

# Weihua Sheng, Ph.D

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School of Electrical and Computer Engineering  
Oklahoma State University  
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## Background Information

### Education

- Ph.D in Electrical and Computer Engineering, Michigan State University, MI, USA Aug, 1998--May, 2002
- Master of Science in Electrical Engineering, Zhejiang University, Hangzhou, China Sept, 1994--April, 1997
- Bachelor of Science in Electrical Engineering, Zhejiang University, Hangzhou, China Sept, 1990--July, 1994

### Appointment

- Associate Professor, School of Electrical and Computer Engineering, Oklahoma State University 7/2012 – Present
- Assistant Professor, School of Electrical and Computer Engineering, Oklahoma State University 8/2006 – 6/2012
- Assistant Professor, Electrical and Computer Engineering Department, Kettering University 7/2002- 5/2006  
**(Early promotion to Associate Professor with tenure in May 2006)**

### Research Interests

Social Robotics, Smart Health, Embedded Computing, Intelligent Transportation Systems

### Professional Membership and Position

- Associate Editor of IEEE Robotics and Automation Magazine, Nov. 2020-present.
- Senior Member of IEEE since April, 2008.
- Member of the Technical Committee on *Networked Robots*, IEEE Robotics and Automation Society
- Associate Editor of IEEE Transactions on Automation Science and Engineering, March 2010 to Dec. 2019.

## Honors and Awards

- Best Paper Award of 15th IEEE Workshop on Perception Beyond the Visible Spectrum (PBVS), in conjunction with CVPR 2019 for the paper “Online Reconstruction of Indoor Scenes with Local Manhattan Frame Growing”, by Mahdi Yazdanpour, Guoliang Fan and Weihua Sheng. June 2019.
- Second Place in the Competition of the 2018 President’s Cup for Creative Interdisciplinarity for the work “Well-being assessment using a Social Robot for Elder Care” PI: Weihua Sheng, Co-PIs: Alex Bishop, Yanmin Gong, Celinda Reese-Melancon, Oklahoma State University, Dec, 2018.
- Best Poster Award for the paper “A Driver Assistance Framework based on Driver Drowsiness Detection”, by Duy Tran, Eyosiyas Tadesse, Weihua Sheng, Yuge Sun, Meiqin Liu and Senlin Zhang. The 6th Annual IEEE International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER 2016). June 2016.
- Outstanding Researcher Award in College of Engineering, Architecture and Technology, Oklahoma State University, March, 2015.
- Best Paper Award for the paper “Classifier fusion for gesture recognition using a Kinect sensor”, by Ye Gu, Qi Cheng and Weihua Sheng. ISCA 4<sup>th</sup> International Conference on Sensor Networks and Applications. New Orleans, USA. 2012.
- Best Conference Paper Award for the paper “Human-Like Indoor Navigation for Autonomous Industrial Mobile Manipulator”, by H. Cheng, H. Chen, Y. Liu and W. Sheng. IEEE International Conference on Information and Automation, 2012.
- Best Cotesys Cognition Paper Award for the paper “Using Human Motion Estimation for Human-Robot Cooperative Manipulation”, by A. Thobbi, Ye. Gu and W. Sheng. IEEE/RSJ International Conference on Intelligent Robots and Systems, 2011.

- Best Paper in Automation Award for the paper “Human-robot collaborative manipulation through imitation and reinforcement learning”, by A. Thobbi, Ye. Gu and W. Sheng. IEEE International Conference on Information and Automation, 2011.
- SUPCON Best Paper Award for the paper “Recognizing human daily activity using a single inertial sensor”, by C. Zhu and W. Sheng, in the 8th World Congress on Intelligent Control and Automation, Jinan, China, 2010.
- Best Student Paper Award for the paper "Wearable Sensors based Human Intention Recognition in Smart Assisted Living Systems", by C. Zhu, W. Sun and W. Sheng. IEEE International Conference on Information and Automation, 2008.
- Best Conference Paper Finalist for the paper “Improving 3D Indoor Mapping with Motion Data”, by Jianhao Du, Yongsheng Ou, and Weihua Sheng. 2012 IEEE International Conference on Robotics and Biomimetics (Robio2012), Dec. 2012
- Literati Club Highly Commended Paper Award for the paper “CAD-based automated robot trajectory planning for spray painting of free-form surfaces” on the International Journal of Industrial Robot. One of the four best papers in the Year 2002 volume.

### **Media Exposure and News**

- OSU Research Matters. Enhancing Geriatric Health Care: Dr. Weihua Sheng leads a team of researchers developing a robotic aide to help older adults. Office of the Vice President for Research. Oklahoma State University. Nov. 2020.
- Oklahoma is becoming a growing center for robotics research. By: Mike Coppock, The Journal Record, March 1, 2019.
- OSU readying future engineers for jobs of the future, Oklahoman. April, 29th, 2018. By K.S. McNutt <https://newsok.com/article/5590085/osu-readying-future-engineers-for-jobs-of-the-future>.
- Smart Homes Won't Just Automate Your Life—They'll Track Your Health Too. By Peter Rejcek, SingularityHub.com. Jan 30th, 2018.
- Researchers look to Robots to care for aging boomers, by Melissa Howell, The Oklahoman, Nov. 28th, 2017.
- Robotic technology aims to assist elderly. Merrick Eagleton. News Press. Feb 28th, 2015.
- OSU researchers developing robots to help the elderly, by Kathryn McNutt, Dec. 28th, 2014. The Tulsa World.
- Oklahoma State University team works to make helping robot a reality, by Kathryn McNutt, Dec. 28, 2014. The Oklahoman.
- W. Sheng and H. La, Networks of cooperative mobile sensors for mapping. SPIE Newsroom, Aug, 30th, 2011.
- W. Sheng, H. La, R. Lim and Z. Shan, Vision-guided robotics: Intelligent robot performs bridge integrity analysis, Vision Systems Design, Sept. 1st, 2011.

### **Research**

**Total Research Grants Amount: \$4,473,882 including \$3,063,280 as PI**

**External Grants (Total Amount: \$4,127,536, including \$2,526,294 from NSF)**

- IIS Core Program: RI: Small: Enabling Sound-based Human Activity Monitoring for Home Service Robots (PI: Weihua Sheng)  
Funding Agency: National Science Foundation      Period: 10/1/2019-9/30/2022      Amount: \$488,692
- Human Technology Frontiers: FW-HTF-P: Robotic Health Assistants: A New Human-Machine Partnership in Home Healthcare (PI: Weihua Sheng, Co-PI: Alex Bishop, Barbara Carlson)  
Funding Agency: National Science Foundation      Period: 10/1/2019-9/30/2020      Amount: \$150,000
- NRI: Considerate Co-Robot Intelligence through Ubiquitous Human State Awareness (PI: Weihua Sheng, Co-PI: Guoliang Fan)  
Funding Agency: National Science Foundation      Period: 9/1/2014-8/31/2018      Amount: \$725,000
- SHB: Type I (EXP): Context-aware Ubiquitous Human Health Monitoring (PI: Weihua Sheng, Co-PI: Qi Cheng)  
Funding Agency: National Science Foundation      Period: 8/15/2012-8/14/2015      Amount: \$350,000
- Embedded Computer Systems Curriculum Development with Intel® Atom™ based DE2i-150 FPGA Development Kit. (PI: Sheng)  
Funding Agency: Intel, Inc.      Period: 8/1/2013-7/31/2014      Amount: \$25,000
- MRI: Acquisition of an Optical Motion Capture System for Human-Centered Computing Research, (PI: Weihua Sheng, Co-PIs: Qi Cheng, Nazanin Rahnavard, Andy Li)

