

THOMAS P ZACHARIAH

tzachari@berkeley.edu / thomaszachariah.com / 545 Cory Hall, Berkeley, CA

EDUCATION

- University of California, Berkeley – Berkeley, CA** **AUG 2017 – PRESENT**
Ph.D. Student – Electrical Engineering & Computer Sciences (Advisor: Prabal Dutta)
- University of Michigan – Ann Arbor, MI** **AUG 2013 – AUG 2017**
M.S.E. Computer Science & Engineering
- Loyola Marymount University – Los Angeles, CA** **AUG 2009 – AUG 2013**
B.S.E. Electrical Engineering with Emphasis in Computer Engineering
Minors in Applied Mathematics & Computer Science

RESEARCH EXPERIENCE

- University of California, Berkeley – Berkeley, CA
Graduate Student Research Assistant, Electrical Engineering & Computer Sciences **AUG 2017 – PRESENT**
- Working with Prabal Dutta in Lab11 in Electrical Engineering & Computer Sciences.
 - Focusing on lightweight gateway architecture and user-interfacing protocols for the Internet of Things.
- University of Michigan – Ann Arbor, MI
Graduate Student Research Assistant, Computer Science & Engineering **MAY 2014 – AUG 2017**
- Worked with Prabal Dutta in Lab11 in Computer Science & Engineering.
 - Focused on mobile-centric gateway architecture for the Internet of Things.
- Virginia Tech – Blacksburg, VA
Cognitive Communications REU, Research on Space Weather Impacts on GPS Signals **JUN 2012 – AUG 2012**
- Developed data analysis programs & graphical user interface to study space weather effects on GPS signals.
 - Performed analysis of recorded data from new space weather measurement instrumentation deployed in Antarctica.
- Loyola Marymount University – Los Angeles, CA
Research on TinyOS-based Sensor Network Applications **OCT 2012 – DEC 2012**
- Developed software for and deployed a series of TinyOS-based wireless sensor networks.
 - Implemented a sensor network for parking lot occupation detection.
- Loyola Marymount University – Los Angeles, CA
Research on Climate Change Impacts through Climate Model Analysis **SEP 2010 – MAY 2013**
- Analyzed climate model data to predict impacts of climate change on Southern California's water resources in the next century. Worked with Dr. Jeremy Pal, member of 2007 Nobel Prize-winning IPCC team.
 - Developed programs to process and analyze climate model data, focusing on Southern California watersheds.

TEACHING EXPERIENCE

- University of Michigan – Ann Arbor, MI
Graduate Student Instructor – EECS 270 Introduction to Logic Design (F'13, W'14) **SEP 2013 – APR 2014**
- Held office hours, lectured class, led study sessions, managed grades, wrote homework assignments, hired & supervised homework graders, and helped write & grade exams.
- Loyola Marymount University – Los Angeles, CA
Teacher's Assistant & Lab Assistant – ELEC 301, 353, 302, 354 Electronics I, II, Labs **SEP 2012 – MAY 2013**
- Guided engineering students in Junior Labs, and provided assistance to the professor as needed.
 - Offered bi-weekly office hours for tutoring in respective courses.
- Loyola Marymount University – Los Angeles, CA
Teacher's Assistant & Lab Assistant – ELEC 210, 213, 220 Circuits I, II, Lab **SEP 2011 – MAY 2012**
- Guided engineering students in Sophomore Labs, and provided assistance to the professor as needed.
 - Offered bi-weekly office hours for tutoring in respective courses.
- Loyola Marymount University – Los Angeles, CA
Tau Beta Pi Engineering Tutor **JAN 2012 – MAY 2013**
- Offered weekly tutoring service for all engineering students in any requested material.

