Keyi**Zhang**

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Git

Kuree@Github
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Programming

Python
C#/VB.NET
C
Java
LATEX
Javascript

Education

2013-2017	**BSE** Computer Science and Engineering	Bucknell University, Lewisburg, PA
	Minor: Mathematics and Physics	
	Culmulative GPA: 3.97/4.0	
	Tau Beta Pi	
	Sigma Pi Sigma	

Researches

05-10 2016   **Large-scale regional IoT networks**   Bucknell University
Research mentor: Dr. Alan Marchiori
This research project explores the feasibility of and underlying architecture for a crowd-sourced Internet of Things (IoT) network. To accommodate thousands of IoT devices in a large scale, we have developed a near optimal MAC layer protocol DQ-N, based on distributed queueing. We have also designed an efficient multi-channel synchronization protocol called McSync. In addition to wireless protocol, a network planning tool is also developed to assist network deployment based on geographic and demographic information.

05-08 2015   **Natural language search for sensor networks**   Bucknell University
Research mentor: Dr. Alan Marchiori
This research aims to provide a natural way to search sensor network data for average users and researchers in other fields such as climatology. We combined the ontology defined in semantic sensor networks with natural language processing to provide easy access to vast amount of sensor data, either from historical databases or live from a sensor in real-time. A web-based search engine was developed to provide global weather station data to users.

09-12 2014   **Extending semantic sensor networks with QueryML**   Bucknell University
Research mentor: Dr. Alan Marchiori
This research project tries to bridge existing database infrastructure to semantic sensor networks using QueryML, a semantic language we have designed to describe sensor database interface. QueryML describes the existing database interface, aiming to provide a unified access point for semantic sensor networks querying historical data from different databases.

05-08 2014   **Distributed database on low-powered nodes**   Bucknell University
Research mentor: Dr. Alan Marchiori
In this research projects we explored the possibility of bringing distributed database to low-powered sensor nodes such as Raspberry Pi. The goal is to develop a system that eliminates extra infrastructure for data storage and management as they are built into the sensor nodes itself. We developed a full protocol stack to minimize the latency and maximize the network throughput, aiming to be self-organized, fault-tolerant, and scalable.

Publications

- **K. Zhang** A. Marchiori. "Crowdsourcing Low-Power Wide-Area IoT Networks," in proceeding of The IEEE International Conference on Pervasive Computing and Communication (PerCom), 2017, in press.
- **K. Zhang**, "A Passive Multi-Channel Synchronization Solution for IoT," in proceeding of ACM Eighth Wireless of the Students, by the Students, and for the Students (S3) Workshop, 2016.
- **K. Zhang** A. Marchiori. "Natural Language Search of Sensor Data," in proceeding of The Thirteenth IEEE International Workshop on Managing Ubiquitous Communications and Services, 2016.
- **K. Zhang** A. Marchiori. "Extending semantic sensor networks with QueryML," in proceeding of 2015 IEEE International Conference on Pervasive Computing and Communication Work-in-Progress (PerCom WiP), 2015.

Awards

2016	**NSF PerCom Student Travel Grant**	
	Student travel grant sponsored by NSF for IEEE PerCom conference.	
2016	**NSF MobiCom Student Travel Grant**	
	Student travel grant sponsored by NSF and ACM SigMobile for MobiCom conference.	
2016	**CRA Outstanding Undergraduate Researcher Award Runner-up**	
	Runner-up for the 2017 Computing Research Association (CRA) Outstanding Undergraduate Researcher Award (Male, Non-PhD-granting institution).	

Experience

2014-2016	**Tech Desk Student Leader**	Bucknell University
	Provide technology support and train student consultants.	
2014-2016	**Research Assistant**	Bucknell University
	Conduct computer science research under the supervision of Dr. Alan Marchiori.	
2015-2016	**Computer Science Teaching Assistant**	Bucknell University
	Assist professors in labs and grade students' lab work.	

Applications

2013-2013	**Sims 3 Package Library for Mono**	s3plmono.codeplex.com
	A package interface library for The Sims 3 in Mono environment	
2014-2015	**Sims 4 Package Editor**	keyizhang.com//Sims4Tools
	The most popular modding and creation tool for The Sims 4.	
2014-2015	**The Sims 4 Studio**	sims-studio.proboards.com
	One of the most popular custom content creation tool for The Sims 4.	
2015-2016	**ScheduleIt Ninja**	scheduleit.ninja
	College course scheduling website with lightning fast scheduling algorithm.	