- Funding Agency: National Science Foundation      Period: 8/1/2009-7/31/2012      Amount: \$428,571  
(Including Matching)
- CSR: Small: Infrastructure-free Human Context Awareness with a Wearable Sensing and Computing System, (PI: Weihua Sheng)  
Funding Agency: National Science Foundation      Period: 8/1/2009-7/31/2012      Amount: \$294,031
  - Automated and Accurate Bridge Deck Crack Inspection and Mapping. (PI: Weihua Sheng, Co-PIs: Tyler Ley and Jianjun Ge)  
Funding Agency: Department of Transportation (OTC Program) Period: 8/1/2010-7/30/2012 Amount: \$400,000  
(Including Matching)
  - Acquisition of a Mobile Sensor Network Testbed for Research in Human-integrated and Performance-driven Cooperative Surveillance, (PI: Weihua Sheng, Co-PIs: Qi Cheng, Nazanin Rahnavard, Gary Yen, Keith Teague)  
Funding Agency: Department of Defense - Army Materiel Command      Period: 7/1/2009-6/30/2010      Amount: \$100,000
  - OKCARS: Oklahoma Collision Analysis and Response System, (PI: Qi Cheng, Co-PIs: Damon Chandler, Weihua Sheng)  
Funding Agency: Department of Transportation      Period: 7/1/2009-6/30/2012      Amount: \$600,000  
(including matching)
  - Enabling Battlefield Situational Awareness through a Cooperative and Intelligent Video Sensor Network, (PI: Damon Chandler, Co-PIs: Qi Cheng, Weihua Sheng, Keith Teague)  
Funding Agency: DEPSCoR      Period: 11/6/2009-11/5/2012      Amount: \$476,242  
(including matching)
  - OKGems: GENI-Federated Cyber-Physical System with Multi-Modalities, (PI: Andy Li, Co-PIs: Venkatesh Sarangan, Johnson Thomas, Nazanin Rahnavard, Weihua Sheng)  
Funding Agency: NSF/GENI through BBN Technologies      Period: 10/1/2009-9/30/2012 Amount: \$90,000

**Internal Grants (Total Amount: \$346,346)**

- OSU Technology fee proposal. Proposal for Upgrading the Labs for ECEN4213 Embedded Computer Systems. (PI: Weihua Sheng)  
Funding Agency: OSU      Period: 12/1/2014-11/31/2015      Amount: \$15,000
- OSU Technology fee proposal. A Mobile Measurements, Mechatronics, Controls and Autonomy Lab (M3CAL). (PI: Girish Chowdhury, Co-PIs: Ron Delahoussaye, Weihua Sheng)  
Funding Agency: OSU      Period: 12/1/2014-11/31/2015      Amount: \$35,000
- OSU Core Facilities Support Program: Airborne Electronic Systems Lab. (PI: James Kidd, Co-PIs: Jamey Jacob, Girish Chowdhary, Weihua Sheng, Ning Wang, Christopher Crick)  
Funding Agency: OSU      Period: 11/20/2013-12/31/2014      Amount: \$99,500
- OSU Planning Grant: A 3D Indoor Digitization System for Emergency Response and Management (PI: Weihua Sheng, Co-PI: Tingguang Ma, Hongbo Yu)  
Funding Agency: OSU      Period: 8/1/2013-7/31/2014      Amount: \$41,486
- OSU Planning Grant: Smart Hygiene Compliance Monitoring for Safe Food Handling and Processing (PI: Ning Wang, Co-PI: Weihua Sheng, Tim Bowser)  
Funding Agency: OSU      Period: 8/1/2013-7/31/2014      Amount: \$41,260
- Development of a Multidisciplinary Program in Unmanned Systems. (PI: Chuck Bunting, Co-PI: Weihua Sheng)  
Funding Agency: OSU      Period: 8/1/2012-7/31/2013      Amount: \$28,600
- WePTaM: Enabling Real-time Personnel Localization and Activity Monitoring in Homeland Security Operations, (PI: Weihua Sheng)  
Funding Agency: OSU      Period: 10/1/2009-9/30/2010      Amount: \$38,000
- Pre-TBDP: Developing a Wearable Indoor Navigation System for the Visually-impaired. (PI: Weihua Sheng)  
Funding Agency: OSU      Period: 11/4/2010-5/6/2011      Amount: \$5,000
- Securing Cyber-physical Systems, (PI: Johnson Thomas, Co-PI: Weihua Sheng)  
Funding Agency: OSU      Period: 1/1/2009-8/30/2010      Amount: \$40,000
- Big 12 Faculty Fellowship: Mobile Sensor Localization, (PI: Weihua Sheng)

Funding Agency: OSU

Period: 2/1/2007-8/15/2007

Amount: \$2,500

### **Pending Proposals (\$1,139,084)**

- CPS: Medium: Cooperative Driving in a Heterogeneous Traffic of Manned and Unmanned Vehicles (PI: Weihua Sheng, Co-PI: He Bai)  
Funding Agency: National Science Foundation      Date Submitted: 6/21/2020      Budget: \$1,139,084  
Status: Pending      Salary Request for Students: \$426,545  
Routing Number: EN-20-RS-413

## **Teaching and Advising**

### **Courses Taught**

#### **School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK (August 2006-present)**

- ECEN5233 --- Embedded Sensor Networks
- ECEN5060 --- Mobile Robotics
- ECEN4213--- Embedded Computer System Design
- ENSC3213 --- Computer Based Systems
- ECEN3233 ---Digital Logic Design

#### **Electrical and Computer Engineering Department. Kettering University (Formerly General Motor Institute), USA. (July, 2002- May, 2006)**

- CE442 —Introduction to Mobile Robotics
- CE480 —Computer Networks
- CE320 —Microcomputers I
- CE210 —Digital Systems I

### **Lab Development**

- **ECEN4213 Embedded Computer System Design.** Developed a 6-unit lab component which uses Kobuki mobile robots, Beagleboard/Raspberry Pi mini computers, mini smart homes, private Cloud and mobile computing platforms.
- **ECEN3233 Digital Logic Design.** developed a 6-unit lab component which uses Xilinx Zynq 7020 based Digital System Development Board (DSDB) and National Instrument Elvis III platform to teach students the basics of digital logic design, Verilog HDL programming, etc.

### **Advising**

#### **Graduate Student Advising (As Major Advisor)**

##### **Ph.D Students**

- Zhidong Su, Ph.D student, research topic: to be determined, School of Electrical and Computer Engineering, Oklahoma State University, Spring 2020-present.
- Jiaying Lu, Ph.D student, research topic: to be determined, School of Electrical and Computer Engineering, Oklahoma State University, Spring 2020-present.
- Ha Do, Ph.D student, dissertation title: “Robot Assisted Elderly Care in Smart Homes”, School of Electrical and Computer Engineering Oklahoma State University. Aug. 2014-Dec. 2018.
- Duy Tran, Ph.D student, dissertation title: “Human-vehicle Collaborative Driving to Improve Transportation Safety”. School of Electrical and Computer Engineering Oklahoma State University, Jan, 2013— Dec. 2018.
- Minh Pham, Ph.D Student, dissertation title: “Home Healthcare Using Ubiquitous Computing and Robot Technologies”, School of Electrical and Computer Engineering, Oklahoma State University, Jan. 2014 - Dec. 2018.
- Jianhao Du, Ph.D student, research topic: “3D Vision for Mobile Robots: Mapping, Exploration and Telepresence”, School of Electrical and Computer Engineering Oklahoma State University, Aug, 2010—March, 2016.
- Ye Gu, Ph.D student, research topic: “Humanoid robot imitation learning”, School of Electrical and Computer Engineering Oklahoma State University, Aug, 2010—Fall 2015.

