

YAGUANG ZHANG

Northwestern Avenue, Box 90, EE Building, Purdue University, West Lafayette, IN 47907
 Homepage: yaguangzhang.github.io | Cell: (765) 761-2221 | E-mail: ygzhang@purdue.edu

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.
- Communications Research Lab*: millimeter-wave propagation measurement, modeling, and simulation for next-generation wireless communications.
 - Wabash Heartland Innovation Network (WHIN)*: coverage simulation for LoRaWAN performance predication and evaluation.
 - 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.
 - 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.
- Open Ag Technology and Systems (OATS) Center*: GPS signal processing for agriculture applications.
 - Communications Research Lab*: millimeter-wave propagation modeling for 5G communications.
- [RE3] January 2015 – July 2016. **Graduate Research Assistant**. Purdue University, West Lafayette, Indiana, USA.
- 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.
- Software-Defined Radio*: collaborated with the lab manager to set up and test USRP E110 units.
 - 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 10 student groups (4 in Fall 2016 and 6 in Spring 2017) with senior design projects.
- [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.

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](https://doi.org/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 (NIST), 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 <i>Multiple Antenna Technologies for Beyond 5G</i>	2019
International Telecommunication Union (ITU) Journal:	
<i>Information and Communication Technology (ICT) Discoveries</i>	
special issue on <i>Radio wave propagation</i>	2019
IEEE Global Communications Conference (GLOBECOM)	2020
European Association for Signal Processing (EURASIP) Journal	
on <i>Wireless Communications and Networking</i>	2020
IEEE International Conference	
on <i>Intelligent Transportation Systems (ITSC)</i>	2021
Pre-submission peer review of a manuscript for	
American Society of Agricultural and	
Biological Engineers (ASABE) Journal on <i>Safety and Health</i>	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 I: 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 Programming 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

ACADEMIC REFERENCES

Professor James V. Krogmeier

School of Electrical and Computer Engineering, Purdue University

465 Northwestern Avenue, West Lafayette, IN 47907

Phone: +1 (765) 494-3530

Email: jvk@purdue.edu

Professor Christopher R. Anderson

Department of Electrical Engineering, United States Naval Academy

105 Maryland Ave, Annapolis, MD 21402

Phone: +1 (410) 293-1000

Email: canderso@usna.edu

Professor David J. Love

School of Electrical and Computer Engineering, Purdue University

465 Northwestern Avenue, West Lafayette, IN 47907

Phone: +1 (765) 496-6797

Email: djlove@purdue.edu

Professor Dennis R. Buckmaster

Department of Agricultural and Biological Engineering, Purdue University

225 South University Street, West Lafayette, IN 47907

Phone: +1 (765) 496-9512

Email: dbuckmas@purdue.edu