PUBLICATIONS

- **Thomas Zachariah**, Neal Jackson, Branden Ghena, Prabal Dutta. [ReliaBLE: Towards Reliable Communication via Bluetooth Low Energy Advertisement Networks](#). In *Proceedings of the 19th International Conference on Embedded Wireless Systems and Networks*. EWSN '22. Linz, Austria. October 2022. Conference.
- **Thomas Zachariah**, Neal Jackson, Prabal Dutta. [The Internet of Things Still Has a Gateway Problem](#). In *Proceedings of the 23rd Workshop on Mobile Computing Systems and Applications*. HotMobile '22. Tempe, AZ, USA. March 2022. Workshop.
- David E Culler, Prabal Dutta, Gabe Fierro, Joseph E Gonzalez, Nathan Pemberton, Johann Schleier-Smith, Kalyanaraman Shankari, Alvin Wan, **Thomas Zachariah**. [CoVista: A Unified View on Privacy Sensitive Mobile Contact Tracing](#). In *IEEE Data Engineering Bulletin*, Volume 43, Number 2. June 2020. Article.
- **Thomas Zachariah**, Joshua Adkins, Prabal Dutta. [Browsing the Web of Connectable Things](#). In *Proceedings of the 17th International Conference on Embedded Wireless Systems and Networks*. EWSN '20. Lyon, France. February 2020. Conference.
- **Thomas Zachariah**, Prabal Dutta. [Browsing the Web of Things in Mobile Augmented Reality](#). In *Proceedings of the 20th Workshop on Mobile Computing Systems and Applications*. HotMobile '19. Santa Cruz, CA, USA. February 2019. Workshop.
- **Thomas Zachariah**, Meghan Clark, Prabal Dutta. [Bluetooth Low Energy in the Wild Dataset](#). In *Proceedings of the First Workshop on Data Acquisition to Analysis*. DATA '18. Shenzhen, China. November 2018. Workshop.
- **Thomas Zachariah**, Joshua Adkins, Prabal Dutta. [Browsing the Web of Things with Summon](#). In *Proceedings of the 13th ACM Conference on Embedded Networked Sensor Systems*. SenSys '15. Seoul, South Korea. November 2015. Demo.
- Joshua Adkins, Bradford Campbell, Samuel DeBruin, Branden Ghena, Benjamin Kempke, Noah Klugman, Ye-Sheng Kuo, Deepika Natarajan, Pat Pannuto, **Thomas Zachariah**, Alan Zhen, Prabal Dutta. [Michigan's IoT Toolkit](#). In *Proceedings of the 13th ACM Conference on Embedded Networked Sensor Systems*. SenSys '15. Seoul, South Korea. November 2015. Demo.
- Brad Campbell, Noah Klugman, **Thomas Zachariah**. [HotMobile 15](#). In *IEEE Pervasive Computing: Mobile & Ubiquitous Systems*, Volume 14, Number 2. April 2015. Article.
- **Thomas Zachariah**, Noah Klugman, Bradford Campbell, Joshua Adkins, Neal Jackson, Prabal Dutta. [The Internet of Things Has a Gateway Problem](#). In *Proceedings of the 16th Workshop on Mobile Computing Systems and Applications*. HotMobile '15. Santa Fe, New Mexico, USA. February 2015. Workshop.
- **Thomas Zachariah**, Rafael Isaac, Lilian Kim, Norberto Rios. [Development of Space Weather Monitoring System and Statistical Study of GPS Scintillations](#). In *American Geophysical Union Fall Meeting 2012*. AGU '12. San Francisco, California, USA. December 2012. Poster.
- Hyomin Kim, Kshitija Deshpande, Calvin R Clauer, Gary S Bust, Geoffrey Crowley, Todd E Humphreys, Lilian Kim, Marc Lessard, Allan T Weatherwax, **Thomas Zachariah**. [Ionospheric Irregularities at High Latitudes During Geomagnetic Storms and Substorms: Simultaneous Observations of Magnetic Field Perturbations and GPS Scintillations](#). In *American Geophysical Union Fall Meeting 2012*, AGU '12. San Francisco, California, USA. December 2012. Poster.

OTHER WORK EXPERIENCE

Loyola Marymount University – Los Angeles, CA

Engineers Without Borders, El Salvador Project Leader

JAN 2011 – JAN 2013

- Co-led team of engineering students in replacing a waterline system for an island community's only school and set up measures to ensure water potability throughout the island (village-scale filtration systems & water education).
- Worked with the island's Women's Co-op to get its facilities up to federal code to make goods to sell across El Salvador.

Loyola Marymount University – Los Angeles, CA

Event Operations Assistant

SEP 2009 – MAY 2013

- Collaborated with hosts and personnel to plan and conduct events held at the University.
- Set up laptops, projectors, sound systems, staging, tables, chairs, etc. for events.

Los Angeles, CA

Independent Web Designer

JAN 2005 – PRESENT

- Working with HTML, JavaScript, PHP, CSS, Flash, and image design to create captive websites & web apps.
- Regularly utilizing programs such as Dreamweaver, Flash, and Photoshop, alongside my own original coding.

SKILLS

- Windows, Macintosh, Linux, TinyOS, iOS, Android
- Programming: Assembly, C, C++, NesC, Objective-C, Java, Python, Node.js, Bash, Haskell, MATLAB
- Web Design: HTML5, JavaScript, PHP, CSS3, Flash, ActionScript, Apache Maven, graphic design/animation
- Electrical Engineering: B² Logic, Logisim, Multisim, NI Elvis & LabView, Xilinx ISE & FPGA, Arduino, M68HC12, SystemVerilog
- Miscellaneous: MS Office, Visual Studio; Adobe Photoshop, Premiere Pro, Dreamweaver, Illustrator, Flash; Git

HONORS

- NSF GRFP Honorable Mention, 2015
- Tau Beta Pi (Engineering Honor Society), since 2011
- Boy Scouts, 1999-2009 –Eagle Scout & Brotherhood Member of Order of the Arrow (Boy Scout Honor Society)