

MARIYA ZHELEVA
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RESEARCH INTERESTS

Mobile wireless networks; network design, deployment, monitoring and evaluation; cognitive radio and dynamic spectrum access; networking for developing regions.

EDUCATION

PhD, Department of Computer Science <i>University of California Santa Barbara, Santa Barbara, CA</i>	<i>July 2014</i>
MS, Department of Computer Science <i>University of California Santa Barbara, Santa Barbara, CA</i>	<i>December 2013</i>
MEng, Department of Telecommunications <i>Technical University – Sofia, Sofia, Bulgaria</i>	<i>February 2008</i>
BEng, Department of Telecommunications <i>Technical University – Sofia, Sofia, Bulgaria</i>	<i>July 2006</i>

EXPERIENCE

<i>Assistant Professor, University at Albany SUNY.</i>	<i>January 2016 - Present</i>
<i>Visiting Assistant Professor, University at Albany SUNY.</i>	<i>August 2014 - December 2015</i>
<i>Research Assistant, MOMENT Lab, UCSB.</i>	<i>January 2010 - July 2014</i>
<i>Research Intern at Microsoft Research.</i>	<i>June 2013 - September 2013</i>
<i>Research Intern at Broadcom Corporation.</i>	<i>June 2011 - September 2011</i>

AWARDS AND HONORS

- NSF Faculty Early Career Development Program (CAREER), May, 2019.
 - Project title: CAREER: Automating the measurement and management of the radio spectrum for future spectrum-sharing applications
- Dynamic Spectrum Alliance 2019 Award for University Research on New Opportunities for Dynamic Spectrum Access.
 - Awarded during the DSA Global Summit: dynamicspectrumalliance.org/global-summit/
- The 2019 Presidents Award for Exemplary Public Engagement.
 - List of recipients:
www.albany.edu/communicationsmarketing/email/2019-Presidents-Engagement-Awards/
- NSF Smart and Connected Communities. National Science Foundation, September, 2018.
 - Project title: SCC: Integrating Heterogeneous Wide-Area Networks and Advanced Data Science to Bridge the Digital Divide in Rural Emergency Preparedness and Response
- NSF CISE Career Initiation Initiative Award. National Science Foundation, February, 2017
 - Project title: CRII: NeTS: Next Generation Spectrum Measurement Algorithms and Infrastructures
- FRAP-A. University at Albany Faculty Research Award Program, February, 2017
- President’s Work-Study Award for 2009-2010, 2010-2011 and 2011-2012, UCSB

PUBLICATIONS

- **Journals**
 - Paul Schmitt, Daniel Iland, **Mariya Zheleva**, and Elizabeth Belding. “*Third-Party Cellular Congestion Detection and Augmentation.* ”, in IEEE Transactions on Mobile Computing (IEEE TMC), January 2019.