- Chun Zhu, Ph.D student, research topic: “Hand gesture and daily activity recognition in Assisted Living through wearable sensing and computing”, School of Electrical and Computer Engineering Oklahoma State University. Aug, 2007 – Dec. 2011
- Hung La, Ph.D student, research topic: “Cooperative control, learning and sensing in a Mobile Sensor Network”, School of Electrical and Computer Engineering Oklahoma State University, Aug, 2007—Aug, 2011.

#### **Visiting Ph.D Students**

- Yixing Wang, visiting Ph.D student from Zhejiang University, China, research topic: “Deep learning for fault detection in power systems”, Nov. 2017-May, 2018
- Qi Wang, visiting Ph.D student from Zhejiang University, China, research topic: “Finding Misplaced Items Using a Mobile Robot in a Smart Home Environment” Nov. 2017-May, 2018
- Xianfeng Yuan, visiting Ph.D student from Shandong University, China, research topic: “Fault detection in service robots”, Sept. 2016-Sept. 2017
- Sijian Zhang, visiting Ph.D student from Zhejiang University, research topic: “Laser-based 3D mapping of indoor environment”, Sept, 2008—Dec. 2009.
- Chongben Tao, visiting Ph.D student from Jiangnan University, China, research topic: “Human-integrated video sensor networks”, Aug, 2011-Aug, 2013.

#### **Masters Students (Thesis)**

- Fei Liang, Master student, thesis title: End and edge computing for wearable sensor-based human behavior monitoring, School of Electrical and Computer Engineering, Oklahoma State University, Spring 2020-present.
- Ricardo Hernandez, Master student, thesis title: Development of a wearable sensor-based human behavior monitoring system, School of Electrical and Computer Engineering, Oklahoma State University, Spring 2020-present.
- Kiran Muniraju, Master Student, research topic: “Cognitive Assessment for Elderly Using Social Robots”, School of Electrical and Computer Engineering, Oklahoma State University, Aug, 2015 -Dec, 2017.
- Trung Nguyen, Master Student, research topic: “Development of a Miniature Smart Home for Research and Education”. School of Electrical and Computer Engineering, Oklahoma State University, Aug, 2015 - Aug 2017.
- Asad Awan, Master Student, Research topic: “Observability Properties of Relative State Estimation between multiple vehicles in a GPS-Denied Environment“, School of Electrical and Computer Engineering, Oklahoma State University, Fall, 2015 to Spring, 2017. Co-advisor: Dr. He Bai from MAE.
- Barath Lakshmanan, Master Student, research topic: “Vehicle license plate recognition technology”. School of Electrical and Computer Engineering, Oklahoma State University, Fall, 2014—Summer 2016.
- Yehenew Mengistu, Master Student, research topic: “Smart Health Monitoring through Wearable Technology”. School of Electrical and Computer Engineering, Oklahoma State University, Fall, 2014-Fall, 2016.
- Denis Osipychev, Master student, research topic: “Collision Avoidance for Autonomous Cars based on Human Intention”. Aug, 2014 to Aug 2015.
- Ha Do, Master student on thesis option, research topic: “Developing a Home Service Robot Platform for Smart Homes”. School of Electrical and Computer Engineering, Oklahoma State University, Fall, 2012—Fall 2014.
- Dharmendra Kullar, Master student, research topic: “Human Localization and Activity Recognition using Distributed Motion Sensors”. School of Electrical and Computer Engineering Oklahoma State University, Fall, 2012—Summer 2014.
- Eyosiyas Tadesse, Master student, research topic: “Driver drowsiness detection in assisted driving”. School of Electrical and Computer Engineering Oklahoma State University, Aug., 2011—Fall, 2013
- Praveen Batapati, Master student, research topic: “Video based traffic anomaly detection”. School of Electrical and Computer Engineering Oklahoma State University, Aug., 2011—Fall, 2013
- Usman Zafar (Co-Advising), Master student, research topic: “Developing a low cost rehabilitation evaluation system”. Department of Computer Science. Oklahoma State University. Fall, 2011-Summer 2013.
- Craig Mouser, Master student, research topic: “Realtime 3D Mapping, Optimization, and Rendering based on a Depth Sensor”. School of Electrical and Computer Engineering Oklahoma State University, Jan., 2012—Fall, 2012
- Duy Tran, Master student, research topic: “A Small-scaled Testbed for Integrated Manual and Autonomous Driving”. School of Electrical and Computer Engineering Oklahoma State University, Fall, 2010— Fall, 2012
- Nizar Khemri, Master student, research topic: “P300 Wave Detection using a Commercial Non-invasive EEG Sensor”. School of Electrical and Computer Engineering Oklahoma State University, Jan., 2010—June, 2012
- Haritha Srinivasan, Master student, research topic: “Real-time Estimation of Hand Force from Surface EMG Using Artificial Neural Network”. School of Electrical and Computer Engineering Oklahoma State University, Aug, 2010 - June, 2012

- Anand Thobbi, Master student, research topic: “Imitation learning for a humanoid robot”, School of Electrical and Computer Engineering Oklahoma State University, Aug, 2009—Dec. 2011.
- Gang Li, Master student, research topic: “Development of a mobile robot platform”, School of Electrical and Computer Engineering Oklahoma State University, Jan, 2010—Dec. 2011.
- Ronny Lim, Master student, research topic: “Crack inspection using a mobile robot”, School of Electrical and Computer Engineering Oklahoma State University, Aug, 2009—Aug, 2011.
- Rohit Kadam, Master student, research topic: “Localization of a video surveillance network”, School of Electrical and Computer Engineering Oklahoma State University, Aug, 2008—Dec. 2010.
- Vimal Mehta, Master student, research topic: “Distributed calibration of a camera sensor network”, School of Electrical and Computer Engineering Oklahoma State University, USA, Aug, 2007—July, 2008.
- Ravi Garimella, Master student, research topic: “A Dynamic Positioning System for Multiple Mobile Subjects in Wireless Networks”, School of Electrical and Computer Engineering Oklahoma State University, USA, Sept, 2006—Dec, 2007.

#### **Graduate Student Advising (As a Committee Member)**

- 37 Ph.D students : Sandeep Gutta (ECEN), Jiangmin Yu (CS), Xiaofei Hou (CS), Abdul Guwaeder (ECEN), Peter Pan (ECEN), Mahdi Yazdanpour (ECEN), Goutam Mylavarapu (CS), Sayanti Roy (CS), Omar Orqueda (ECEN), Feng Xie (ECEN), Xin Zhang (ECEN), Hoa Dinh Nguyen (ECEN), Haixai Li (BAE), Yongbo Wan (BAE), Tao Wu (ECEN), Zhenan He (ECEN), Sheng Yu (CS), Yi Zhang (ECEN); Meng Ding (ECEN), Song Ge (ECEN), Doyel Pal (CS) Rehan Ahmed (ECEN), Behzad Shahrabi (ECEN), Kaveh Bastani (IEM), Sheng Wang (ECEN), Brian Yim (ECEN), Liangjiang Yu (ECEN), Yang Liu (CIVE), Ayesha Siddiqua (ECEN), Lin Guo (ECEN), Xiaowei Chen (ECEN), Le Zhou (ECEN), Christianah Adebayo (HDFS), Asma Tabassum (MAE), Ross Thompson (ECEN) Hao Chen (MAE), Rachana Erra (ECEN)
- 25 M.S. students: Victor Selvaraj (ECEN), Kazunori Nishimura (ECEN), Kadambari Nuguru (ECEN), Thomas Patten (ECEN), Bhargav Kollimarla (ECEN), Rocky Yu (CS), Bo Xu (CS), Logesh Vasu (ECEN), Punit Singh Banga (ECEN), Chao Chen (ECEN), Sheng Yu (CS), Robert Elliot (ECEN), Noel Daniel Gundi (ECEN), Vinish Kalva (ECEN), Guo Lin (ECEN), Aravind Datla (ECEN), Sandeep Gutta (ECEN), Sunkari Sai Kiran (ECEN), Soroush Heidari Rahmat A. (ECEN), Carolina Arbona, (ECEN), Nakul Babu Maddipati (ECEN), Sai Kampa (ECEN), Li Yu (ECEN), Brandon Ong (ECEN), Will Linihan (ECEN)

