YAGUANG ZHANG

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EDUCATION

Purdue University, West Lafayette, Indiana, USA

PhD in Electrical and Computer Engineering   August 2021

- Thesis   **Zhang, Y.**, 2021. *Improved site-specific millimeter-wave channel modeling and simulation for suburban and rural environments*. Purdue University Graduate School.

Purdue University, West Lafayette, Indiana, USA

MSc in Electrical and Computer Engineering   May 2015

Tianjin University, Tianjin, P.R. China

BEng in Communication Engineering   June 2013

- Thesis title   *Design and Simulation of LTE Semi-Persistent Scheduler*

University of South Australia, Adelaide, Australia

Exchange Student   February – July 2012

RESEARCH INTERESTS

- UAV-Aided Wireless Communication Systems
- 5G Millimeter-Wave Channel Measurement and Modeling
- Intelligent Transportation System Applications in Digital Agriculture
- Proactive Road Maintenance

RESEARCH EXPERIENCE

[RE1] September 2021 – Present. **Post-Doctoral Research Assistant**. Purdue University, West Lafayette, Indiana, USA.
  a. *Communications Research Lab*: millimeter-wave propagation measurement, modeling, and simulation for next-generation wireless communications.
  b. *Wabash Heartland Innovation Network (WHIN)*: coverage simulation for LoRaWAN performance predication and evaluation.
  c. *Joint Transportation Research Program (JTRP)*: high-risk road segment identification via sun shadow simulation for proactive snow removal; pavement condition assessment and visualization based on 3D LiDAR and falling weight deflectometer records; automated record keeping for maintenance operations via real-time telematics information.
  d. *Open Ag Technology and Systems (OATS) Center*: GPS data collection and signal processing for agriculture applications.

[RE2] June 2017 – August 2021. **Graduate Research Assistant**. Purdue University, West Lafayette, Indiana, USA.
  a. *Open Ag Technology and Systems (OATS) Center*: GPS signal processing for agriculture applications.
  b. *Communications Research Lab*: millimeter-wave propagation modeling for 5G communications.

[RE3] January 2015 – July 2016. **Graduate Research Assistant**. Purdue University, West Lafayette, Indiana, USA.
  a. *Joint Transportation Research Program (JTRP)*: developed algorithms for recognizing pothole patching activities via GPS records.

[RE4] June 2012 – July 2012. **Work Experience Program**. Institute for Telecommunications Research, University of South Australia, Mawson Lakes, Australia.
  a. *Software-Defined Radio*: collaborated with the lab manager to set up and test USRP E110 units.
  b. *Fading Control, Coding for Hybrid Free Space Optical / RF Channels*: simulated fading channel using Arduino.

TEACHING EXPERIENCE

[TE1] August 2016 – May 2017. **Graduate Teaching Assistant**. Purdue University, West Lafayette, Indiana, USA.

    a. *ECE 477 Digital Systems Senior Design*: guided and assisted 38 students with senior design projects. Student evaluation score: 4.7/5.

[TE2] January 2016 – May 2016. **Teaching Assistant Trainee**. Purdue University, West Lafayette, Indiana, USA.

    a. *ENGL 620 Classroom Communication in ESL For Teaching Assistants*: designed and delivered 4 talks on selected topics in electrical and computer engineering.

[TE3] July 2011. **Volunteer Teacher**. Jiantang Village Elementary School, Fenghuang County, Hunan Province, China.

AWARDS

[A1] 2021. **Student Travel Support**. 24th IEEE International Intelligent Transportation Systems Conference (ITSC).

[A2] 2020. **Student Poster Competition First Prize**. *Dynamic High-Precision Field Shape Generation via Combine GPS Tracks*. Unlocking the Agricultural Data Revolution. Foundation for Food & Agriculture Research (FFAR).

[A3] 2020. **Student Poster Competition Honorary Mention Prize**. *Generating Product Traceability Trees for Harvesting from GPS Tracks*. Unlocking the Agricultural Data Revolution. Foundation for Food & Agriculture Research (FFAR).

[A4] 2020. **Student Poster Competition Honorary Mention Prize**. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. Unlocking the Agricultural Data Revolution. Foundation for Food & Agriculture Research (FFAR).

