JIANFENG WANG

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Education

University of Southern California — Los Angeles, CA, USA

Department of Electrical Engineering , Ph.D. Student in Computer Engineering *09/ 2016 – present*

Overall GPA: 4.00/4.00
Advised by Prof. Ramesh Govindan
Courses: Computer Communications, Operating Systems, Design and Analysis of Computer Communications, Advanced Analysis of Algorithms, Probability, Computer Networks

Peking University — Beijing, China

School of Electronics Engineering and Computer Science

Bachelor of Science in Electrical Engineering *09/ 2012 – 07/ 2016*

Overall GPA: 3.77/4.00, Rank: top 2/68
Focus: wireless communication, mobile applications, signal processing, embedded Linux systems

National School of Development

Bachelor of Art in Economics *09/ 2013 – 07/ 2016*

Focus: finance, optimization theory, game theory

University of California, Los Angeles — Los Angeles, CA, USA

Undergraduate Research Visitor *07/ 2015 – 09/ 2015*

Advised by Prof. William Kaiser
I worked on embedded systems and network sensors at UCLA

Research Experience

TCP Trace Compression for Network Diagnosis *11/ 2016 – 09/ 2016*

- Advisor: Prof. Ramesh Govindan, University of Southern California
- I explore compression techniques for TCP traces. In order to preserve the dynamics of RTT and sequence number, a TCP trace can be considered as a time series in which each node contains interval time and RTT info. The challenge is to sacrifice a little accuracy while getting a huge compression gain. The idea is to segment the time series and preserve interesting events while compressing less interesting parts when the TCP connection is progressing nicely. To evaluate, I plan to recover the trace from the compressed one, run trace-driven diagnosis tools, and evaluate the accuracy.

Intel Edison-controlled Lego Car platform for IoT applications *08/ 2015 – 09/ 2015*

- Advisor: Prof. William Kaiser, University of California, Los Angeles
- Collaborator: Chris Baek, Ph.D Candidate, UCLA School of Engineering and Applied Science
- To provide a cost-effective Internet of Things (IoT) vehicle platform that is capable of sensing, actuation, and Cloud interaction, we designed this platform: the Intel Edison board, which can cooperate with Intel Cloud-based Analytics system, and the Lego Technic and Power Functions, which are suitable for basic robotics development, are combined together in our design. Intel has decided to adopt our design for future products.

Sensor networks development for automatic navigation system *07/ 2015 – 09/ 2015*

- Advisor: Prof. William Kaiser, University of California, Los Angeles
- Collaborator: Chris Baek, Ph.D Candidate, UCLA School of Engineering and Applied Science
- We implemented a Cloud-based vehicle control system with radio-control (RC) cars and Intel Edison embedded Linux platform. Each vehicle updates its location to the Cloud, while the cloud is making routing decisions for all vehicles. The vehicles also share traffic information via the Cloud. A prototype was shown at UCLA EE department. I served as the lead on the software development sub-team.

Indoor positioning algorithm based on visible light communication *04/ 2014 – 10/ 2014*

- Advisor: Prof. Anhong Dang, Institute of Modern Communication, Peking University
- Collaborator: M.S. Shijia Xu, Institute of Modern Communication, Peking University
- Microwave methods for indoor positioning can only provide positioning accuracy of tens of centimeters due to the impacts of EM interference and multipath effect. To meet the need of high accuracy indoor positioning service, I proposed an indoor positioning system using visible light communication. I verified the system performance through simulation, and found that positioning error can be controlled within 2mm in weak noise.

- To test the positioning algorithm in real world, I implemented the positioning system and measured the positioning accuracy. Experimental results show that positioning errors are less than 5mm in the laboratory environment.

Professional Experience

- Reviewer for IEEE Transaction of Information Theory

Awards & Honors

USC Annenberg Graduate Fellowship	02/ 2016
Third prize, 2015 Peking University Young Scientists Symposium on Informatics	11/ 2015
Carku Scholarship, Peking University (top 5%)	11/ 2015
Excellent Researcher award, Peking University	10/ 2015
Peking University SK Scholarship (highest award in PKU, top 5/3,300)	10/ 2014
Finalist in ''Open Source Hardware and Embedded Computing Contest 2014" Host: Xilinx, Xi'an, China	08/ 2014
Funding for Creative Scientific Research and Entrepreneurial Action for Undergraduate, Beijing	04/ 2014
First prize in 30th Chinese National College Physics Contest	12/ 2013
Baidu Scholarship, Peking University (top 5%)	10/ 2013
Silver medal, Chinese Physics Olympiad (CPHO) Final	11/ 2011

Skills

Programming: Python, C/C++

Specialties: network protocols (TCP/IP, BGP, etc.), programmable switches and P4

Mathematics: probability theory, statistics and stochastic process

Other Experience: operating system and Linux kernel, shell scripting (Bash), Matlab and LaTeX

Natural Languages: Mandarin Chinese (native), English