#### **Visiting Scholars Hosted**

- Jing Liu, from Shenzhen University, China, Aug, 2017-Feb, 2018
- Yuge Sun, from Northeastern University, China, Aug 31st, 2015-Aug. 30th 2018.
- Baoshan You, from Shandong Jianzu University, July 2016-July 2017.
- Guanci Yang, from Guizhou University, China Aug 31st, 2015-Aug. 30th 2016.
- Baojuan Liang, from Chang’An University, China, Aug 31st, 2015-Aug. 30th 2016.
- Zhijun Zhang from Shandong Jianzu University, China, Aug 31st, 2015-Aug. 30th 2016.
- Zhaolin Gu, from TianJin University of Technology and Education. Jan, 2013-Jan, 2014.
- Ruili Zeng, from Tianjin University, China. Dec, 2013-Sept, 2014.
- Dan Yang, from Northeastern University, China, August 1st 2013 – July 31st, 2014.
- Li Liu, from Zhejiang Institute of Technology, March, 2013-Feb, 2014.
- Theresa Pollinger, from Erlangen University, Germany, March 2014-Sept, 2014.
- Hongjun Zhou, from Kailuan Mines Co. Hebei, China, Oct. 2007-May, 2008.
- Gangfeng Yan, from Zhejiang University, Zhejiang China, Oct. 2007 – Dec. 2007.

### **Services**

#### **University and Department Services**

- ECE Faculty Search Committee, Oct. 2018-Present.
- ECE Publicity Committee, Aug, 2015-Present.
- Reviewer for the President Cup for Promoting Creative Interdisciplinarity in Oct. 2019.
- Up Close Day Exhibit on behalf of Computer Engineering Program. Oct. 28th 2019.
- ECE Faculty Search Committee, Oct. 2018-Present.
- College of Engineering, Architecture and Technology (CEAT) Research Council, Dec, 2017-Present.
- ECE Publicity Committee, Aug, 2015-Present.
- CEAT Undergraduate Teaching Lab Committee, May 2015-Dec 2016.
- Student Scholarship and Awards committee, May 2018-May, 2019.

- Judge for the Mercury Robot competition, Spring, 2017
- ECE Computer Engineering Faculty Search Committee, Nov. 2015-2016
- Judge for the Mercury Robotics Competition, Spring, 2014.
- ECE Department Head Search Committee, 2013
- ECE Undergraduate Curriculum and ABET Committee, 2013.
- ENSC3213 Curriculum Committee, Spring 2013-Spring 2015.
- ECE Computer Engineering Faculty Search Committee, Spring, 2013.
- Participated in the High School Open House events in Fall 2012, Spring, 2013.
- Participated in the CEAT Up Close day event in Fall 2012.
- Participated in the CEAT Up Close day event in Fall 2010 and Fall 2011.
- Participated in the CEAT ConocoPhilips Summer Bridge Program (CBSP) in Summer, 2009.
- Participated in the CEAT Freshman Scholars Program Interview event in Spring, 2008 and 2010.
- Participated in the ABET Board of Visitors meeting and other ABET meetings in Spring, 2009.
- Participated in the CEAT outreach activities seven times by hosting local high school students through lab tours and project demonstration. Oct, 2008-Nov, 2009.
- Presentation to IEEE student Chapter at Oklahoma State University, Oct, 2006.
- Judge for the Design Day competition, School of ECEN, Fall, 2007.

### **Professional Services**

- Associate Editor of IEEE Robotics and Automation Magazine, Nov. 2020-present.
- Associate Editor for International IEEE Conferences on Robotics and Automation, Oct. 2020.
- Associate Editor of IEEE Transactions on Automation and Science, March, 2010 to Dec., 2019.
- Associate Editor for International IEEE/RSJ Conferences on Intelligent Robots and Systems (IROS), Nov. 2019.
- Associate Editor for 2019 IEEE International Conference on Automation Science and Engineering (CASE 2019)
- Program Committee on IEEE International Conference on Robotics and Biomimetics. 2018.
- Associate Editor in the area of Automation in Life Science and Healthcare, Conference Editorial Board (CEB), 2018 IEEE International Conference on Automation Science and Engineering (CASE 2018)
- Associate Editor (CASE Regular Papers) for 2017 IEEE International Conference on Automation Science and Engineering (CASE 2017)
- Technical Committee member for 27th IEEE International Conference on Computer Communications and Networks (ICCCN), 2017
- Program Committee member for IEEE International Conference on CYBER Technology in Automation, Control, and Intelligent Systems. Hawaii, USA, 2017
- Program Committee for the 12th World Congress on Intelligent Control and Automation (WCICA), June, 2016.
- Associate Editor for IEEE/RSJ International Conference on Robots and Intelligent Systems (IROS) Oct, 2016.
- Program Committee member for 19th International Conference on Digital Signal Processing.
- Leading Guest Editor for a special section on Home Automation in IEEE Transactions on Automation Science and Engineering. Oct. 2015.
- Finance Chair of the 2015 IEEE International Conference on Robotics and Biomimetics, Zhuhai China.
- Finance Chair of the 2015 IEEE International Conference on Nano/Micro Engineering and Molecular Systems. April 7-11, 2015.
- Finance Chair of the 2014 IEEE International Conference on Robotics and Automation, Hong Kong, 2014.
- Panelist for NSF proposal review multiple times since 2006.
- Program committee for the 2010 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2010), Montreal, Canada.
- Program committee for the 8th World Congress on Intelligent Control and Automation (WCICA2010), Jinan, China, 2010
- Program committee for the First International Conference on Sensor Networks and Applications (SNA2009). San Francisco, USA, 2009
- Program committee for the IEEE International Conference on Robotics and Biomimetics (ROBIO2009). Guilin, China, Dec., 2009.
- Program committee for the 2010 IEEE International Conference on Information and Automation (ICIA2010). Harbin China, June, 2010
- Chair for the Special Session on Advancements in Industrial Robotics and Manufacturing Automation. IEEE Conference on Automation Science and Engineering, Washington DC. Aug. 2008.
- Session chair for three sessions in the 2009 IEEE International Conference on Intelligent Robots and Systems. St Louis, Oct. 2009.
- Chair for the Track of Sensor Networks in the 2008 IEEE International Conference on Information and Automation. China, June, 2008