[A5] 2019. **Student Travel Support**. 6th National Science Foundation (NSF) Millimeter-Wave Research Coordination Networks (mmW RCN) Workshop.

[A6] 2018. **Outstanding Student Poster Presentation Award**. *Generating Product Traceability Trees for Harvesting from GPS Tracks*. ASABE Annual International Meeting.

[A7] 2012. **China National Scholarship**. Chinese Government Scholarship. Tianjin University.

[A8] 2012. **Dean's Award**. School of Electronic Information Engineering. Tianjin University.

[A9] 2012. **Endeavour Awards**. Australian Government Scholarship. University of South Australia.

[A10] 2011. **China National Scholarship**. Chinese Government Scholarship. Tianjin University.

[A11] 2011. **Dean's Award**. School of Electronic Information Engineering. Tianjin University.

[A12] 2011. **Tianjin Area Undergraduate Physics Competition First Prize** (top 5%).

[A13] 2010. **China National Scholarship**. Chinese Government Scholarship. Tianjin University.

PUBLICATIONS

Journals

[J1] **Zhang, Y.**, Jyoti, S., Anderson, C.R., Michelusi, N., Love, D.J., Sprintson, A. and Krogmeier, J.V., 2019, February. *Improving millimeter-wave channel models for suburban environments with site-specific geometric features*. **ACES Journal Special Issue on ACES 2018 Denver Conference: Part 2**, vol. 34, no. 2, pp. 375-378.

[J2] **Zhang, Y.**, Anderson, C.R., Michelusi, N., Love, D.J., Baker, K.R. and Krogmeier, J.V., 2019, June. *Propagation modeling through foliage in a coniferous forest at 28 GHz*. **IEEE Wireless Communications Letters**, vol. 8, no. 3, pp. 901-904.

[J3] **Zhang, Y.**, Krogmeier, J.V., Ault, A. and Buckmaster, D., 2020. *APT3: automated product traceability trees generated from GPS tracks*. **Transactions of the ASABE**, p.0.

Magazines

[M1] **Zhang, Y.**, Love, D.J., Krogmeier, J.V., Anderson, C.R., Heath, R.W. and Buckmaster, D.R., 2021. *Challenges and opportunities of future rural wireless communications*. **IEEE Communications Magazine**, 59(12), pp.16-22.

Conferences

[C1] **Zhang, Y.**, Balmos, A., Krogmeier, J.V. and Buckmaster, D., 2015, September. *Working zone identification for specialized micro transportation systems using GPS tracks*. In **2015 IEEE 18th International Conference on Intelligent Transportation Systems (ITSC)** (pp. 1779-1784). IEEE.

[C2] Layton, A.W., **Zhang, Y.**, Krogmeier, J.V. and Buckmaster, D.R., 2017. *Determining harvesting efficiency via multiple combine GPS logs*. In **2017 ASABE Annual International Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C3] **Zhang, Y.**, Ault, A., Krogmeier, J.V. and Buckmaster, D., 2017. *Activity recognition for harvesting via GPS tracks*. In **2017 ASABE Annual International Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C4] **Zhang, Y.**, Balmos, A., Krogmeier, J.V. and Buckmaster, D., 2017. *Dynamic high-precision field shape generation via combine GPS tracks*. In **2017 ASABE Annual International Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C5] **Zhang, Y.**, Jyoti, S., Anderson, C.R., Love, D.J., Michelusi, N., Sprintson, A. and Krogmeier, J.V., 2018, May. *28-GHz channel measurements and modeling for suburban environments*. In **2018 IEEE International Conference on Communications (ICC)** (pp. 1-6). IEEE.

[C6] **Zhang, Y.**, Love, D.J., Michelusi, N., Krogmeier, J.V., Jyoti, S., Sprintson, A. and Anderson, C.R., 2018, March. *Improving millimeter-wave channel models for suburban environments with site-specific geometric features*. In **2018 International Applied Computational Electromagnetics Society Symposium (ACES)** (pp. 1-2). IEEE.

[C7] Buckmaster, D., Krogmeier, J.V., Ault, A., Noel, S., Wang, Y., **Zhang, Y.**, Layton, A. and Balmos, A., 2018, June. *Use cases for real time data in agriculture*. In **2018 International Conference on Precision Agriculture** *(ICPA)*. ISPA. Accessed: July 6, 2020.

