oxford, UK, August 2002.
- 38) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, End-to-end latency analysis and evaluation of a fault-tolerant CORBA infrastructure, *International Symposium on Performance Evaluation of Computer and Telecommunication System*, San Diego, CA, July 2002.
- 39) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Unification of Replication and Transaction Processing in Three-Tier Architectures, *IEEE International Conference on Distributed Computing Systems*, Vienna, Austria, July 2002.
- 40) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, End-to-End Latency of a Fault-Tolerant CORBA Infrastructure, *IEEE International Symposium on Object-Oriented Real-Time Distributed Computing*, Washington, D.C., April-May 2002.
- 41) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Design and Implementation of a Pluggable Fault Tolerant CORBA Infrastructure, *IEEE International Parallel and Distributed Processing Symposium*, Fort Lauderdale, FL, April 2002.
- 42) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Integrating Fault Tolerant CORBA and the CORBA Object Transaction Service, *International Conference on Software and Systems Engineering and their Applications*, Paris, France, December 2001.

- 43) **W. Zhao**, L. E. Moser and P. M. Melliar-Smith, Increasing the Reliability of Three-Tier Applications, *IEEE International Symposium on Software Reliability Engineering*, Hong Kong, China, November 2001.
-

PROFESSIONAL SERVICES

Departmental Assignments

- Chair, Graduate Program Committee, Department of Electrical and Computer Engineering, September 2014 to present
- Director, MSEE, September 2014 to present
- ABET Coordinator, BSCS, September 2014 to present
- Faculty Secretary, 8/2013 – 5/2015; 8/2009-5/2011
- Committee member, Program Review Committee (with Drs, Yu, Sridhar, and Hizlan), 9/2013 to 5/2014
- Committee member, Undergraduate Program Committee (other committee members: Pong Chu, Lili Dong, and Yau), Department of Electrical and Computer Engineering, 8/2013 to 9/2014
- Committee member, Search Committee for student counselor, summer 2013 (with Dr. Xiong and Ms. Adrienne Fox)
- Chair, Undergraduate Program Committee (other committee members: Ana Stankovic and John Donoghue), Department of Electrical and Computer Engineering, 2005-2006
- Committee member, Graduate Program Committee (other committee members: Chansu Yu/Dan Simon – Chair, Ana Stankovic), Department of Electrical and Computer Engineering, 2006-2011
- Committee member, Ad hoc Committee on Student Code of Conduct (other committee members: Dan Simon – Chair, Murad Hizlan), Department of Electrical and Computer Engineering, 2006.
- Committee member, Faculty Search Committee (other committee members: Chansu Yu – Chair, Peng Chu), Department of Electrical and Computer Engineering, 2005-2006
- Committee member, Staff Search Committee for Computer Systems Manager (other committee members: Yongjian Fu – Chair, Chansu Yu), Department of Electrical and Computer Engineering, 2006

College Assignments

- College Peer Review Committee, 8/2017 to present
- College Petition Committee, 9/2016 to present
- College Program Review Committee, 9/2014 to present
- College Ad-Hoc Committee on Workload
- College Faculty Search Committee on IoT, 3/2018 to present
- Graduate Affairs Committee, 9/2014 to present, chair since 9/2017
- College of Engineering Search Committee for IoT, 2018
- College of Engineering Dean Search Committee, 2008-2009.
- Faculty Senate Representative, 8/2015 to 12/2017

University Assignments

- University Labs and Credit Hours Committee, 3/2015 to present

- Library Committee, 8/2015 to present, chair since 8/2017
- University Space Committee, 8/2017 to present
- Ad-Hoc Committee on University Teaching Council, 8/2017 to present
- Graduate College Program Review Committee, 8/2014 to present
- Academic Technology Committee, 8/2013 to 5/2015
- Graduate Council, 2011-2012
- University Curriculum Committee, 2011-12/2012
- Graduate Faculty Review Committee, 2008-2010
- Computational Services Committee, 2008-2010

Panelist

- Panelist for National Science Foundation, 2008, 2009, 2010, 2015, 2016, 2017, 2018.

Associate/Academic Editor

- *IEEE Access*
- *PeerJ Computer Science*

Guest Editor

- *Scientific Programming, Hindawi*
- *Journal of Distributed Sensor Networks, Sage*
- *Applied Sciences, MDPI*
- *Journal of Imaging, MDPI*

Editorial Board Member

- *Internal Journal of Parallel, Emergent and Distributed Systems, Taylor & Francis*
- *Applied System Innovation, MDPI*
- *Computers, MDPI*
- *International Journal of Handheld Computing Research, IGI Global*
- *International Journal of Performability Engineering, Rams Consultants*
- *International Journal of Distributed Systems and Technologies, IGI Global*
- *International Journal on Advances in Networks and Services, International Academy, Research, and Industry Association*
- *International Journal on Advances in Security, International Academy, Research, and Industry Association*
- *International Journal on Advances in Software, International Academy, Research, and Industry Association*
- *International Journal of Web Science and Engineering, Science & Engineering Research Support Society*

Conference Organizing Committee

- Program Chair, the International Conference on Smart Internet of Things (SmartIoT 2018), Xi'an, China, August 17-19, 2018.