- Technical Program Committee member for the 66th IEEE Vehicular Technology Conference, Baltimore, MD, 2007.
- Publicity chair of the 2007 IEEE International Symposium on Computational Intelligence in Robotics and Automation (CIRA2007), Florida, USA, 2007.
- Publication Co-Chair of 2006 IEEE International Conference on Intelligent Robotics and Systems (IROS06), Beijing, China
- Member of Program Committee of a special track on Intelligent Distributed Sensor Networks in the 19th International FLAIRS Conference. Melbourne Beach, Florida, 2006.
- Chair of the session Robot Motion Planning II in IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2005), Alberta, Canada, 2005.
- Program Committee for the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2005), Alberta, Canada, 2005.
- Finance Chair of the 2005 IEEE/ASME International Conference on Advanced Intelligent Mechatronics (AIM2005), Monterey, California, USA, 2005.
- Chair of the session Network-based Mechatronics on the IEEE International Conference on Advanced Intelligent Mechatronics, Monterey, CA. USA. July, 2005
- Organized and co-chaired the workshop--The State-of-the-Art of Mobile Robot Area Coverage in the IEEE International Conference on Robotics and Automation, New Orleans, USA. April, 2004.
- Program Committee for the IEEE International Conference on Robotics, Intelligent Systems and Signal Processing (RISSP), 2003.
- Frequent reviewer for the following journals and conferences
  - IEEE Transactions on Robotics
  - IEEE/ASME Transactions on Mechatronics
  - IEEE International Conference on Robotics and Automation
  - IEEE/RSJ International Conference on Intelligent Robotics and Systems
  - International Symposium on Distributed Autonomous Robotic Systems
  - IEEE Transactions on Industrial Electronics
  - Journal of Wireless Communications and Mobile Computing

### **Outreach and Community Services**

- Organized the Workshop on Robotic Health Assistants for Home Healthcare for local healthcare professionals. Nov. 20<sup>th</sup> 2020.
- Organized the 2019 OSU STEM Robotics Summer Camp for 25 local 8-12 graders, May 28-30th 2019.
- Participated in project demo for Junior Day Expo on April 13th, 2019.
- Gave a talk on elderly care technologies at the Stillwater Public Library to the Bookworm Club, a group of seniors from the local assisted living communities, Sept. 24th, 2018.
- Participated in the Grand Opening of the Endeavor Building by demonstrating a PacMan game using mobile robots. Sept. 2018.
- Participated in the National Laboratory Day (NLD) event in May, 2013, 2014, 2015, 2016, 2017, 2018
- Demonstrated the research projects to K-12 Shadow program students, Nov. 17th, 2017.
- Participated in the CEAT Freshman Scholars Program Interview event in Dec. 2017.
- Lab tour for the Eastern Oklahoma County pre-engineering Students, Oct. 2014.
- Lab tour for the Tianjin University students in Aug. 2014.
- Offered a lab tour to the Pack 5 Webelos I cubscout boys on Oct. 16th, 2015.
- Gave a lecture on elderly care research to the Osher Lifelong Learning Institute (OLLI), Oct. 22nd, 2015, Stillwater Public Library. Stillwater, OK.
- Participated in the 2008 FIRST robotics competition (Oklahoma City Regional) as a Judge. Oklahoma City, March, 2008.
- Taught short introductory courses in the Robotics Summer Program for two groups of students (grade 5-8 and grade 9-12) at Sequoyah High School, Oklahoma, an Indian boarding school. June, 2007.
- Taught short robot design course to elementary school students in Flint area, at Mott Community College, Flint, MI. July, 2005.
- Demonstrated mobile robots to elementary school students in the Family Science Night event, Mt. Morris Elementary Schools, Flint, MI, June, 2004.

### **Invited Talks (Partial List)**

- Keynote speech “ASCCBot: A Robotic Assistant for the Home Healthcare Industry” at the Fourth International Conference on Industrial Informatics-Computing Technology, Intelligent Technology, Industrial Information Integration. Dec. 19,2020.



- Talk on “Robotic Technologies for Home Healthcare” to the workshop on Robotic Health Assistants for Home Healthcare. Nov. 20<sup>th</sup>, 2020. Oklahoma State University.
- Talk on “Smart Robots for Elderly Care” to the College of Computer Science, Shangdong Jianzhu University, Jinan, China, July 18, 2019.
- Talk on “Smart Robots for Elderly Care” to the College of Information Engineering at Shenzhen University, Shenzhen China, July 22nd, 2019.
- Talk on “Cognitive Orientation Assessment using a Smart Companion Robot” to the College of Electrical Engineering at Zhejiang University, June, 15th, 2017.
- Talk on “A Robot-integrated Smart Home for Elderly Care”, College of Mechanical Engineering, Guizhou University, Guizhou, China, June 20th, 2017.
- A short course on “Introduction to Mobile Robotics” in Northeastern University, Shenyang, China, June 8-12, 2015.
- Talk on “Robot-Integrated Smart Homes in the Era of Internet of Things and Cloud Computing” to College of Electrical Engineering, Zhejiang University, June 16th, 2015.
- “Human-centered Robotics”. Department of Electrical and Computer Engineering, Shantou University, Guangdong, China, June. 2013.
- “Current Research Activities in the ASCC Lab at OSU”. Department of Electrical and Computer Engineering, Shenzhen University. June. 2013.
- “Human-centered Robotics”. Department of Mechanical Engineering and Biomedical Engineering, City University of Hong Kong. Dec. 2013.
- “Human-centered Robotics”. Department of Mechanical Engineering, Rutgers University, Aug, 17th, 2012.
- “Wearable Computing and Robotics”. Robotics Institute, Nankai University, Tianjin, China. June 20th, 2012.
- “A Short Course on Robotics and Sensor Networks”. Department of Mechanical Engineering, Northeastern University, July 10-July 14th, 2012, Liaoning, China.
- “Current Research Activities in ASCC Lab at Oklahoma State University”, presented to the faculty and students in the Institute of Acoustics, Chinese Academy of Science, Beijing, China, May, 2011.
- “Current Research Activities in ASCC Lab at Oklahoma State University”, presented to the faculty and students in Shanghai Jiaotong University, Shanghai, China, June, 2010.
- “Wearable Computing and Other Related Research at ASCC Lab”, presented to the faculty and students in the College of Electrical Engineering, Zhejiang University, Hangzhou, China, June, 2010.
- “Wearable Computing for Human Robot Interaction”, presented to the faculty and students of the Department of Statistics at Oklahoma State University, Sept. 2010.
- “Wearable Computing for Natural Human Robot Interaction”, presented to the faculty and graduate students of the Computer Science Department at Oklahoma State University, Oct., 2009.
- “Navigating Miniature Crawler Robots for the Inspection of Engineered Structures”, presented to the Faculty of the Department of Computer and Electronics Engineering, University of Nebraska Lincoln, Omaha Campus. Aug, 2007.
- “Navigating Miniature Mobile Robots for Engineered Structure Inspection”, School of Electrical and Computer Engineering, Oklahoma State University, Stillwater, OK. May, 2006.
- “Navigating Miniature Mobile Robots for Engineered Structure Inspection”, Department of Electrical and Computer Engineering, Clemson University, Clemson, SC. March, 2006.
- “Robot Motion Planning and Its Applications in Automation”, School of Electrical Engineering, Zhejiang University, China, Jan 6th, 2005.
- “Multirobot coordination for area exploration and coverage”, IEEE International Conference on Robotics and Automation, workshop on The State-of-the-Art of Mobile Robot Area Coverage. New Orleans, LA. USA. April, 2004.
- “Automated Tool Planning for Additive Manufacturing—Bridging CAD and CAM”, Technomatix Inc, Novi, MI, June, 2003

#### **Industrial and Consulting Experience**

- Consulting on a project on wearable sensor networks for soldier training monitoring at American Systems Inc. MI. (2004-2005)
- Working on a project on robot motion planning for 3D digitization of automotive sheet metal parts at Scientific Research Labs, Ford Motor Company, Dearborn, MI. (1998-2000)

#### **Publications**

**Google Scholar Citations: 4265 h-index: 34 i10-index: 97**

**Scopus Citations: 2784 h-index: 27**

### **Book Chapters**

[B2] C. Zhu and W. Sheng. Motion and Location based Online Human Daily Activity Recognition. In Human Behavior Recognition Technologies: Intelligent Applications for Monitoring and Security. IGI Global. Pages 304-321, 2013.