[C8] Lindsay, A.M., Wang, Y., Noel, S., **Zhang, Y.**, Krogmeier, J.V. and Buckmaster, D., 2018. *CAN-based forage yield mapping*. In **2018 ASABE Annual International Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C9] **Zhang, Y.**, Balmos, A., Ault, A., Buckmaster, D. and Krogmeier, J.V., 2018. *Generating product traceability trees for harvesting from GPS tracks*. In **2018 ASABE Annual International Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C10] Wang, Y., **Zhang, Y.**, Buckmaster, D. and Krogmeier, J., 2019. *Combine harvester unloading event inference using GPS data*. In **2019 ASABE Annual International Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C11] Wang, Y., **Zhang, Y.**, Balmos, A., Buckmaster, D. and Krogmeier, J.V., 2019. *A tutorial on wireless communication protocol selection for digital agricultural applications*. To appear in **2019 ASABE Annual International Meeting**. American Society of Agricultural and Biological Engineers.

[C12] **Zhang, Y.**, Krogmeier, J.V. and Buckmaster, D., 2019. *A probabilistic model for estimating harvested areas via GPS tracks*. To appear in **2019 ASABE Annual International Meeting**. American Society of Agricultural and Biological Engineers.

[C13] **Zhang, Y.**, Arakawa, T., Krogmeier, J.V., Anderson, C.R., Love, D.J. and Buckmaster, D.R., 2020, June. *Large-scale cellular coverage analyses for UAV data relay via channel modeling*. In **2020 IEEE International Conference on Communications (ICC)** (pp. 1-6). IEEE.

[C14] **Zhang, Y.**, Tan, J.A., Dorbert, B.M., Anderson, C.R. and Krogmeier, J.V., 2020, December. *Simulation-aided measurement-based channel modeling for propagation at 28 GHz in a coniferous forest*. In **2020 IEEE Global Communications Conference (GLOBECOM)** (pp. 1-6). IEEE.

[C15] Neustedter, A.J., Arakawa, T., **Zhang, Y.**, Castiblanco, F.A., Layton, A., Balmos, A., Ault, A., Krogmeier, J.V. and Buckmaster, D., 2021. *Enabling visualization and processing of location-based data via OADA's client-selectable live data graphs*. In **2021 ASABE Annual International Virtual Meeting** (p. 1). American Society of Agricultural and Biological Engineers.

[C16] **Zhang, Y.**, Jha, S., Bullock, D.M. and Krogmeier, J.V., 2021, September. *Generating dynamic prescription maps for winter road treatment via sun-shadow simulation*. In **2021 IEEE International Intelligent Transportation Systems Conference (ITSC)** (pp. 3387-3392). IEEE.

[C17] Keshavamurthy, B., **Zhang, Y.**, Anderson, C.R., Michelusi, N., Krogmeier, J.V. and Love, D.J., 2022. *A robotic antenna alignment and tracking system for millimeter wave propagation modeling*. To appear in **2022 United States National Committee of URSI National Radio Science Meeting (USNC-URSI NRSM)**. IEEE.

Technical Reports

[R1] Sadeghi, L., **Zhang, Y.**, Balmos, A., Krogmeier, J.V. and Haddock, J.E., 2016. *Algorithm and software for proactive pothole repair*. **Joint Transportation Research Program Publication (JTRP) Technical Reports** No. FHWA/IN/JTRP-2016/14. Purdue University, West Lafayette, Indiana.

[R2] **Zhang, Y.**, Jyoti, S., Anderson, C.R., Love, D.J., Michelusi, N., Sprintson, A. and Krogmeier, J.V., 2017, November. *28-Ghz channel measurements and modeling for suburban environments*. **Department of Electrical and Computer Engineering Technical Reports** No. TR-ECE-17-07. Purdue University, West Lafayette, Indiana.

[R3] Mahlberg, J., **Zhang, Y.**, Jha, S., Mathew, J.K., Li, H., Desai, J., Kim, W., McGuffey, J., Wells, T., Krogmeier, J.V. and Bullock, D.M., 2021. *Development of an intelligent snowplow truck that integrates telematics technology, roadway sensors, and connected vehicle*. **Joint Transportation Research Program Publication (JTRP) Technical Reports** No. FHWA/IN/JTRP-2021/27. Purdue University, West Lafayette, Indiana.

