

# YAGUANG ZHANG

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## EDUCATION

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### Purdue University, West Lafayette, Indiana, USA

#### PhD in Electrical and Computer Engineering

Expected May 2020

##### • Projects

Multi-Layer Radio Environment Map Database for Wireless Channel Measurements and Modeling	in progress
Cell Coverage Estimation for UAV Data Relay	in progress
An Agile Millimeter-Wave Data Link Prototype	in progress
V2V Millimeter-Wave Antenna Alignment for Harvesting	in progress
Sing4U (at ZygLabs.com/Sing4U)	in progress
Site-Specific Millimeter-Wave Propagation Modeling	2018
APT3: Automated Product Traceability Trees Generated from GPS Tracks	2018
Vehicle Activity Recognition for Harvesting via GPS Tracks	2017
Dynamic High-Precision Field Shape Generation via Combine GPS Tracks	2017
CKT: An Android GPS Logger for Harvesting	2016
Purdue College of Engineering Floor Plan Viewer	2016
Algorithm and Software for Proactive Pothole Repair	2016

### Purdue University, West Lafayette, Indiana, USA

#### MSc in Electrical and Computer Engineering

May 2015

##### • Projects

Augmented Reality Browser with Natural User Interactions	July 2014
Real-Time Data Collection for Agriculture Vehicles	July 2014
Turbo Codec Implementation Using MATLAB	May 2014

### Tianjin University, Tianjin, P.R. China

#### BEng in Communication Engineering

June 2013

##### • Awards and Scholarships

National Scholarship	2010; 2011; 2012
Dean's Award	2011; 2012
Tianjin Area Undergraduate Physics Competition First Prize (top 5%)	2011

##### • Thesis

Design and Simulation of Semi-Persistent Scheduler for LTE

##### • Projects

Wireless PC Game Controller Using Android Devices	2013
Intelligent Model Car Design	2011
Single-Board Remote Controller Module Design for Wireless PC Game Gun	2011

### University of South Australia, Adelaide, Australia

#### Exchange Student

February – July 2012

##### • Awards and Scholarships

Endeavour Awards (Australian government scholarship)	2012
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## **PUBLICATIONS**

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- 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.
- 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.
- Wang, Y., Zhang, Y., Buckmaster, D. and Krogmeier, J.V., 2019. **Combine Harvester Unloading Event Inference Using GPS Data**. To appear in *2019 ASABE Annual International Meeting*. American Society of Agricultural and Biological Engineers.
- Balmos, A., Zhang, Y., Wang, Y. and Krogmeier, J.V., 2019. **The Merits of an Agricultural Vehicle-to-Vehicle Mesh Wi-Fi Network**. To appear in *2019 ASABE Annual International Meeting*. American Society of Agricultural and Biological Engineers.
- Zhang, Y., Krogmeier, J.V., Ault, A. and Buckmaster, D., 2019. **APT3: Automated Product Traceability Trees Generated from GPS Tracks**. In *Transactions of the ASABE*, submitted.
- 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**. In *IEEE Wireless Communications Letters*, vol. 8, no. 3, pp. 901-904. doi: 10.1109/LWC.2019.2899299
- Zhang, Y., Love, D.J., Michelusi, N., Krogmeier, J.V., Jyoti, S., Sprintson, A. and Anderson, C.R., 2019, February. **Improving millimeter-wave channel models for suburban environments with site-specific geometric features**. In *ACES Journal Special Issue on ACES 2018 Denver Conference: Part 2*, Vol. 34, No. 2.
- 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.
- 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.
- 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*. ISPA.
- 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 *Applied Computational Electromagnetics Society Symposium (ACES), 2018 International* (pp. 1-2). IEEE.
- 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.
- 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.
- 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.

- 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.
- 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* No. FHWA/IN/JTRP-2016/14. West Lafayette, IN, Purdue University.
- 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.

## **SELECTED TALKS**

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### **2019 OATS (the Open Ag Technology And Systems Center) Conference**

*Chicago, Illinois, USA, February 2019*

Generating Product Traceability Trees for Harvesting from GPS Tracks

### **2019 National Institute of Standards and Technology (NIST)/Institute for Telecommunication Sciences (ITS) Propagation Focus Group Guest Talk**

*February 2019*

Propagation Modeling Through Foliage in a Coniferous Forest at 28 GHz

### **2018 IEEE International Conference on Communications (ICC)**

*Kansas City, Missouri, USA, May 2018*

28-GHz Channel Measurements and Modeling for Suburban Environments

### **2018 National Institute of Standards and Technology (NIST)/Institute for Telecommunication Sciences (ITS) Propagation Focus Group Guest Talk**

*January 2018*

28-GHz Channel Measurements and Modeling for Suburban Environments

### **2018 International Applied Computational Electromagnetics Society (ACES) Symposium**

*Denver, Colorado, USA, March 2018*

Improving Millimeter-Wave Channel Models with Site-Specific Geometric Features

### **2017 ASABE Annual International Meeting (AIM)**

*Spokane, Washington, USA, July 2017*

Activity Recognition for Harvesting via GPS Tracks

Determining Harvesting Efficiency via Multiple Combine GPS Logs

### **2015 IEEE 18th International Conference on Intelligent Transportation Systems (ITSC)**

*Las Palmas de Gran Canaria, Spain, September 2015*

Working Zone Identification for Specialized Micro Transportation Systems Using GPS Tracks

## **PROFESSIONAL EXPERIENCE**

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### **Purdue University, West Lafayette, Indiana, USA**

#### **Graduate Research Assistant**

June 2017 – Present

- **OATS Group**

GPS signal processing for agriculture applications

- **Communications Research Lab**

Millimeter-wave propagation modeling for 5G communications

**Purdue University, West Lafayette, Indiana, USA**

**Graduate Teaching Assistant**

August 2016 – May 2017

- **ECE 477 Digital Systems Senior Design**

Guided and assisted students with senior design projects

**Purdue University, West Lafayette, Indiana, USA**

**Graduate Research Assistant**

January 2015 – July 2016

- **Joint Transportation Research Program**

Developed algorithms for recognizing pothole patching activities via GPS records

**Institute for Telecommunications Research, University of South Australia, Mawson Lakes, Australia**

**Work Experience Program**

June – July 2012

- **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

## **SKILL SETS**

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**Language skills** Mandarin (native) and English

**Computer skills** Programming: C/C++, JAVA, Android, Python, assembly language, Verilog, VHDL

Signal Processing: MATLAB, GNU Radio

Web Development: JavaScript, ReactJS, HTML/CSS, Docker