[B1] H. La and W. Sheng, Flocking Control Algorithms for Multiple Agents in Cluttered and Noisy Environments. In Bio-inspired Self-Organizing Robotic Systems. Studies in Computational Intelligence, Springer-Verlag, 2011.

### **Patent**

[P1] "A system and method for planning a tool path along a contoured surface", Patent No. 6597967, USA, granted in 2003.

### **Journal Papers Under Review**

[SJ7] Qi Wang, Zhen Fan, Weihua Sheng, Senlin Zhang, Meiqin Liu, Cloud-assisted Cognition Adaptation for Service Robots in Changing Home Environments, submitted to Frontiers of Information Technology & Electronic Engineering. Sept. 2020.

[SJ6] Zhidong Su, Fei Liang, Ha Manh Do, Alex Bishop, Weihua Sheng. Conversation-based Medication Management System for Older Adults using Companion Robot and Cloud. IEEE Robotics and Automation Letters and ICRA. Submitted on Oct. 15th, 2020.

[SJ5] Minh Pham, Ha Manh Do, Zhidong Su, Alex Bishop, Weihua Sheng, Negative Emotion Management using a Smart Shirt and a Robot Assistant. IEEE Robotics and Automation Letters and ICRA. Submitted on Oct. 14th, 2020.

[SJ4] Qi Wang, Senlin Zhang, Meiqin Liu, Weihua Sheng, Multi-style Learning for a Service Robot in Home Environments. IEEE Robotics and Automation Letters. Submitted on Oct. 12th, 2020.

[SJ3] Ha Do, Weihua Sheng, SoHAM: A Sound-based Human Activity Monitoring Framework for Home Service Robots, submitted to IEEE Transactions on Automation Science and Engineering. April 11th, 2020.

[SJ2] Erin Harrington, Alex Bishop, Ha Do, Weihua Sheng, An Initial Investigation into the Immediate Effects of Social Robotics on Older Adults' Well-being, The International Journal of Aging and Human Development. Submitted on 9/10/2019.

[SJ1] Erin Harrington, Alex Bishop, Ha Do, Weihua Sheng, Examining the Effectiveness of Social Assistive Robots as Companions for Older Adults, submitted to Aging & Mental Health. Submitted on May 14th, 2019.

### **Journal Publications**

[J54] Erin Harrington, Alex Bishop, Ha Manh Do, Weihua Sheng. Perceptions of Socially Assistive Robots: A Pilot Study Exploring Older Adults' Concerns, Accepted by Current Psychology. 12/17/2020.

[J53] Jianhao Du, Ha Manh Do, Weihua Sheng, Human-Robot Collaboration in a Virtual-Reality-based Telepresence System. International Journal of Social Robotics. doi: 10.1007/s12369-020-00718-w. Published Nov. 9<sup>th</sup>, 2020.

[J52] Mahdi Yazdanpour, Guoliang Fan, and Weihua Sheng, ManhattanFusion: Online Dense Reconstruction of Indoor Scenes from Depth Sequences. Submitted to IEEE Transactions on Visualization and Computer Graphics, Accepted on Oct. 31<sup>st</sup>, 2020.

[J51] Ha Manh Do, Weihua Sheng, Erin Harrington, and Alex Bishop, Clinical Screening Interview Using a Social Robot for Geriatric Care, IEEE Transactions on Automation Science and Engineering. Published on June 12th, 2020. 10.1109/TASE.2020.2999203

[J50] Ye Gu, Xiaofeng Ye, Weihua Sheng, Yongsheng Ou, Yongqiang Li, Multiple Stream Deep Learning Model for Human Action Recognition, Image and Vision Computing. Vol.93, doi:10.1016/j.imavis.2019.10.004. Jan, 2020.

[J49] Rui Li, Xiaodong Zhang, Zhufeng Lu, Chang Liu, Hanzhe Li, Weihua Sheng, Randolph Osivue Odekhe, An Approach for Brain-Controlled Prostheses Based on a Facial Expression Paradigm, Frontiers in Neuroscience, section Neuroprosthetics. Vol. 12, Pages 943-957, Dec. 2018.

[J48] Duy Tran, Jianhao Du, Weihua Sheng, Denis Osypichev, Yuge Sun, He Bai. A Human-Vehicle Collaborative Driving Framework for Driver Assistance, IEEE Transactions on Intelligent Transportation Systems, Volume: 20, Issue: 9, Page: 3470-3485, Sept. 2019.

- [J47] Minh Pham, Dan Yang, Weihua Sheng, A sensor fusion approach to indoor human localization based on environmental and wearable sensors, Vol. 16. No. 1, Page 339-350. IEEE Transactions on Automation Science and Engineering. Jan. 2019
- [J46] Qi Wang, Zhen Fan, Senlin Zhang, Meiqin Liu and Weihua Sheng, Finding Misplaced Items Using a Mobile Robot in a Smart Home Environment, by Frontiers of Information Technology and Electronic Engineering. 2018
- [J45] Jianhao Du, Weihua Sheng, Meiqin Liu. A Human-Robot Collaborative System for Robust 3D Mapping. IEEE Transactions on Mechatronics. Vol. 23, No. 5, Pages 2358-2368, 2018.
- [J44] Duy Tran, Ha Manh Do, Weihua Sheng, He Bai and Girish Chowdhary, Real-time Detection of Distracted Driving based on Deep Learning, Volume 12, Issue 10, p. 1210 – 1219. IET Intelligent Transportation Systems. December 2018.
- [J43] Guanci Yang, Jing Yang, Weihua Sheng, Francisco Erivaldo Fernandes Junior, Shaobo Li, Convolutional Neural Network-based Embarrassing Situation Detection under Camera in Smart Homes, Sensors, 12;18(5), 2018.
- [J42] Dan Yang, Bin Xu, Kaiyou Rao, Weihua Sheng, PIR based Indoor Position Tracking for Smart Home Using Accessibility Map and A-star algorithm, Sensors. Jan 24;18(2). 2018.
- [J41] Ha Do, Jianhao Du, Minh Pham, Weihua Sheng, Dan Yang, Meiqin Liu, RiSH: A Robot-integrated Smart Home for Elderly Care. Robotics and Autonomous Systems, Volume 101, Pages 74–92. March 2018.
- [J40] Minh Pham, Yehenu Mengistu, Ha Do, Weihua Sheng, Delivering Home Healthcare through a Cloud-based Smart Home Environment (CoSHE). The Elsevier Journal of Future Generation Computer Systems. Volume 81, Pages 129-140, April 2018.
- [J39] Ye Gu, Weihua Sheng, Chris Crick, Yongsheng Ou, Automated Assembly Skill Acquisition and Implementation through Learning by Demonstration. Robotics and Autonomous Systems. Volume 99, Pages 1-16. January 2018.
- [J38] Guanci Yang, Weihua Sheng, Shaobo Li, Yang Wang, Fei Xu, Game theoretic Evolutionary Algorithm Based on Behavioral Expectation and its Performance Analysis, Applied Artificial Intelligence, 31:5-6, 493-517, 2017.
- [J37] Ha Manh Do, Weihua Sheng, and Meiqin Liu. Human-assisted sound event recognition for home service robots. Thematic series on Real-time Computing and Robotics, Springer Open Journal, Robotics and Biomimetics, 3(1):1–12, 2016.
- [J36] Jianhao Du, Craig Mouser, Weihua Sheng, Design and Evaluation of a Teleoperated Robotic 3D Mapping System using a RGB-D Sensor. IEEE Transactions on System Man and Cybernetics: Systems, Volume: 46 , Issue 5. Page 718-724, 2016.
- [J35] Weihua Sheng, Meiqin Liu, Yoki Matsuoka, Yongsheng Ou, Fovio Mastrogiovanni, Guest Editorial, Special Section on Home Automation, IEEE Transactions on Automation Science and Engineering (T-ASE), Volume 12 Issue 4. Page 1155-1156, Oct. 2015.
- [J34] C. Zhu, W. Sheng, and Meiqin Liu, Wearable Sensor-based Behavioral Anomaly Detection in Smart Assisted Living Systems, IEEE Transactions on Automation Science and Engineering, Volume:12 , Issue: 4, Pages 1225 – 1234. 2015.
- [J33] Yujie Zhang, Yongsheng Ou, Yimin Zhou, Xinyu Wu, Weihua Sheng, Observer-Based  $l_2-l_\infty$  Control for Discrete-time Nonhomogeneous Markov Jump Lur'e Systems with Sensor Saturations, Nerucomputing, Vol 162, Page 141-149. 2015.
- [J32] Weihua Sheng, Jianhao Du, Qi Cheng, Chun Zhu, Meiqin Liu, Guoqing Xu, Robot Semantic Mapping through Human Activity Recognition: A Wearable Sensing and Computing Approach. Robotics and Autonomous Systems. Volume 68, Pages 47–58, June 2015.
- [J31] H. La, W. Sheng, Jiming Chen, Cooperative and Active Sensing in Mobile Sensor Networks for Scalar Field Mapping, IEEE Transactions on System, Man and Cybernetics: Systems. Vol. 45, No. 1. Page 1-12, 2015.
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- [J28] H. La, R. Lim and W. Sheng, Multi-robot cooperative learning for predator avoidance, IEEE Transactions on Control Systems Technology, Vol. 23, No. 1, Page 52-63, 2015.