Data Sets

[S1] **Zhang, Y.**, Krogmeier, J. (2021). *Combine Kart Truck GPS data archive*. (Version 1.2). **Purdue University Research Repository**. DOI: [10.4231/XBG9-P763](10.4231/XBG9-P763).

SELECTED PRESENTATIONS

Invited Talks

[I1] January 31, 2018. *28-GHz Channel Measurements and Modeling for Suburban Environments*. **National Institute of Standards and Technology (NIST)/Institute for Telecommunication Sciences (ITS) Propagation Focus Group Guest Talk**. Delivered remotely.

[I2] February 13, 2019. *Propagation Modeling Through Foliage in a Coniferous Forest at 28 GHz*. **National Institute of Standards and Technology (NIST)/Institute for Telecommunication Sciences (ITS) Propagation Focus Group Guest Talk**. Delivered remotely.

[I3] October 30, 2022. *Overcoming the Digital Divide by Large-Scale Coverage Analyses for mmWave Cellular Networks*. **2022 IEEE 56th Asilomar Conference on Signals, Systems, and Computers**. Pacific Grove, California, USA.

Talks

[T1] September 16, 2015. *Working Zone Identification for Specialized Micro Transportation Systems Using GPS Tracks*. **2015 IEEE 18th International Conference on Intelligent Transportation Systems (ITSC)**. Las Palmas de Gran Canaria, Spain.

[T2] July 17, 2017. *Determining Harvesting Efficiency via Multiple Combine GPS Logs*. **2017 ASABE Annual International Meeting (AIM)**. Spokane, Washington, USA.

[T3] July 17, 2017. *Activity Recognition for Harvesting via GPS Tracks*. **2017 ASABE Annual International Meeting (AIM)**. Spokane, Washington, USA.

[T4] March 24, 2018. *Improving Millimeter-Wave Channel Models with Site-Specific Geometric Features*. **2018 International Applied Computational Electromagnetics Society (ACES) Symposium**. Denver, Colorado, USA.

[T5] May 23, 2018. *28-GHz Channel Measurements and Modeling for Suburban Environments*. **2018 IEEE International Conference on Communications (ICC)**. Kansas City, Missouri, USA.

[T6] January 9, 2019. *Channel Model Comparison for 28 GHz Millimeter Wave in Suburban and Rural Environments*. **United States National Committee (USNC) for the International Union of Radio Science (URSI) National Radio Science Meeting (NRSM)**. Boulder, Colorado, USA. Presented by Prof. Christopher R. Anderson (Email: canderso@usna.edu).

[T7] February 25, 2019. *Generating Product Traceability Trees for Harvesting from GPS Tracks*. **2019 Open Ag Technology and Systems Center Conference (OATSCON19)**. Chicago, Illinois, USA.

[T8] July 10, 2019. *A Probabilistic Model for Estimating Harvested Areas via GPS Tracks*. **2019 ASABE Annual International Meeting (AIM)**. Boston, Massachusetts, USA.

[T9] August 8, 2019. *Activity Recognition for Harvesting via GPS Tracks*. **2019 Open Ag Technology and Systems Center (OATS) Showcase Reception for Case New Holland Industrial (CHI) Inc**. Purdue University, West Lafayette, Indiana, USA.

[T10] August 29, 2019. *Activity Recognition for Harvesting via GPS Tracks*. **2019 Open Ag Technology and Systems Center (OATS) Showcase Reception for Infosys Limited**. Purdue University, West Lafayette, Indiana, USA.

[T11] February 19, 2020. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. **2020 Global City Teams Challenge (GCTC) Smart Ag & Rural Supercluster Workshop**. Phoenix, Arizona, USA.

[T12] June 9, 2020. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. **2020 IEEE International Conference on Communications (ICC)**. Virtual conference. Delivered virtually. [Virtual presentation]

[T13] July 8, 2020. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. **2020 AgGateway Mid-Year Meeting**. Virtual conference. Delivered virtually. [Virtual presentation]

[T14] November 19, 2020. *GPS Data Analyses for Wheat Harvesting*. **2020 AgGateway Virtual Annual Conference**. Delivered remotely.