- **Mariya Zheleva**, Ranveer Chandra, Aakanksha Chowdhery, Paul Garnett, Anoop Gupta, Ashish Kapoor, Matt Valerio, “*Enabling a Nationwide Radio Frequency Inventory Using the Spectrum Observatory*”, in IEEE Transactions on Mobile Computing (IEEE TMC), June 2017.
 - **Mariya Zheleva**, Paul Schmitt, Morgan Vigil, Elizabeth Belding. “*Internet Bandwidth Upgrade: Implications on Performance and Usage in Rural Zambia*”, in Journal of Information Technology and International Development (**ITID**), May 2015.
 - **Mariya Zheleva** and HuyngJune Lee. “*Power-aware relay selection and routing scheme for multi-interface sensor networks*”, in Journal of Computers Communications and Control (IJCCC), January 2015.
 - **Mariya Zheleva** and Michael Nekrasov. “*Conferences: MobiSys 2013*”, in IEEE Pervasive Computing. October-December 2013.
 - Veljko Pejovic, David Johnson, **Mariya Zheleva**, Elizabeth Belding, Lisa Parks, Gertjan van Stam. “*The Bandwidth Divide: Obstacles to efficient broadband adoption in rural Sub-Saharan Africa*,” in International Journal of Communication (IJoC). September, 2012.
 - Vinod Kone, **Mariya Zheleva**, Mike Wittie, Ben Y. Zhao, Elizabeth M. Belding, Haitao Zheng, Kevin C. Almeroth. “*AirLab: Consistency, Fidelity and Privacy in Wireless Measurements*,” in SIGCOMM Computer Communication Review (CCR). January, 2011 as an Editorial Note.
- **Conferences**
 - Wei Xiong, Petko Bogdanov, and **Mariya Zheleva**. “*Towards scalable zero-shot modulation recognition*.”, in IEEE VTC-Fall’20, Vancouver, Canada, October 2020.
 - Keen Sung, Brian Levine, and **Mariya Zheleva**. “*Protecting location privacy from untrusted wireless service providers*.”, in ACM WiSEC’20, Virtual.
 - Wei Xiong, Lin Zhang, Maxwell McNeil, Petko Bogdanov, and **Mariya Zheleva**. “*Exploiting Self-Similarity for Under-Determined MIMO Modulation Recognition*.”, in IEEE INFOCOM’20, Beijing, China, April 27-30, 2020.
 - Wei Xiong, Petko Bogdanov, and **Mariya Zheleva**. “*Robust and Efficient Modulation Recognition Based on Local Sequential IQ Features*.”, in IEEE INFOCOM’19, Paris, France, April 29-May 2, 2019.
 - Mila Gasco, **Mariya Zheleva**, Petko Bogdanov, and J. Ramon Gil-Garcia. “*Towards a Socio-Technical Framework for Bridging the Digital Divide in Rural Emergency Preparedness and Response: Integrating User Adoption, Heterogeneous Wide-Area Networks, and Advanced Data Science*.”, 20th Annual International Conference on Digital Government Research (DGO’19), June, 2019.
 - **Mariya Zheleva**, Tim Larock, Paul Schmitt, and Petko Bogdanov “*AirPRESS: Efficient Spectrum Summarization Using Compressed Spectrum Scans*”, in IEEE DySPAN’18, Seoul, Korea, 22-25 October, 2018.
 - **Mariya Zheleva**, Tim Larock, Paul Schmitt, and Petko Bogdanov “*AirVIEW: Unsupervised transmitter detection for next generation spectrum sensing*”, in IEEE INFOCOM’18, Honolulu, Hawaii, USA, April 15-19, 2018.
 - M. Habibzadeh, W. Xiong, **Mariya Zheleva**, E.K. Stern, B.H. Nussbaum, and T. Soyata “*Smart City Sensing and Communication Sub-Infrastructure*.”, in IEEE Midwest Symposium on Circuits and Systems, May 2017, Boston, MA.
 - Paul Schmitt, Daniel Iland, Elizabeth Belding, **Mariya Zheleva** “*PhoneHome: Robust Extension of Cellular Coverage*”, in IEEE ICCCN, Waikoloa, Hawaii, USA, 1-4 August, 2016.
 - Paul Schmitt, Daniel Iland, **Mariya Zheleva**, Elizabeth Belding “*HybridCell: Cellular connectivity on the fringes with demand-driven local cells*”, in IEEE INFOCOM, San Francisco, California, USA, 10-15 April 2016.
 - **Mariya Zheleva**, Ranveer Chandra, Aakanksha Chowdhery, Ashish Kapoor, Paul Garnett “*TxMiner: Identifying Transmitters in Real-World Spectrum Measurements*”, in IEEE DySpan, Stockholm, Sweden, 29 September - 2 October, 2015.
 - Veljko Pejovic, David Johnson, **Mariya Zheleva**, Albert Lysko, Elizabeth Belding “*VillageLink: Wide-Area Wireless Coverage*,” in COMSNETS, Bangalore, India, January 2014.
 - **Mariya Zheleva**, Paul Schmitt, Morgan Vigil, Elizabeth Belding “*The Increased Bandwidth Fallacy: Performance and Usage in Rural Zambia*”, in ACM DEV 2013, Cape Town, South Africa.

