

# Yu Zhao

Ph.D. Candidate  
Department of Computer Science  
University of Kentucky

Cell phone: +1(859)4891334  
Email: yzh355@g.uky.edu

## Research Interests

Software Testing, UI Testing, Bug report Analysis, Bug reproducing, Natural Language Processing, Machine Learning, Computer Networks, Wireless Sensor Network, Indoor localization, Cognitive Radio, Internet of Things, Parallel Computing, Signal Processing

## Education

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|--------------|---|
| 2016-present | <b>Ph.D. in Computer Science</b> , University of Kentucky, Lexington. GPA 4.0/4.0<br>Advisor: <b>Tingting Yu</b><br><i>Thaddeus B. Curtz Memorial Scholarship award</i> |
| 2009-2012    | <b>M.S. in Telecom Engineering</b> , Changchun University of Science and Technology, Changchun, China.<br><i>Social Practice Activities scholarship</i>                 |
| 2005-2009    | <b>B.S. in Telecom Engineering</b> , Jilin University, Changchun, China.<br><i>Outstanding Graduation Thesis in B.S. degree</i>   |

## Work Experience

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|-------------|--|
| 2012–2016   | <b>Research Assistant &amp; Product Manager &amp; Program Manager</b> , Shanghai International Technology & Trade United Co., Ltd, Shanghai, China.<br><i>Outstanding Employee</i> |
| 2011-2012   | <b>Research Intern</b> , Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China  |
| Spring 2011 | <b>Hardware Engineer Intern</b> , Bote Medical Equipment Company, Changchun, China.  |
| Fall 2010   | <b>Hardware Engineer Intern</b> , Chuangyi RFID Technology Company, Beijing, China.  |
| Fall 2008   | <b>Implement Engineer Intern</b> , GrenTech, Changchun, China.   |

## Patents

1. Cognitive Radio Spectrum Sensing based on Wavelet.  
CN103051401A.

Yu Zhao, Yunhuai Liu, Yuanyuan Wu

2. An Indoor Localization Method under the Multipath Effect and Environment Noise.  
CN103257335A.  
Yunhuai Liu, Yu Zhao, Li Qi, Chuanping Hu.

## Referred Journal Publications

1. FREDI: Robust RSS-based Ranging with Multipath Effect and Radio Interference  
Yu Zhao, Yunhuai Liu, Tingting Yu, Chen Qian, Tian He  
In **Computer Networks**, 2018.
2. Cloud-assisted Analysis for Energy Efficiency in Intelligent Video Systems  
Jie Dai, Yu Zhao, Yunhuai Liu, Li Qi, Chuanping Hu.  
In **Journal of Supercomputing**, 2014
3. Cognitive Radio Spectrum Sensing based on Multi-antenna  
Bin Guo, Yu Zhao  
In **Engineering & Test**, 2010 (Chinese Version).

## Referred Conference Publications

Remark: *ICSE* is a top conference on software engineering. *INFOCOM* and *ICDCS* are both top conferences on computer system and networking. *ICSR* is a one of the good conferences on software reuse. *ICCCN* is one of the good conferences on networking.

1. ReCDroid: Automatically Reproducing Android Application Crashes from Bug Reports  
Yu Zhao, Tingting Yu, Ting Su, Yang Liu, Wei Zheng, Jingzhi Zhang, William G.J. Halfond  
In **IEEE/ACM International Conference on Software Software Engineering (ICSE)**, 2019.  
**Acceptance Rate: 21%.**
2. Automatically Extracting Bug Reproducing Steps from Android Bug Reports  
Yu Zhao, Kye Miller, Tingting Yu, Wei Zheng, Minchao Pu  
In **Springer International Conference on Software and Systems Reuse(ICSR)**, 2019.
3. Pronto: Efficient Test Packet Generation for Dynamic Network Data Planes  
Yu Zhao, Huazhe Wang, Xin Li, Tingting Yu, Chen Qian  
In **IEEE International Conference on Distributed Computing Systems (ICDCS)**, 2017.  
**Acceptance Rate: 16.9%.**
4. Channel Quality Correlation-based Channel Probing in Multiple Channels  
Yu Zhao, Tingting Yu  
In **IEEE International Conference on Computer Communications and Networks (ICCCN)**, 2017.  
**Acceptance Rate:25%.**
5. Channel Adjustment for Performance Enhancement in Wireless Networks  
Yuanyuan Wu, Yu Zhao, Yunhuai Liu.  
In **IEEE International Conference on Cyber-enabled distributed computing (CyberC)**, 2015.  
**Acceptance Rate:33.2%.**

6. Wavelet Transform for Spectrum Sensing in Cognitive Radio Networks  
Yu Zhao, Yuanyuan Wu, Jiang Wang, Xuexia Zhong, Lin Mei.  
In **IEEE International Conference on Audio, Language and Image Processing (ICALIP)**, 2014.
7. FREDI: Robust RSS-based Ranging with Multipath Effect and Radio Interference  
Yu Zhao, Yunhuai Liu, Tian He, Athanasios V. Vasilakosy, Chuanping Hu.  
In **IEEE International Conference on Computer Communications (INFOCOM)**, 2013. Mini-conference.  
**Acceptance Rate:25%.**
8. Cognitive Radio Spectrum Sensing based on Wavelet Denoising  
Yu Zhao, Bin Guo.  
In **Springer CSIE 2011, LNEE 129**.

## Workshop Publications

1. Using Deep Learning to Improve the Accuracy of Requirements to Code Traceability  
Yu Zhao, Tarannum Shaila Zaman, Tingting Yu, Jane Huffman Hayes.  
In **Grand Challenges in Traceability (GCT)**, Abstract, 2017.