[T15] December 9, 2020. *Simulation-Aided Measurement-Based Channel Modeling for Propagation at 28 GHz in a Coniferous Forest*. **2020 IEEE Global Communications Conference (GLOBECOM)**. Hybrid conference. Taipei, Taiwan. Delivered virtually. [Virtual presentation]

[T16] March 25, 2021. *Automatic Field Records*. **2021 Open Ag Technology and Systems Center Conference (OATSCON21)**. Virtual conference. Purdue University, West Lafayette, Indiana, USA. Delivered remotely.

[T17] September 22, 2021. *Generating Dynamic Prescription Maps for Winter Road Treatment via Sun-Shadow Simulation*. **2021 IEEE International Intelligent Transportation Systems Conference (ITSC)**. Hybrid conference. Indianapolis, Indiana, USA. Delivered both in person and virtually. [Virtual presentation]

[T18] December 21, 2021. *Rural Wireless Propagation Modeling*. **Internet of Things for Precision Agriculture (IoT4Ag) Industrial/Practitioner Advisory Board (IPAB) Meeting**. Delivered remotely.

Poster Presentations

[P1] July 18, 2017. *Dynamic High-Precision Field Shape Generation via Combine GPS Tracks*. **2017 ASABE Annual International Meeting (AIM)**. Spokane, Washington, USA.

[P2] November 11, 2017. *Dynamic High-Precision Field Shape Generation via Combine GPS Tracks*. **2017 Open Ag Technology and Systems Center Annual Conference (OATSCON17)**. Chicago, Illinois, USA.

[P3] January 18, 2018. *Improving Millimeter-Wave Channel Models with Site-Specific Geometric Features*. **3rd National Science Foundation (NSF) Millimeter-Wave Research Coordination Networks (mmW RCN) Workshop**. Tucson, Arizona, USA.

[P4] July 31, 2018. *Activity Recognition for Harvesting via GPS Tracks using Neural Networks*. **2018 ASABE Annual International Meeting (AIM)**. Detroit, Michigan, USA.

[P5] July 31, 2018. *Generating Product Traceability Trees for Harvesting from GPS Tracks*. **2018 ASABE Annual International Meeting (AIM)**. Detroit, Michigan, USA. [Outstanding Student Poster Presentation Award]

[P6] February 25, 2019. *Generating Product Traceability Trees for Harvesting from GPS Tracks*. **2019 Open Ag Technology and Systems Center Conference (OATSCON19)**. Chicago, Illinois, USA.

[P7]　February 25, 2019. *Dynamic High-Precision Field Shape Generation via Combine GPS Tracks*. **2019 Open Ag Technology and Systems Center Conference (OATSCON19)**. Chicago, Illinois, USA.

[P8]　July 23, 2019. *Propagation Modeling Through Foliage in a Coniferous Forest at 28 GHz*. **6th National Science Foundation (NSF) Millimeter-Wave Research Coordination Networks (mmW RCN) Workshop**. National Institute of Standards and Technology (NTIA), Boulder, Colorado, USA.

[P9]　July 30, 2019. *Wireless Connectivity for Agricultural IoT Devices*. **2019 Facebook Connectivity Lab Summer Workshop on Rural Connectivity**. Menlo Park, California, USA. Presented by my colleague Tomohiro Arakawa (Email: tomohiro@tarakawa.net).

[P10]　September 24, 2020. *Generating Product Traceability Trees for Harvesting from GPS Tracks*. **2020 Unlocking the Agricultural Data Revolution**. University of Minnesota, Minneapolis, Minnesota, USA. [Student Poster Competition Honorary Mention Prize]

[P11]　September 24, 2020. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. **2020 Unlocking the Agricultural Data Revolution**. University of Minnesota, Minneapolis, Minnesota, USA. [Student Poster Competition Honorary Mention Prize]

[P12]　September 25, 2020. *Dynamic High-Precision Field Shape Generation via Combine GPS Tracks*. **2020 Unlocking the Agricultural Data Revolution**. University of Minnesota, Minneapolis, Minnesota, USA. [Student Poster Competition First Prize] [Announcement archive]

[P13]　June 10, 2021. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. **Internet of Things for Precision Agriculture (IoT4Ag) Summer 2021 Annual Meeting**. University of Pennsylvania, Philadelphia, Pennsylvania, USA. Delivered remotely.