- **Mariya Zheleva**, Paul Schmitt, Morgan Vigil, Elizabeth Belding “*Bringing visibility to rural users in Cote D’Ivoire*”, short paper, in ICTD2013, Cape Town, South Africa.
 - **Mariya Zheleva**, Paul Schmitt, Morgan Vigil, Elizabeth Belding “*Community detection in cellular network traces*”, short paper, in ICTD2013, Cape Town, South Africa.
 - Paul Schmitt, Morgan Vigil, **Mariya Zheleva**, Elizabeth Belding “*Communication flow patterns in the Orange Telecom D4D dataset*”, in NetMob 2013, Boston, MA.
 - **Mariya Zheleva**, Arghyadip Paul, David Johnson, Elizabeth Belding “*Kwiizya: Local cellular network services in remote areas*”, in MobiSys 2013, Taipei, Taiwan.
- **Workshops**
 - **Mariya Zheleva**, Petko Bogdanov, Daphney-Stravoula Zois, Wei Xiong, Ranveer Chandra, Mark Kimball “*Smallholder Agriculture in the Information Age: Limits and Opportunities*”, in ACM LIMITS’17, Santa Barbara, CA, 22-24 June, 2017.
- **Abstracts, Demos, Posters and Videos**
 - Karyn Doke, Nachuan Chengwang, Andrew Boggio-Dandry, Petko Bogdanov, and **Mariya Zheleva**. “*DEMO: EApp: Improving Rural Emergency Preparedness and Response.*,” Demo in the 25th Annual International Conference on Mobile Computing and Networking (MobiCom’19), Los Cabos, Mexico, October 2019.
 - Karyn Doke, **Mariya Zheleva**. “*Building a foundation for heterogeneous sensors in spectrum measurement infrastructures,*” poster in NSDI, Boston, MA, February 2019.
 - Wei Xiong, **Mariya Zheleva**. “*Visualizing Wireless Coverage Through Drone and Augmented Reality,*” poster in NSDI, Boston, MA, March 2017.
 - Stuti Misra, **Mariya Zheleva**. “*Low-cost ubiquitous spectrum sensing and characterization,*” poster in NSDI, Santa Clara, CA, March 2016.
 - Timothy Larock, Paul Schmitt, Petko Bogdanov, Elizabeth Belding, **Mariya Zheleva**. “*AirPress: Towards spectrum inventory at scale,*” poster in NSDI, Santa Clara, CA, March 2016.
 - Daniel Iland, **Mariya Zheleva**, Paul Schmitt, Elizabeth Belding. “*NosyNeighbor: Augmenting post-disaster cellular services with local cellular networks,*” poster and demo in HotMobile, Santa Fe, New Mexico, February 2015.
 - **Mariya Zheleva**, Abigail Hinsman, Elizabeth Belding, Lisa Parks. “*Kwiizya,*” video, in ACM MobiSys, Taipei, Taiwan, June 2013.
 - **Mariya Zheleva**, Ceren Budak, Arghyadip Paul, Biyang Liu, Elizabeth Belding, Amr El Abbadi. “*ImmuNet: Improved immunization of children through cellular network technology,*” 2nd best paper award in UCSB Graduate Student Workshop in Computing (GSWC). October, 2012.
 - **Mariya Zheleva**, Bing Wei, Elizabeth Belding “*APMap - Towards mapping the Wi-Fi weather,*” poster in Grace Hopper Celebration (GHC). November, 2011.
 - **Mariya Zheleva**, Ashish Sharma, Sumit Singh, Elizabeth Belding, Upamanyu Madhow “*Towards efficient medium access for 60GHz networks,*” poster in Grace Hopper Celebration (GHC). September, 2010.
 - Vinod Kone, **Mariya Zheleva**, Mike Wittie, Zengbin Zhang, Xiaohan Zhao, Ben Y. Zhao, Elizabeth M. Belding, Haitao Zheng, Kevin C. Almeroth “*AirLab: Distributed Infrastructure for Wireless Measurements,*” poster in USENIX Symposium on Networked Systems Design and Implementation (NSDI). April, 2010.

SOCIAL OUTREACH

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- Emergency preparedness and response for rural areas. Warren County, NY, *Ongoing*
 - FarmNet: Dynamic Spectrum Access for smallholder agriculture, Essex Farm, NY *Ongoing*
 - Kwiizya for health care in Macha, Zambia *December 2013*
 - Kwiizya: local cellular network deployment in Macha, Zambia *June/July 2012*

INVITED TECHNICAL TALKS

- Spectrum Management and Measurement for Future Spectrum-Sharing Networks, *Clarkson University*, February 2020
- Keynote: Spectrum Management and Measurement for Future Spectrum-Sharing Networks, *ACM CHANTS'19*, October 25, 2019, Los Cabos, Mexico
- Spectrum Management and Measurement for Future Spectrum-Sharing Networks, *Arizona State University*, 16 November 2018, Tempe, AZ
- Mobile Wireless Networks of the Future, *Skidmore College*, 14 November 2018, Saratoga Springs, NY
- Spectrum inventory at scale, *NSF workshop on Future Directions in Spectrum Management Research*, 29 September 2015, Stockholm, Sweden.
- Modular wireless networks for infrastructure-challenged environments, *University of Massachusetts, Amherst*, October 2015.
- Local cellular network services in remote areas, *Computer Science Departmental Series, University of Birmingham*, October 2013.