- [J27] Meiqin Liu, Senlin Zhang, Haiyang Chen, and Weihua Sheng, "H $\infty$  output tracking control of discrete-time nonlinear systems via standard neural network models," *IEEE Transactions on Neural Networks and Learning Systems*, Vol. 25, No. 10, Page 1928-1935. October, 2014
- [J26] Ronny Lim, Hung La and Weihua Sheng, A Robotic Crack Inspection and Mapping System for Bridge Deck Maintenance. *IEEE Transactions on Automation Science and Engineering*. VOL. 11, NO. 2, Page 367-378. APRIL 2014.
- [J25] M. Liu, S. Zhang, Z. Fan, S. Zheng, W. Sheng, Exponential H $\infty$  synchronization and state estimation for chaotic systems via a unified model, *IEEE Transactions on Neural Networks and Learning Systems*. vol.24, no.7, Pages 1114-1126, July 2013.
- [J24] H. La and W. Sheng, Multi-agent motion control in cluttered and noisy environments, *Journal of Communication* Vol. 8, No. 1, Pages 32-46, Jan. 2013.
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- [J20] Hung Manh La, Ronny Salim Lim, Jianhao Du, Sijian Zhang, Gangfeng Yan and Weihua Sheng, Development of a Small-Scale Research Platform for Intelligent Transportation Systems, *IEEE Transactions on Intelligent Transportation Systems*. Vol. 13, No. 4, Page(s): 1753-1762, December. 2012.
- [J19] C. Zhu, and W. Sheng, Realtime Recognition of Complex Human Daily Activities Using Human Motion and Location Data, *IEEE Transactions on Biomedical Engineering*. Vol. 59, No. 9, Sept. Pages: 2422-2430. 2012.
- [J18] H. Chen and W. Sheng, Transformative CAD Based Industrial Robot Program Generation, *International Journal of Robotics and Computer-Integrated Manufacturing*, Volume: 27 Issue: 5 Pages: 942-948. 2011.
- [J17] C. Zhu and W. Sheng, Wearable Sensors-based Hand Gesture and Daily Activity Recognition for Robot-assisted Living. *IEEE Transactions on System, Man and Cybernetics, Part A*, Volume 41, Issue:3, page 569-573, May. 2011.
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- [J10] W. Sheng, H. Chen, and N. Xi. Navigating a micro crawler robot for engineered structure inspection. *IEEE Transactions on Automation Science and Engineering*, 5(2):368–373, 2008
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- [J8] W. Sheng, Q. Yang, J. Tan and N. Xi, Distributed Multi-robot Coordination in Area Exploration, *Robotics and Autonomous Systems (Journal)*. Page: 945-955, Issue 54. 2006
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[J3] W. Sheng, N. Xi, M. Song, Y. Chen, CAD-Guided Sensor Planning for Dimensional Inspection in Automotive Manufacturing, IEEE/ASME Transactions on Mechatronics, pp.372-380, Vol. 8, No. 3 Sept. 2003.

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[J1] W. Sheng, N. Xi, M. Song, Y. Chen, CAD-Guided Robot Motion Planning. International Journal of Industrial Robot, pp.143-151, Vol. 28, No. 2, 2001.

### **Conference Paper Under Review**

[SC1] Fei Liang, Ricardo Hernandez, Jiaying Lu, Jackson Moore, Weihua Sheng, Collaborative Fall Detection using a Wearable Device and a Companion Robot, submitted to IEEE International Conference on Robotics and Automation. Oct. 31st, 2020.

### **Peer-Reviewed Conference Publications**

[C154] Duy Tran, Ha Do, Jiaying Lu, Weihua Sheng. Real-time Detection of Distracted Driving using Dual Cameras, 2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020), Las Vegas, USA.

[C153] E. Harrington, H. Do, A. J. Bishop, C. Reese-Melancon, W. Sheng, Examining Discrepancies in Social Robot versus Human Assessments of Geriatric Well-Being, 2019 Gerontology Society of American Annual Scientific Meeting. Nov. 13, 2019.

[C152] Mahdi Yazdanpour, Guoliang Fan, and Weihua Sheng, Online Manhattan Keyframe-based Dense Reconstruction from Indoor Depth Sequences, VCIP 2019.

[C151] Lin Guo, Guoliang Fan, Weihua Sheng, Creating 3D Bounding-Box hypotheses from Deep Network Score-Maps. Accepted by ICIP 2019. April, 2019.

[C150] Mahdi Yazdanpour, Guoliang Fan and Weihua Sheng, Online Reconstruction of Indoor Scenes with Local Manhattan Frame Growing, 2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW).

[C149] Lin Guo, Guoliang Fan and Weihua Sheng, Dual Graphical Models for Relational Modeling of Indoor Object Categories, 2019 IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CVPRW).

[C148] Fei Wang, Hu Chen, Li Kong, Weihua Sheng, Real-Time Facial Expression Recognition on Robot for Healthcare, 2018 IEEE International Conference on Intelligence and Safety for Robotics. Aug, 2018, Shenyang, China.

[C147] Tianyu Liu, Ye Gu, Weihua Sheng, Yongqiang Li and Yongsheng Ou, Detection and tracking of moving objects for indoor mobile robots with a low-cost laser scanner. International Conference on Artificial Intelligence: Methodology, Systems and Applications. Artificial Intelligence and Mobile Services (AIMS2018). Seattle, USA, June, 2018.