[P14]　June 10, 2021. *Wireless Powered Communication Over Inductively Coupled Circuits for UAV Data Relay via Channel Modeling*. **Internet of Things for Precision Agriculture (IoT4Ag) Summer 2021 Annual Meeting**. University of Pennsylvania, Philadelphia, Pennsylvania, USA. Co-presented with my colleague Tomohiro Arakawa (Email: tomohiro@tarakawa.net). Delivered remotely.

[P15]　October 12, 2021. *Large-Scale Cellular Coverage Analyses for UAV Data Relay via Channel Modeling*. **Internet of Things for Precision Agriculture (IoT4Ag) Year-1 National Science Foundation (NSF) Site Visit**. University of Pennsylvania, Philadelphia, Pennsylvania, USA. Delivered remotely.

[P16]　October 12, 2021. *Wireless Powered Communication Over Inductively Coupled Circuit*. **Internet of Things for Precision Agriculture (IoT4Ag) Year-1 National Science Foundation (NSF) Site Visit**. University of Pennsylvania, Philadelphia, Pennsylvania, USA. Co-presented with my colleague Tomohiro Arakawa (Email: tomohiro@tarakawa.net). Delivered remotely.

[P17]　February 24, 2022. *Generating Dynamic Prescription Maps for Winter Road Treatment via Sun Shadow Simulation*. **2022 Joint Transportation Research Program (JTRP) Poster Session**. Indiana Government Center South Atrium, Indianapolis, Indiana, USA.

[P18]　February 24, 2022. *Comprehensive Pavement Patching Algorithm for Web Based Pavement Condition Assessment and Visualization Application*. **2022 Joint Transportation Research Program (JTRP) Poster Session**. Indiana Government Center South Atrium, Indianapolis, Indiana, USA. Presented with my colleague Sneha Jha (Email: jha16@purdue.edu).

[P19]　March 15, 2022. *Comprehensive Pavement Patching Tools and Web-Based Software for Pavement Condition Assessment and Visualization*. **108th Purdue Road School Transportation Conference and Expo**. Purdue University, West Lafayette, Indiana, USA. Co-presented with my colleague Sneha Jha (Email: jha16@purdue.edu).

Live Demos

[D1]　September 13, 2016. *College of Engineering Space and Data Mapping Program: Live Demo for Purdue Room Info Viewer (Stage 3)*. **College of Engineering Space Committee Meeting**. Purdue University, West Lafayette, Indiana, USA. [Demonstration video]

[D2] August 23, 2019. *ISOBlue HD: An Open-Source Ag Data Collection Platform with Live Video Streaming Capability*. **2019 Joint Transportation Research Program (JTRP) Executive Committee Meeting**. Indiana Corn and Soybean Innovation Center, Purdue University, West Lafayette, Indiana, USA. Co-presented with my colleague Yang Wang (Email: wang701@purdue.edu).

[D3] March 15, 2022. *Patching Management Tool (PMT): A Comprehensive Web App for Pavement Condition Assessment and Visualization*. **108th Purdue Road School Transportation Conference and Expo**. Purdue University, West Lafayette, Indiana, USA. Co-presented with my colleague Sneha Jha (Email: jha16@purdue.edu).

PROFESSIONAL EXPERIENCE

Peer Reviews

Military Communications Conference (MILCOM)	2016, 2018, 2019, 2021, 2022
IEEE Access	2017
IEEE Journal on Selected Areas in Communications (JSAC)	
special issue on *Multiple Antenna Technologies for Beyond 5G*	2019
International Telecommunication Union (ITU) Journal:	
Information and Communication Technology (ICT) Discoveries	
special issue on Radio wave propagation	2019
IEEE Global Communications Conference (GLOBECOM)	2020
European Association for Signal Processing (EURASIP) Journal	
on *Wireless Communications and Networking*	2020
IEEE International Conference	
on Intelligent Transportation Systems (ITSC)	2021
Pre-submission peer review of a manuscript for	
American Society of Agricultural and	
Biological Engineers (ASABE) Journal on *Safety and Health*	2022
IEEE Asilomar Conference on Signals, Systems, and Computers	2022

Services to the Community

[SC1] August 2014 – December 2014. **Note Taker**. *Disability Resource Center (DRC)*. Purdue University, West Lafayette, Indiana, USA.