- Program Co-Chair, the 3rd IEEE Cyber Science and Technology Congress, Athens, Greece, August 12-15, 2018.
- Program Chair, the International Conference on Computing and Big Data (ICCBD 2018), College of Charleston, Charleston, South Carolina, USA, September 08-10, 2018.
- Conference Chair, the 2018 International Symposium on Computer Science and Intelligent Controls, Stockholm, Sweden, September 21-23, 2018.
- Conference Chair, the 2018 International Conference on Vision, Image and Signal Processing, Las Vegas, NV, USA, August 27-29, 2018.
- Program Chair, the 2018 9th International Conference on E-Education, E-Business, E-Management and E-Learning, San Diego, USA, Jan 11-13.
- Program Chair, the 13th EAI International Conference on Heterogeneous Networking for Quality, Reliability, Security and Robustness, December 15-17, 2017, Dalian, People's Republic of China
- Conference Chair, the 2017 International Symposium on Computer Science and Intelligent Controls, Budapest, Hungary, October 20-22, 2017.
- Conference General Chair, the 2017 International Conference on Vision, Image and Signal Processing, Osaka, Japan, September 22-24, 2017.
- Conference Chair, the 2017 International Conference on Digital Technology in Education, Taipei, Taiwan, August 6-8, 2017.
- Application Track Chair, the 6th IEEE International Conference on AI & Mobile Services, June 25-30, 2017, Honolulu, Hawaii, USA.
- Conference Chair, the 2016 4th International Conference on Behaviours Education and Psychology, San Francisco, CA, USA, October 23-25, 2016.
- Program Chair, the 2016 IEEE Smart World Congress, Toulouse, France, July 18-21, 2016
- Publicity Chair, Future Technologies Conference (FTC) 2016, San Francisco, USA, December 6-7, 2016
- Special Session Chair (on Cybermatics for Cyber-Enabled Systems, Technologies, and Applications), the 2018 IEEE International Conference on Systems, Man, and Cybernetics, Miyazaki, Japan, October 7-10, 2018 (<http://www.smc2018.org/approved-special-sessions/c24cybermatics-for-cyber-enabled-systems-technologies-and-applications-cyber-esta/>).
- Special Session Chair (on Cybermatics for Cyber-Enabled Systems, Technologies, and Applications), the 2017 IEEE International Conference on Systems, Man, and Cybernetics, Banff, Canada, October 5-8, 2018 (<http://www.smc2017.org/files/SS-CFPs/CFP-SS-Cybermatics-forCESTA.pdf>).
- Special Session Co-chair (on Cybermatics for Cyber-Enabled Worlds), the 2016 IEEE International Conference on Systems, Man, and Cybernetics, Budapest, Hungary, October 9-12, 2016
- Special Track Chair (on healthcare), the 4th IEEE International Conference on Mobile Services, New York, NY, June 27-July 2, 2015

Session Chair for Conferences/Workshops

- The 2017 IEEE Cyber Science Congress 2017, Orlando, FL, Nov. 5-10, 2017.
- IEEE International Conference on Systems, Man, and Cybernetics, Banff, Canada, October 5-8, 2017
- The 4th IEEE International Conference on Mobile Services, New York, NY, June 27-July 2, 2015

- The 12th IEEE International Conference on Dependable, Autonomic and Secure Computing, Dalian, China, August 24-27, 2014
- The International Conference on Cloud Computing, Miami, FL, July 2010
- The International Conference on Services Computing, Honolulu, Hawaii, July 2008
- The Middleware for Web Services Workshop, Annapolis, MD, October 2007

