

Zhen Zhao

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SUMMARY

- **Objective:** looking for a full-time Ph.D. position in Computer Science.
- **Math:** mathematical modeling, optimization, queueing and game theory.
- **Languages:** C/C++, Java, C#, Python, Matlab, Assembly, Processing.
- **Passionate** for advanced algorithms, signal processing, artificial intelligence, and machine learning.

EDUCATION

University of Manitoba, Winnipeg, MB, Canada

- **MSc. in Electrical and Computer Engineering** Sep 2014 – Oct 2017
 - Adviser: Prof. Jun Cai Lab: Network Intelligence and Innovation (NI²) Lab
 - Cumulative GPA: 4.34 / 4.5

Guilin University of Electronic Technology, Guilin, Guangxi, China

- **B.S. in Information and Communication Engineering** Sep 2009 – Jun 2013
 - Cumulative GPA: 88.76 / 100 (rank top 2/150)

RESEARCH EXPERIENCE

Network Intelligence and Innovation (NI²) Lab, University of Manitoba

- **Research Assistant, Faculty of Engineering** Sep 2014 – Dec 2016
 - Based on Queueing and Optimization theories, studied the energy efficiency issues in communication networks, especially for wireless body area networks.

Communication Research Institute, Guilin University of Electronic Technology

- **Undergraduate Research Student, School of Information and Communication** Oct 2012 – May 2013
 - Project: Development of an OmNet++ based network simulator for network coding
 - Focus: C++ implementation, performance analysis, OmNet++.

WORKING EXPERIENCE

Shanghai Astronomical Observatory, Shanghai, China

- **Research and Develop Engineering** Jul 2017 – Present
 - Apply appropriate machine learning algorithms into pulsar signal searching and RFI detection & removal.
 - Develop an VLBI observation and pre-evaluation platform integrating visibility, uv coverage, and dirty maps.

Getwell Co. Ltd, Shenzhen, China

- **Algorithm Developer** Dec 2016 – Apr 2017
 - To process muscle reflex signals in functional near-infrared spectroscopy (wavelet analysis).
 - To develop and improve algorithms of extracting critical medical information (e.g. heart rate, SMO2).

Canada Wellness Institute, Winnipeg, Manitoba, Canada

- **Software Developer** May 2015 – Nov 2015
 - Developed a monitoring software system to evaluate and record patients' daily training conditions through standard 2D cameras or Kinect sensors, and to help doctors give timely feedbacks to patients with chronic diseases.
 - Designed motion recognition algorithms, and developed a QT based and a Unity based UI demos.

Shanghai Astronomical Observatory, Shanghai, China

- **Algorithm Developer** Nov 2013 – May 2014
 - Developed a cross-platform experiment platform to process and analyze large amounts of astronomical data obtained from Very-long-baseline interferometry.
 - Generated and cleaned images of all kinds of UV plots.

OTHER PROJECT EXPERIENCE

Nanomedicine and Tissue Engineering Lab, Winnipeg, Manitoba, Canada

- **Testbed Development** May 2016 – Aug 2016
 - Designed sensor testing circuits to detect and identify changes of a gum sensor (a new material), and to forward data to an Android-based smartphone wirelessly through a Blue-tooth Low Energy (BLE) module.

C++ Coursework Project, University of Manitoba, Canada

- **Kinect-based Sensing Game** Jan 2016 – Apr 2016
 - Developed a simple motion sensing game, called Air War, and designed motion recognition algorithms to control the hero by processing skeleton data obtained from a Kinect sensor.

- SCHOLARSHIPS**
- Graduate Student Travel Award, University of Manitoba Dec 2016
For graduate students to present their papers in recognized international conferences.
 - International Graduate Student Scholarship, University of Manitoba 2014 – 2015
To reward the excellence of international graduate students pursuing graduate degrees with high GPA.
 - First class Scholarship, Guilin University of Electronic Technology 2010 – 2013
To reward 3 top students in the department.
 - The National Scholarship, Guilin University of Electronic Technology Nov 2012
To reward 3 top students in the faculty.
 - First class Scholarship of China Aerospace Science and Technology Corporation Oct 2012
To rewarded 5 top students in the university by China Aerospace Science and Technology Corporation.

- AWARDS**
- Invited paper, IEEE 86th Vehicular Technology Conference (VTC2017-Fall) Sep 2017
 - Outstanding Student, Guilin University of Electronic Technology 2010 – 2013
To reward 15 students in the faculty every year.
 - National First Prize in the Mathematical Contest in Modeling, China Oct 2011
Award-winning Rate: 1.2%.
 - Third Prize in Campus Programming Contest, Guilin University of Electronic Technology Jun 2011
Award-winning Rate: 15% in the university.
 - Second Prize in Mathematics Contest, Guilin University of Electronic Technology 2010 – 2011
One of 15 awardees in the university. 3 for first prize, 4 for second prize, 8 for third prize.
 - Third Prize in Electronic Design Competition, Guangxi Nov 2010
Award-winning Rate: 20% in the Guangxi province.

- PUBLICATIONS**
- JOURNALS**
- [3] **Z. Zhao**, S. Huang, J. Cai, “An analytical framework for IEEE 802.15.6-based wireless body area networks with instantaneous delay constraints and shadowing interruptions,” *IEEE Trans. Vehicular Technology*, Accepted.
 - [2] C. Yi, **Z. Zhao**, J. Cai, R. L. Faria, G. Zhang, “Priority-aware pricing-based capacity sharing scheme for beyond-wireless body area networks,” *Computer Networks*, vol. 98, pp. 29-43, Apr 2016.
 - [1] X. Chen, J. Wang, **Z. Zhao**, “An overview of network performance optimization based on network coding and multirate multicast” *Journal of Guilin University of Electronic Technology*, vol. 2, pp. 110-113, Oct 2014.

- CONFERENCES**
- [3] **Z. Zhao**, S. Huang, J. Cai, “(Invited) Energy efficient packet transmission strategies for wireless body area networks with rechargeable sensors,” *IEEE VTC 2017-Fall*, Toronto, Canada, Sep 2017.
 - [2] **Z. Zhao**, C. Yi, J. Cai, and H. Cao, “Queueing analysis for medical packet transmission with delay-dependant packet priorities in WBANs,” *WCSP’16*, Yangzhou, China, Oct 2016.
 - [1] H. Cao, J. Cai, A. S. Alfa, **Z. Zhao**, “Efficient resource allocation scheduling for MIMO OFDMA CR downlink systems,” *WCSP’16*, Yangzhou, China, Oct 2016.

ADDITIONAL INFORMATION

Interests

Programming, Technology, Badminton, Basketball, Chinese chess, Traveling.

Other Technical Skills

Circuit Design: Protel Dxp/99, MCU 8051, Arduino, RFDuino, Quartus

Other Programming: Html, Css, Javesprit, SQL, Git, NSIS, OpenCV, Axure, Unity

Online Study

Coursera - Database Structure and algorithm I, Java Programming and Software Engineering Fundamentals, Divide and Conquer, Sorting and Searching, and Randomized Algorithms, Machine Learning.

Udemy - Complete Python Bootcamp, The Complete Web Developer Course, The Complete SQL Bootcamp, Machine Learning A-Z™: Hands-On Python & R In Data Science.

References Available upon request.