[SC2] May 2018 – July 2018. **Technical Program Committee (TPC) Member**. *Military Communications Conference (MILCOM) 2018 Track 1 - Waveforms and Signal Processing*. Institute of Electrical and Electronics Engineers (IEEE).

[SC3] May 2019 – July 2019. **Technical Program Committee (TPC) Member**. *Military Communications Conference (MILCOM) 2019 Track 1 - Waveforms and Signal Processing*. Institute of Electrical and Electronics Engineers (IEEE).

[SC4] May 2021 – July 2021. **Mentor**. *2021 Research for Undergraduate Experience (REU) Program*, Internet of Things for Precision Agriculture (IoT4Ag) Engineering Research Center, University of Pennsylvania.

[SC5] May 2021 – July 2021. **Mentor**. *2021 Summer Undergraduate Research Fellowship (SURF) Program*, Engineering Undergraduate Research Office (EURO), Purdue University.

[SC6] July 29 – 31, 2021. **Judge**. *2021 Summer Undergraduate Research Fellowship (SURF) e-Symposium*, Engineering Undergraduate Research Office (EURO), Purdue University.

[SC7] July 2021 – September 2021. **Technical Program Committee (TPC) Member**. *Military Communications Conference (MILCOM) 2021 Track 1 – Waveforms and Signal Processing*. Institute of Electrical and Electronics Engineers (IEEE).

[SC8] September 2021 – October 2021. **Mentor.** *Pathway to Ph.D. (PPP) Program*, Internet of Things for Precision Agriculture (IoT4Ag) Engineering Research Center, University of Pennsylvania.

[SC9] October 2021 – December 2021. **Mentor.** *United States Naval Academy (USNA) Longmont Measurement Campaign and Student Seminar*, Wireless Measurements Group at the USNA.

[SC10] November 5, 2021. **Volunteer**. *2021 Open Ag Technology and Systems Center Advance Conference* (OATSADVANCE21), Purdue University.

[SC11] May 2022 – July 2022. **Technical Program Committee (TPC) Member**. *Military Communications Conference (MILCOM) 2019 Track 1 - Waveforms and Signal Processing*. Institute of Electrical and Electronics Engineers (IEEE).

[SC12] June 14 – 17, 2022. **Volunteer** and **Poster Competition Judge**. *Internet of Things for Precision Agriculture (IoT4Ag) Summer 2022 Annual Meeting*. Purdue University, West Lafayette, Indiana, USA.

Career Development in Reverse-Chronological Order

[CD1] June 14 – 17, 2022. **Sponsored attendee**. *Internet of Things for Precision Agriculture (IoT4Ag) Summer 2022 Annual Meeting*. Purdue University, West Lafayette, Indiana, USA.

[CD2] April 2022 – August 2022. **Mentee**. *Engineering Academic Career Club (EACC) Mentoring Circles* (Future Faculty Development Program). Purdue University, West Lafayette, Indiana, USA.

[CD3] January 2022 – Present. **Member**. *Institute of Electrical and Electronics Engineers (IEEE)*.

[CD4] January 2022 – May 2022. **Trainee**. *Effective Management* (Professional Development Program). Purdue University, West Lafayette, Indiana, USA.

[CD5] November 9 – 10, 2021. **Sponsored Attendee**. *Aerial Experimentation and Research Platform on Advanced Wireless (AERPAW) Fall 2021 Event*. North Carolina State University, Raleigh, North Carolina, USA. [Event Information]
   a. Attended hands-on trainings on how to access the aerial wireless experimentation platform AERPAW and run experiments.
   b. Attended the Sixth Generation Wireless Research at North Carolina State University (6GNC) Meeting.

[CD6] November 1 – 3, 2021. **Sponsored Attendee**. *Young Gladiators Colosseum Master Class*. Institute for the Wireless Internet of Things, Northeastern University, Boston, Massachusetts, USA. [Program Information]
   a. Attended hands-on trainings on how to access the wireless emulator Colosseum and run experiments.
   b. Visited the Institute for the Wireless Internet of Things and the Colosseum Facility at Northeastern University.

[CD7] September 23 – 26, 2021. **Trainee**. *Mentoring Training for Pathway to Ph.D. (PPP) Mentors*. University of Pennsylvania, Philadelphia, Pennsylvania, USA. Attended remotely.
   a. Learnt the roles and responsibilities of PPP mentors.