Program Committee Member for Conferences/Workshops

- [1] The 2017 IEEE Cyber Science and Technology Congress, Orlando, FL, November 6-10, 2017.
- [2] IEEE International Conference on Systems, Man, and Cybernetics, Banff, Canada, October 5-8, 2017
- [3] The 10th IEEE International Conference on Internet of Things (iThings-2017), 21-23 June 2017, Exeter, UK.
- [4] The 11th International Conference on Frontier of Computer Science and Technology (FCST2017), 21-23 June 2017, Exeter, UK.
- [5] The IEEE International Conference on Mobile Services, 2015, 2016
- [6] The International Conference on Information Systems Security and Privacy, 2015 and 2016
- [7] The 5th IEEE International Conference on Big Data and Cloud Computing (BDCloud 2015)
- [8] The 9th International Conference on Frontier of Computer Science and Technology (FCST 2015)
- [9] The 12th IEEE International Conference on Dependable, Autonomic and Secure Computing, Dalian, China, August 24-27, 2014
- [10] IEEE 2nd International Conference on Mobile Services, 2013
- [11] The International Conference on Intensive Applications and Services (INTENSIVE), 2012, 2013.
- [12] The International Conference on Emerging Security Information, Systems and Technologies (Secureware), 2012-2016
- [13] The International Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP), 2013-2016
- [14] The International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing), 2010-2016
- [15] The International Conferences on Advanced Service Computing (SERVICE COMPUTATION), 2011-2016
- [16] International Conference on Web Science and Engineering, 2012.
- [17] The IEEE International Conference on Web Services, 2011, 2012.
- [18] The 9th IEEE International Conference on Dependable, Autonomic and Secure Computing (DASC 2011), 2011.
- [19] The 3rd IEEE International Workshop on Cyberspace Safety and Security (CSS 2011), 2011.
- [20] The 25th ACM Symposium on Applied Computing, Sierre, Switzerland, March 22-26, 2010.
- [21] The 2nd International Conference on Advanced Geographic Information Systems, Applications, and Services, St. Maarten, Netherlands Antilles, Feb. 10-15, 2010.
- [22] The 2nd International Conference on Resource Intensive Applications and Services, Cancun, Mexico, March 7-12, 2010.
- [23] Northeast Ohio Networking Workshop, Kent State University, OH, June 3, 2009, as Program Chair

- [24] The 8th IEEE International Conference on Dependable, Autonomic and Secure Computing, Chengdu, China, Dec. 12-14, 2009.
- [25] The 7th IFIP Workshop on Software Technologies for Future Embedded and Ubiquitous Systems, Newport Bean, CA, Nov. 16-18, 2009.
- [26] The 2009 Middleware for Web Services Workshop, Auckland, New Zealand, Aug 31 – Sept. 4, 2009.
- [27] The 1st International Conference on Advanced Service Computing, Athens, Greece, Nov. 15-20, 2009.
- [28] The 3rd International Conference on Network and System Security (NSS 2009), Gold Coast, Australia, October 19-21, 2009
- [29] The 2nd IEEE International Workshop on Cyberspace Safety and Security (CSS 2009), Chendu and Jiuzhai Valley, China, August 2009.
- [30] The 2009 International Workshop on Ubiquitous Computing Security (UC-Sec 2009), Las Vegas, July 13-16, 2009.
- [31] The 1st International Conference on Intensive Applications and Services (INTENSIVE 2009), Valencia, Spain, April 21-25, 2009
- [32] The 6th International on Service-Oriented Computing, Sydney, Australia, December 2008.
- [33] The 14th IEEE International Conference on Parallel and Distributed Systems, Melbourne, Victoria, December 2008.
- [34] The IEEE International Workshop on Cyberspace Safety and Security, Sydney, Australia, December 2008.
- [35] The 2008 Middleware for Web Services Workshop, Munich, Germany, September 2008.
- [36] AQuSerM: Advances in Quality of Service Management Workshop, Germany, September 2008.
- [37] The International Conference on Advanced Geographic Information Systems & Web Services, Cancun, February 1-6, 2009.
- [38] The 5th International Conference on Service-Oriented Computing, Vienna, Austria, September 2007
- [39] The 3rd International Conference on Embedded Software and Systems (ICESS 2007), Daegu, South Korea, May 14-16, 2007.
- [40] The 2nd IEEE International Workshop on Heterogeneous Wireless Networks: Resource Management and QoS, Las Vegas, NV, January 2007.
- [41] The 1st IEEE International Workshop on eSafety and Convergence of Heterogeneous Wireless Networks, Phoenix, Arizona, April, 2006.
- [42] Information Resources Management Association Conference 2007

Reviewer for Technical Journals, Books, and Conferences/Workshops

- IEEE Transactions on Computers
- IEEE Transactions on Dependable and Secure Computing
- IEEE Transactions on Parallel and Distributed Systems
- IEEE Transactions on Knowledge and Data Engineering
- IEEE Transactions on Services Computing
- IEEE Transactions on Human Machine Systems