[C146] Zhanjie Chen, Guanci Yang, Zhidong Su, Weihua Sheng and Baojuan Liang, Comparison and Analysis of Feature Method and Direct Method in Visual SLAM Technology for Social Robots, The 13th World Congress on Intelligent Control and Automation (WCICA2018), Changsha, China, July, 2018.

[C145] Ye Gu, Hu Chen, Fei Wang, Weihua Sheng, Facial Expression Recognition and Positive Emotion Incentive System for Human-Robot Interaction, The 13th World Congress on Intelligent Control and Automation (WCICA2018), Changsha, China, July, 2018.

[C144] Yang Li, Guanci Yang, Zhidong Su, Zhanjie Chen, Weihua Sheng and Baojuan Liang, Home Assistant-based Collaborative Framework of Multi Sensor Fusion for Social Robot, The 13th World Congress on Intelligent Control and Automation (WCICA2018), Changsha, China, July, 2018.

- [C143] Ye Gu, Xiaofeng Ye and Weihua Sheng, Depth MHI Based Deep Learning Model for Human Action Recognition, The 13th World Congress on Intelligent Control and Automation (WCICA2018), Changsha, China, July, 2018.
- [C142] Jing Yang, Guanci Yang and Weihua Sheng, Dynamic Gesture Recognition Algorithm based on ROI and CNN for Social Robots, The 13th World Congress on Intelligent Control and Automation (WCICA2018), Changsha, China, July, 2018.
- [C141] Erin Harrington, Ha M. Do, G. McCall, E. Boevers, Alex J. Bishop, Weihua Sheng, “Older adult interaction with social robots: Implications for socio-emotional well-being,” 11th World Conference of Gerontechnology, May, 2018.
- [C140] E. Boevers, G. McCall, Erin Harrington, Ha M. Do, Alex J. Bishop, Weihua Sheng, “Exploring older adult concerns regarding acceptance and use of social companion robots,” 11th World Conference of Gerontechnology, May, 2018.
- [C139] G. McCall, E. Boevers, Erin Harrington, Alex J. Bishop, Ha M. Do, Weihua Sheng, “Emergent themes in the likes and dislikes of social robots expressed by older adults,” 11th World Conference of Gerontechnology, May, 2018.
- [C138] Ming Li, Francisco E. Fernandes Jr., Weihua Sheng, He Bai, Zhen Fan, Meiqin Liu, Measurement of Latency on Visual Feedback in an Immersive Telepresence Robotic System. The 2018 World Congress on Intelligent Control and Automation, Changsha, China, July 2018.
- [C137] Chunmeng Fu, Weihua Sheng, Fei Wang, Xiaofeng Ye, Qiongyang Liu, Qi Jiang, Research and Implementation of Fast Identity Registration System Based on Audio-visual Fusion, 2017 IEEE 7th Annual International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (CYBER).
- [C136] Francisco Erivaldo Fernandes Junior, Ha Manh Do, Kiran Muniraju, Weihua Sheng and Alex Bishop, Cognitive Assessment for Older Adults using Social Robots, The 2017 IEEE International Conference on Robotics and Biomimetics (ROBIO 2017) Macau SAR, China December 5-8, 2017
- [C135] L. Guo, G. Fan, W. Sheng, “Robust Object Detection by Cuboid Matching with Local Plane Optimization in Indoor RGB-D Images”, 2017 IEEE International Conference on Visual Communication and Image Processing (VCIP). Best Paper Candidate for VCIP2017.
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- [C133] Yuge Sun, Lei Li, Ning Ye, Lihong Zhao, Hongwei Lei, Jie Yang, Weihua Sheng, Research on Video-based Traffic Sign Recognition, IEEE-CYBER 2017, Honolulu, Hawaii, 2017
- [C132] Baoshan You, Weihua Sheng, Hongwei Ma and Ye Gu, Implementation of Sobel Edge Detection on FPGA based on OpenCL. IEEE-CYBER 2017, Honolulu, Hawaii, 2017
- [C131] Trung Nguyen, Barath Lakshmanan, Chengjie Lin, Weihua Sheng, Ye Gu, Meiqin Liu, Senlin Zhang, A Miniature Smart-Home Testbed for Research and Education. IEEE-CYBER 2017, Honolulu, Hawaii, 2017
- [C130] Qi Wang, Meiqin Liu, Weihua Sheng and Senlin Zhang, Retrieval of Misplaced Items using a Mobile Robot via Visual Object Recognition. IEEE-CYBER 2017, Honolulu, Hawaii, 2017.
- [C129] Xiangfeng Yuan, Mumin Song, Fengyu Zhou, Mingchang Wang, Lei Yin and Weihua Sheng, Design of a Software Simulation Platform for Fault Diagnosis of Service Robot. IEEE-CYBER 2017, Honolulu, Hawaii, 2017.
- [C128] Yuge Sun, Weihua Sheng, Nizar Ali Khemri, Ye Gu, Evaluation of P300-based BCI Using a Non-invasive Commercial EEG Sensor. IEEE-CYBER 2017, Honolulu, Hawaii, 2017
- [C127] Denis Osipychev, Duy Tran, Weihua Sheng, Girish Chowdhary, Human Intention-Based Collision Avoidance for Autonomous Cars, 2017 American Control Conference, Seattle, USA, 2017
- [C126] Duy Tran, Eyosiyas Tadesse, Denis Osipychev, Jianhao Du, Weihua Sheng, Yuge Sun, A Collaborative Control Framework for Driver Assistance Systems, IEEE International Conference on Robotics and Automation, Singapore, May 2017.
- [C125] X. Sun, M. Liu, W. Sheng, S. Zhang, Z. Fan, Indoor multi human target tracking based on pir sensor network, 3rd International Conference on Cognitive Systems and Information Processing, ICCSIP 2016.
- [C124] Ye Tang, Meiqin Liu, Weihua Sheng, Senlin Zhang, Robot Path Planning for Human Search in Indoor Environments, the 2nd International Conference on Communication Software and Information Processing (ICCSIP) 2016, China.

- [C123] Yehenew Mengistu, Minh Pham, Ha Manh Do and Weihua Sheng, AutoHydrate: A Wearable Hydration Monitoring System, The IEEE/RSJ International Conference on Intelligent Robots and System (IROS2016) Daejeon Korea.
- [122] Jianhao Du, Weihua Sheng and Meiqin Liu, Human-guided Robot 3D Mapping using Virtual Reality Technology, The IEEE/RSJ International Conference on Intelligent Robots and System (IROS2016) Daejeon Korea.
- [C121] Francisco Erivaldo Fernandes Junior, Guanci Yang, Ha Manh Do, Weihua Sheng, Detection of Privacy-Sensitive Situations for Social Robots in Smart Homes, IEEE International Conference on Automation Science and Engineering, Fort Worth TX, 2016.
- [C120] Ha Manh Do, Weihua Sheng, Meiqin Liu, Senlin Zhang, Context-aware Sound Event Recognition for Home Service Robots, IEEE International Conference on Automation Science and Engineering, Fort Worth TX, 2016.
- [C119] Minh Pham, Yehenew Mengistu, Ha Manh Do, Weihua Sheng, Cloud-Based Smart Home Environment (CoSHE) for Home Healthcare, IEEE International Conference on Automation Science and Engineering, Fort Worth TX, 2016.
- [C118] Barath Lakshmanan, Weihua Sheng, Meiqin Liu and Senlin Zhang, Locating License Tags Using Edges, The 6th Annual IEEE International Conference on CYBER Technology in Automation, Control, and Intelligent Systems (IEEE-CYBER 2016). June 2016.
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