[CD8] March 27, 2021. **Trainee**. *Mentoring Moments Workshop for Summer Undergraduate Research Fellowship (SURF) Mentors*. Purdue University, West Lafayette, Indiana, USA.
   a. Learnt various techniques to better build relationships with mentees.

[CD9] March 24 – 26, 2021. **Team Leader**. *OATSCON21 Pork Hackathon Part 1: Advance Shipping Notice (ASN)*. Purdue University, West Lafayette, Indiana, USA.
   a. Pork ASN Web/Slack Chatbot: led a student team to develop and implement two intelligent chatbots for human operators/managers to easily take advantage of an ASN system. [Presentation]

[CD10] October 2020 – December 2020. **Team Leader**. Team OATS, *Producer-Led Innovation Challenge* hosted by AgriNovus, Indiana, USA.
   a. OATS Data Automation Platform: led international students and developers from five different countries in developing an open-source project for agricultural data automation. [Executive summary] [Presentation]

[CD11] January 2018 – December 2018. **Member**. *Applied Computational Electromagnetics Society (ACES)*.

[CD12] January 2017 – December 2020. **Student Member**. *American Society of Agricultural and Biological Engineers (ASABE)*.

[CD13] January 2015 – December 2021. **Student Member**. *Institute of Electrical and Electronics Engineers (IEEE)*.

Selected Open-Source Projects

[PP1]   **[Android] Combine Kart Truck: A GPS Logger for Wheat Harvesting**: an open-source GPS/Cell/Wi-Fi logger with user registration function for wheat harvesting.
Zhang, Y., Balmos, A. (2019). **Combine Kart Truck**. *GitHub repository*. Retrieved from
https://github.com/OATS-Group/CombineKartTruck

[PP2]   **[Matlab] Wheat Harvesting GPS Data Visualization and Analysis (Matlab Workspace)**: an open-source Matlab codebase for wheat harvesting GPS analysis, featuring fully automatic algorithms for high-precision field shape generation, vehicle activity recognition, and product tracking & tracing.
Zhang, Y. (2019). **GPS Data Visualization and Analysis Workspace**. *GitHub repository*. Retrieved from
https://github.com/YaguangZhang/GpsDataVisualizationAndAnalysisWorkspace

[PP3]   **[Matlab] EARS Measurement Campaign Code**: code used in data collection and post-processing for a millimeter-wave measurement campaign on the campus of United States Naval Academy, Annapolis, Maryland, USA, to investigate millimeter-wave propagation in suburban environments.
Zhang, Y. (2019). **EARS Measurement Campaign Code**. *GitHub repository*. Retrieved from
https://github.com/YaguangZhang/EarsMeasurementCampaignCode

[PP4]   **[Matlab, Python, C++] Cellular Coverage Mapper for Drone Data Relay**: an open-source Matlab codebase for large-scale quantitative coverage analysis of cellular networks with drone data relay.
Zhang, Y. (2020). **Cell Coverage Mapper for Drones (Matlab Workspace)**. *GitHub repository*. Retrieved from
https://github.com/YaguangZhang/CellCoverageMapperForDronesMatlabWorkspace

[PP5]   **[Matlab] Sun Shadow Simulator**: an open-source Matlab codebase to locate sun shadow (e.g., for a given location at a given time) based on LiDAR data.
Zhang, Y. (2021). **Sun Shadow Simulator (Matlab Workspace)**. *GitHub repository*. Retrieved from
https://github.com/YaguangZhang/SunShadowSimulatorMatlabWorkspace

[PP6]   **[C, C++, Matlab] NTIA Extended Hata (eHata) Urban Propagation Model for Matlab**: C shared library (loadable by Matlab) of the NTIA eHata model C++ implementation.
Zhang, Y. (2022). **NTIA Extended Hata (eHata) Urban Propagation Model for Matlab**. *GitHub repository*. Retrieved from https://github.com/YaguangZhang/ntiaEHataForMatlab

SKILL SETS

Language skills	Mandarin (native) and English	
Computer skills	Programming:	Python, C/C++, JAVA, Android, assembly language, Verilog, VHDL
	Signal Processing:	MATLAB, GNU Radio
	Web Development:	JavaScript, NodeJS, ReactJS, HTML/CSS, Docker, Jekyll, Markdown

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