

# YUTING ZHANG

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## EDUCATION

- Boston University, College of Engineering** Boston, MA May 2015 (expected)  
Ph.D. Candidate in Electrical and Computer Engineering, GPA: 3.94/4.00
- Huazhong University of Science and Technology** Wuhan, Hubei, China Jun 2009  
Bachelor of Science in Telecommunication Engineering, GPA: 89.5/100

## TECHNICAL SKILLS

Proficient with microcontrollers: Sun (Oracle) SPOT, Arduino, TinyOS, SCM, MSP430  
Strong understanding of object oriented programming in Java, C/C++, .NET  
Proficient in Matlab, MySQL, Access  
Smartphone application development experience with C# and Objective C  
5 years mathematical modeling experience with signal processing, machine learning and optimization

## ENGINEERING EXPERIENCE & PROJECTS

- Lighting R&D Intern, Osram Sylvania** Beverly, MA Jul - Sep 2013
- Developed a DALI/GreenBusII lighting control system involving LED fixtures, sensors, actuators, communication hardware and protocol, database maintenance and analysis
  - Designed intensity and CCT optimization algorithms for daylight regulating management
  - Implemented architectures with GUIs in the Daylighting Lab
- Wireless Video Camera Networks for Coastal Erosion Monitoring** Jun 2012 – Sep 2013
- System-level design resolved low-cost, long-term, power-efficient, energy-harvesting challenges
  - Applied communication protocols of TCP/IP, NTP, DNS, WDS, and interfaces of I2C and UART
  - Designed a ultra-low power Real-Time-Clock shield for Arduino and smart control mechanism
  - Implemented on Thompson Island, Boston Harbor, Massachusetts
- Networking the Physical World** Jun - Dec 2012
- Developed Zigbee mesh networks and Internet of Things exploring Sun (Oracle) SPOT
  - Built remote-control crawlers with thermostats, actuators, servo, camera, proximity sensors
  - Deployed scheduling, multi-thread, routing, deluge, localization, autonomous, platoon, and swarms
- Applications of Nonlinear Programming in Economics Modeling** Feb - May 2011
- Formulated models and applied prime/dual, quasi-Newton, Gaussian algorithms
- WPAN: Bluetooth V4.0 Low Energy Simulation** Feb - May 2010
- Simulated wireless communication protocol in Simulink
- Radio Interferometric Positioning Using Mica2Dots** Oct - Dec 2009
- Designed and implemented novel localization algorithm based on radio phase measurements
- Water Temperature Control System with MSP430** Mar - Jul 2008
- Awarded first prize in Texas Instrument Co.-HUST project contest

## RESEARCH EXPERIENCE

- Lighting Optimization with User Activity Recognition in Smart Room** Jan 2013 - now
- Assessed different sensing modalities for suitability in supporting activity recognition
  - Investigated advanced learning and filtering algorithms for real time motion tracking
  - Designed framework and methodology to enable lighting applications and services
  - Optimized for energy saving, user productivity, and VLC connectivity
  - Demonstrate use cases in Smart Lighting Testbed
- Wearable Functional Activity Monitor for Elderly Healthcare** May 2010 - now
- Developed Body Area Networks of wearable accelerometers and gyroscopes
  - Designed human kinematic/inertial model with signal processing, data fusion
  - Applied adaptive machine learning methods of Naïve Bayes, KNN, SVM, decision tree/table
  - Implemented extended Kalman filtering for real time orientation tracking
  - Classified unconstrained postures, walking, biking, stair climbing, etc sensitively over 300 subjects
  - Implemented a real-time monitoring application on iPhone with ANT communication technology

## PROFESSIONAL/COMMUNITY SERVICE

Community/Outreach Student Chair in College of Engineering, BU	May 2012 – May 2013
Lab Assistant for graduate Wireless Sensor Networks class, BU	Sep - Dec 2012
Teaching Assistant for Signals and Systems, BU	May - Aug 2011
Teaching Assistant for Probability and Statistics, BU	Sep 2009 - Apr 2010
Teaching Assistant for Information Theory, HUST	Jan - Jun 2009
Intern Research Assistant in China Unicom	Jun - Aug 2008
Representative in Hong Kong Delta Student Forum, HKUST	Jul 2007

## PUBLICATIONS

S. Zhang, R. Garner, **Y. Zhang**, and S. Bakre, "Quantification Analysis of Input / Output Current of Interleaved Power Factor Correction (PFC) Boost Converter," Proc. 29th Annual Intl. Conf of the IEEE Applied Power Electronics Conference and Exposition (APEC 2014), Fort Worth, TX, March 2014, to appear.

**Y. Zhang**, B.R. Wetherill, R.F. Chen, F. Peri, P. Rosen, and T.D.C. Little, "Design and implementation of a wireless video camera network for coastal erosion monitoring," *Ecological Informatics* (2013).

**Y. Zhang**, K.G.M. Beenakker, P.M. Butala, C.-C. Lin, T.D.C. Little, A.B. Maier, M. Stijntjes, R. Vartanian, and R.C. Wagenaar, "Monitoring walking and cycling of middle-aged to older community dwellers using wireless wearable accelerometers," Proc. 24th Annual Intl. Conf. of the IEEE Engineering in Medicine and Biology Society (EMBC 2012), San Diego, CA, USA, August 2012.

**Y. Zhang**, S. Markovic, I. Sapir, R.C. Wagenaar, and T.D.C. Little, "Continuous Functional Activity Monitoring Based on Wearable Tri-axial Accelerometer and Gyroscope," Proc. 5th Intl. Conf. of the IEEE Pervasive Computing Technologies for Healthcare (PervasiveHealth 2011), Dublin, Ireland, May 2011.

R.C. Wagenaar, I. Sapir, **Y. Zhang**, L.M. Vaina, T.D.C. Little, "Continuous Monitoring of Functional Activities Using Wearable, Wireless Gyroscope and Accelerometer Technology," Proc. 33rd Annual Intl. Conf. of the IEEE Engineering in Medicine and Biology Society (EMBC 2011), Boston, MA, USA, August 2011.

P. Butala, **Y. Zhang**, R.C. Wagenaar, and T.D.C. Little, "Wireless System for Monitoring and Real-Time Classification of Functional Activity," Proc. 2nd Workshop on Networked Healthcare Technology (NetHealth 2012), IEEE Comsnets 2012, Bangalore, India, January 2012.

I. Sapir, R. Wagenaar, S. Markovic, **Y. Zhang**, C.-C. Lin, L. Vaina, and T.D.C. Little, "Poster 10 Accuracy of a Functional Activity Monitor in Identifying Functional Activities, Activity Duration and Step Frequencies," Archives of Physical Medicine and Rehabilitation 92, no. 10 (2011): 1696-1696.

P. Butala, **Y. Zhang**, R.C. Wagenaar, and T.D.C. Little, "Wireless Activity Monitoring for Real-Time Classification and Cueing," Mobicom 2011, Poster and Demo Competition, Sep. 2011.

Xiu Wanqing, **Zhang Yuting**. "A Substation Design for Railway Safety Wireless Forewarning System". Computer and Communications (ISSN 1000-8837), vol.26, no.6, pp.180-184, Dec. 2008.