## Honors and Awards

- Outstanding student volunteering service at the 41st International Conference on Software Engineering (ICSE 2019). 2019
- Student travel Awards: IEEE/ACM ICSE 2019
- Computer Science Department University of Kentucky, Thaddeus B. Curtz Memorial Scholarship award. **Top 1%** 2019.
- Honorable paper in International Conference on Cyber-enabled distributed computing. **Top 1.7%**, 2015.
- The Shanghai International Technology & Trade United Co., Ltd Outstanding Employee. **Top 5%**, 2015.
- Changchun University of Science and Technology, Social Practice Activities scholarship. **Top 10%**, 2012.
- Shenzhen Institutes of Advanced Technology Chinese Academy of Sciences, Outstanding Research Scholarship. **Top 10%**, 2011.
- Jinlin university, Outstanding Graduation Thesis in B.S. degree. **Top 15%**, 2009.

## Research Experience

**Research Assistant (Software Testing)**  
**University of Kentucky**

Aug. 2016-present  
Advisor: Tingting Yu

*Automatically Reproducing Android Application Crashes from Bug Reports*

Designed and implemented a novel bug reproducing tool (ReCDroid) that can automatically reproduce crashes from bug reports for Android apps. ReCDroid uses a combination of natural language processing (NLP) and dynamic GUI exploration to synthesize event sequences with the

goal of reproducing the reported crash. The evaluated results show that ReCDroid successfully reproduced 33 crashes (63.5% success rate) directly from the textual description of bug reports.

*Automatically Extracting Bug Reproducing Steps from Android Bug Reports*

Designed and implemented a content extracting tool (S2RMiner) which can automatically extract the text description of steps to reproduce (S2R) from bug reports to advance automated software issue diagnosis. S2RMiner combines HTML parsing, natural language processing, and machine learning techniques.

**Research Assistant (Networking)**  
**University of Kentucky**

Jan. 2016- Aug. 2016  
Advisor: Chen Qian

*Efficient Test Packet Generation for Dynamic Network Data Planes*

Designed and implement an automated test packet generation tool (Pronto) that generates test packets to exercise data plane rules in the entire network in a short time (e.g., several seconds). In the meantime, Pronto minimizes the number of test packets by allowing a packet to test multiple rules at different switches. The evaluated result shows Pronto is faster than a recently developed tool by more than two orders of magnitude.

**Research Assistant (Wireless Sensor Network)**  
**International Technology & Trade United Co., Ltd, Shanghai**

Jan. 2016- Jan. 2016  
Advisor: Yunhuai Liu

*Channel Quality Correlation-based Channel Probing in Multiple Channels*

Designed and implement a wireless channel probing approach, optimal channel probing (OCP), to efficiently select high-quality wireless channels. The OCP method utilizes a MAX-separation method to reduce the number of probing channels.

*Channel Adjustment for Performance Enhancement in Wireless Networks*

Design an empirical experiment which reveals the great opportunity for further performance gain by adjusting the channels when traditional channel assignment has been done. A general Channel Adjustment Procedure algorithm is designed and implemented.

**Research Intern (Indoor Localization)**  
**Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences**

Jan. 2011- Jan. 2012  
Advisor: Yunhuai Liu

*Robust RSS-based Ranging with Multipath Effect and Radio Interference*

Designed and implement a new ranging framework (Fredri) that exploits the frequency diversity to overcome the multi-path effect solely based on RSS measurements. Specifically, I design a Discrete Fourier Transformation based algorithm and prove that it has the optimal solution under ideal cases. I further make the algorithm be adaptive and robust to address measurement errors and external radio interference, which are inevitable in practice.

**Research Assistant (Cognitive Radio)**  
**Changchun University of Science and Technology**

Jun. 2009-Jan.2011  
Advisor: Bin Guo

*Cognitive radio spectrum sensing based on wavelet denoising*

Use wavelet to improve the accuracy of Cognitive radio spectrum sensing.

## Teaching and Advising Experience

### Teaching Assistant

- CS 378 Introduction to Cryptology, University of Kentucky, Spring 2019
- CS 270 System Programming, University of Kentucky, Fall 2018

### Guest Lecturer

- CS 498 Software Engineering For Senior Project, University of Kentucky, Fall 2017
- CS 685/585: Adv Software Eng, University of Kentucky, Fall 2018

## Talks

- FREDI: Robust RSS-based Ranging with Multipath Effect and Radio Interference. Department of Computer Science of the University of Kentucky, 2017. Lexington, KY.
- Pronto: Efficient Test Packet Generation for Dynamic Network Data Planes. In International Conference on Distributed Computing Systems (ICDCS) 2017. Atlanta, GA.
- Pronto: Efficient Test Packet Generation for Dynamic Network Data Planes. Department of Computer Science of the University of Kentucky, 2017. Lexington, KY.
- Channel Adjustment for Performance Enhancement in Wireless Networks. In International Conference on Cyber-enabled Distributed Computing(CyberC) 2015. China, Xi'an.
- FREDI: Robust RSS-based Ranging with Multipath Effect and Radio Interference. In International Conference on Computer Communications(INFOCOM) 2013. Italy, Turin.

## External Reviewer

INFOCOM, ICCCN, IWQOS, TSE, ICPADS, EIT.

## Open Source Software Projects

ReCDroid. <https://github.com/AndroidTestBugReport/ReCDroid>

S2RMiner. <https://github.com/AndroidTestBugReport/S2RMiner>

## Membership

IEEE student member

ACM student member