- IEEE Internet Computing
- ACM Transactions on the Web
- Sensors, Multimodal Technologies and Interaction, International Journal of Environmental Research and Public Health, Future Internet, Computers, Sensors (MDPI)
- IEEE Sensors
- IET Software
- Computer Methods and Programs in Biomedicine, Elsevier
- Computers in Biology and Medicine, Elsevier
- Journal of Systems and Software, Elsevier
- The Computers and Electrical Engineering Journal, Elsevier
- Frontiers of Computer Science, Springer
- IBM Systems Journal
- Journal of Computer Science
- International Journal of Simulation and Process Modelling
- International Journal of Communication Systems
- International Journal of Performability Engineering – Short Communications
- International Journal of Foundations of Computer Science
- Encyclopedia of E-Collaboration
- Encyclopedia of Information Science and Technology, 2nd Edition
- Encyclopedia of Information Ethics and Security
- The 1st International Conference on Information Systems Security and Privacy, ESEO, Angers, Loire Valley, France, February 9-11, 2015
- The IEEE International Conference on Web Services, 2011, 2012
- The IEEE International Conference on Dependable, Autonomic and Secure Computing, 2011, 2014, 2015
- The 3rd IEEE International Workshop on Cyberspace Safety and Security (CSS 2011), 2011.
- IEEE International Conference on Mobile Services, 2013, 2015, 2016
- The International Conference on Intensive Applications and Services (INTENSIVE), 2012-2013.
- The International Conference on Emerging Security Information, Systems and Technologies (Secureware), 2012-2016
- The International Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP), 2013-2016
- The International Conference on Advanced Geographic Information Systems, Applications, and Services (GEOProcessing), 2010-2016
- The International Conferences on Advanced Service Computing (SERVICE COMPUTATION), 2011-2016
- International Conference on Web Science and Engineering, 2012.
- The 25th ACM Symposium on Applied Computing, Sierre, Switzerland, March 22-26, 2010.

- The 2nd International Conference on Advanced Geographic Information Systems, Applications, and Services, St. Maarten, Netherlands Antilles, Feb. 10-15, 2010.
- The 2nd International Conference on Resource Intensive Applications and Services, Cancun, Mexico, March 7-12, 2010.
- Northeast Ohio Networking Workshop, Kent State University, OH, June 3, 2009, as Program Chair
- The IEEE International Conference on Dependable, Autonomic and Secure Computing, Chengdu, China, 2009 & 2014
- The 7th IFIP Workshop on Software Technologies for Future Embedded and Ubiquitous Systems, Newport Beach, CA, Nov. 16-18, 2009.
- The 2009 Middleware for Web Services Workshop, Auckland, New Zealand, Aug 31 – Sept. 4, 2009.
- The 1st International Conference on Advanced Service Computing, Athens, Greece, Nov. 15-20, 2009.
- The 3rd International Conference on Network and System Security (NSS 2009), Gold Coast, Australia, October 19-21, 2009
- The 2nd IEEE International Workshop on Cyberspace Safety and Security (CSS 2009), Chendu and Jiuzhai Valley, China, August 2009.
- The 2009 International Workshop on Ubiquitous Computing Security (UC-Sec 2009), Las Vegas, July 13-16, 2009.
- The 1st International Conference on Intensive Applications and Services (INTENSIVE 2009), Valencia, Spain, April 21-25, 2009
- The 6th International on Service-Oriented Computing, Sydney, Australia, December 2008.
- The 14th IEEE International Conference on Parallel and Distributed Systems, Melbourne, Victoria, December 2008.
- The IEEE International Workshop on Cyberspace Safety and Security, Sydney, Australia, December 2008.
- The 2008 Middleware for Web Services Workshop, Munich, Germany, September 2008.
- AQuSerM: Advances in Quality of Service Management Workshop, Germany, September 2008.
- The International Conference on Advanced Geographic Information Systems & Web Services, Cancun, February 1-6, 2009.
- The 5th International Conference on Service-Oriented Computing, Vienna, Austria, September 2007
- The 3rd International Conference on Embedded Software and Systems (ICCESS 2007), Daegu, South Korea, May 14-16, 2007.
- The 2nd IEEE International Workshop on Heterogeneous Wireless Networks: Resource Management and QoS, Las Vegas, NV, January 2007.
- The 1st IEEE International Workshop on eSafety and Convergence of Heterogeneous Wireless Networks, Phoenix, Arizona, April 2006.
- Information Resources Management Association Conference 2007
- The 3rd IEEE International Symposium on Dependable, Autonomic and Secure Computing, 2007

Examiner for Tenure Promotion

- Lawrence Technological University, MI, USA
- College of Technological Studies, Kuwait
- University of Michigan, Dearborn

Reviewer for Research Proposals

- The New University Researchers Start-up Program of Fonds de recherche du Québec – Nature et technologies
- Kentucky Science & Engineering Foundation (program KSEF-06-RDE-009) in 2006 and 2009

Examiner for Ph.D. Dissertation

- McGill University, Canada, 2008.
- University of Detroit Mercy, 2015.

PROFESSIONAL AFFILIATIONS

- IEEE (Senior Member), IEEE SMC, IEEE CIS, IEEE CS
 - International Economics Development and Research Center (Senior Member)
-