Diana Zhang

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Research Interests

Computer Systems; Wireless Communications; Computer Networking; Sensing; Mobility

Education

Carnegie Mellon University, Pittsburgh, Pennsylvania USA

Ph.D. Candidate in Electrical and Computer Engineering, Started Aug. 2016
Advisor: Swarun Kumar

The Pennsylvania State University, University Park, Pennsylvania USA

B.S. in Electrical Engineering; B.S. in Computer Engineering, May 2016
with Honors, Distinction, and an International Engineering Certificate.

Research Experience

Research Assistant, Carnegie Mellon University, Aug. 2016 - Present

Advisor: Swarun Kumar

WiFi Interferer Material Classification and Localization (Aug. 2017-Present): Currently, I work with off-the-shelf WiFi cards to classify the material of an environmental object (eg. wood, metal, human) using its physical properties, and to determine what location the object is at. We have tested this sensing system on unmanned aerial vehicles for a navigational aid. Currently, we are increasing the diversity of our material classification sets.

LPWANs (Oct. 2016-April 2017): I considered challenges and opportunities as IoT, and its enabling communication technology, Low-Power Wide Area Networks, scales densely. I worked on implementing and evaluating methods for issues like handling collisions, increasing range, and network localization.

Undergraduate Research Assistant, Clemson University, June 2014 - Aug. 2014

Mentors: Jacob Sorber, Josiah Hester

Federated Power: In intermittent computing, it is not guaranteed that sensor nodes will have a continuous and unbounded supply of energy. To handle this, I worked on the early idea and prototyping stages of a federated power system, for which an ultra-low-power processor allocates a power supply to different components of a node.

Publications

Diana Zhang, Jingxian Wang, Junsu Jang, Junbo Zhang, and Swarun Kumar. 2019. *On the Feasibility of WiFi-Based Material Sensing.* In Proceedings of MobiCom '19, Los Cabos, Mexico, October 21-25, 2019.

Akshay Gadre, Diana Zhang and Swarun Kumar. 2019. *Invited Paper: Towards Enabling City-Scale Internet of Things – Challenges and Opportunities.* In 11th International Conference on Communication Systems & Networks (COMSNETS), Bengaluru, India, 2019, pp. 72-79.

Rashad Eletreby, Diana Zhang, Swarun Kumar, and Osman Yağan. 2017. *Empowering Low-Power Wide Area Networks in Urban Settings.* In Proceedings of SIGCOMM '17, Los Angeles, CA, USA, August 21-25, 2017.

Honors and Awards

Women Techmakers Scholar, Aug. 2019
Marshall Fellowship, January 2019-May 2019
ARCS Pittsburgh Chapter Scholar, Aug. 2016-May 2019
Michel E. and Kathy Doreau Graduate Fellowship in ECE, Aug. 2016-May 2016
Penn State Women in Enginering Joelle Leadership Award, May 2016

Industry Experience

Wireless Systems Intern, JHU Applied Physics Lab, May 2019 - August 2019

Packet Classification: Considering traffic characteristics and machine learning algorithms for detection of video traffic through a Virtual Private Network.

LTE Priority Services: Conducting lab and field tests to analyze service for different QoS Class Identifiers under different loading and attenuation scenarios.

Embedded Software Engineering Intern, Harris Corporation, June 2016 - August 2016

People Sensing: Investigated methods for calculating the number of people in a room, and implemented and deployed a prototype entry/exit counter in Python on a Raspberry Pi.

Teaching Experience

Graduate Teaching Intern, Carnegie Mellon University

Computer Networks	Spring 2019	*S. Kumar*
Introduction to Telecommunication Networks	Spring 2017	*S. Kumar*

Undergraduate Teaching Intern, Penn State University

Introduction to Programming Techniques	Spring 2016	*S. Shaffer*
Digital Design: Theory and Practice	Fall 2015	*J. Sampson, V. Narayanan*
Circuits and Devices	Fall 2014	*D. Salvia*

Lab Assistant, Penn State EE Dept.	Fall 2013, Spring 2014	*D. Salvia*
200-Level Math Tutor, Penn State Learning	Spring 2013-Spring 2016	*D. Graysay*

Involvement

Vice President: CMU ECE Graduate Organization, Aug 2018-Aug 2019
Assists with planning and execution of social and support events for ECE graduate students.
Volunteer: CMU ECE Spark Saturdays, Fall 2016-Present
Volunteer for High School Outreach Programs with CMU's ECE Outreach Organization
President: Penn State Association of Women in Computing, Sept. 2014 - Sept. 2015
Led efforts to attract and retain women in computing at Penn State