SELECTED PRESS

- Is spectrum a finite resource?, *The Academic Minute: a national production by NPR member station WAMC*, December 2018
<https://academicminute.org/2018/12/mariya-zheleva-university-at-albany-radio-spectrum/>
- A Ruined Christmas: When More Bandwidth Led to Worse User Experiences, *ICTWorks*, December 2016,
<http://www.ictworks.org/2016/12/22/a-ruined-christmas-when-more-bandwidth-led-to-worse-user-experiences/>
- Google's Project Loon to float the internet on balloons, *New Scientist*, June 2013,
<http://www.newscientist.com/article/dn23721-googles-project-loon-to-float-the-internet-on-balloons.html>
- Wi-Fi-hopping brings phone signal to remote villages, *New Scientist*, June 2013,
<http://www.newscientist.com/article/mg21829235.900-wifihopping-brings-phone-signal-to-remote-villages.html>
- Experimental Zambian network explores economic benefits of rural communications, *CIO*, July 2013,
http://www.cio.de/news/cio_worldnews/2013/2923028/#
- Moment Lab tests Range Networks grid in rural Zambia, *Telecompaper*, July 2013,
<http://www.telecompaper.com/news/moment-lab-tests-range-networks-grid-in-rural-zambia>
- Range Networks and University Research Group Bring Cellular Access to Zambian Village, *Market Watch*, July 2013,
<http://www.marketwatch.com/story/range-networks-and-university-research-group-bring-cellular-access-to-zambian-village-2013-07-16>
- Experimental network connects Zambias most remote, *IT News Africa*, July 2013,
<http://www.itnewsafrika.com/2013/07/experimental-network-connects-zambias-most-remote/>
- Range Networks deploys cellular network in Southern Zambia, *Communications Africa*, July 2013,
<http://www.communicationsafrica.com/mobile/range-networks-deploys-cellular-network-in-southern-zambia>

PROFESSIONAL ACTIVITIES

- **Conference organization**
 - Mentorship program co-Chair for ACM MobiCom 2019.
 - N2Women Event Chair for ACM MobiCom 2019.
 - Faculty mentor for the DySPAN 2018 N2Women meeting.
 - **Session chair**
 - * ACM MobiSys 2020, June 15-19, Online
 - * IEEE INFOCOM 2019, April 29 - May 2, Paris, France

- * IEEE DySPAN 2017, 6-9 March, 2017, Baltimore, MD, USA
- * IEEE DySPAN 2018, 22-25 October 2018, Seoul, Korea
- **Web/social chair** DySPAN 2017
- **Web chair** NSF Workshop on Spectrum Measurement Infrastructures, April 2016
- **Vice chair** First Workshop on Robust Socio-technical Architectures in Support of Displaced Persons, Cape Town, South Africa, 4-5 December 2013
- **Program committee member**
 - IEEE SECON, 22-26 June 2020, Como, Italy
 - ACM MobiSys, 15-19 June, 2020, Toronto, Canada
 - ICTD, 14-17 June, 2020, Guayaquil, Ecuador
 - IEEE INFOCOM, 27-30 April 2020, Beijing, China
 - IEEE INFOCOM, April 29-May 2 2019, Paris, France
 - IEEE ICC, NGNI symposium, 20-24 May 2019 Shanghai, China
 - IEEE DySPAN 2018, 22-25 October 2018, Seoul, Korea
 - IEEE ICC, NGNI symposium, 20-24 May 2018 Kansas City, MO, USA
 - IEEE DySPAN 2017, 6-9 March, 2017, Baltimore, MD, USA
 - IEEE ICC, NGNI symposium, 21-25 May 2017, Paris, France
 - ACM Symposium on Computing for Development (ACM DEV-7), Nov. 18-21 2016, Nairobi, Kenya
 - International Conference on Information and Communication Technology for Development (ICTD2016), June 3-6 2016, Ann Arbor, Michigan, USA
 - 25th International World Wide Web Conference (WWW2016), April 11-15 2016, Montreal, Canada
 - ACM Symposium on Computing for Development (ACM DEV-6), December 1-2 2015, London, UK
- **Reviewer**
 - IEEE Transactions on Cognitive Communications and Networking
 - IEEE AFRICON
 - International Conference on Information and Communication Technology for Development (ICTD)
 - International World Wide Web Conference (WWW)
 - IEEE Transactions on Mobile Computing
 - Computer Communications
 - IEEE International Conference on Communications
 - IEEE Transactions on Networking
 - IEEE International Conference on Electronics Circuits and Systems
- **Other appointments**
 - **Publications Director, SIGMOBILE**, August 2018 - Present.
 - **N2Women mentorship co-chair**, March 2020 - Present.
 - **National Science Foundation (NSF) invited proposal funding panelist**
 - * CISE panel 2020
 - * CISE panel 2020
 - * CISE panel 2019
 - * CISE panel 2019
 - * CISE panel 2018
 - * CISE panel 2018
 - * CISE panel 2017
 - * CISE panel 2016
 - * CISE panel 2016
 - * CISE ad-hoc reviewer
 - **NSF Broadband 2021 invited workshop participant**

PhD Students

- Karyn Doke. Started Fall 2017
- Wei Xiong. Dissertation title: *Towards Practical Modulation Recognition for Future Spectrum-Sharing Applications*, Spring 2020

MS Students (with Project/Thesis)

- Omkar Kulkarni. MS Project: *TVWS network analysis.*, Spring 2019
- Yunwei Jiang. MS Project: *Design and Implementation of Cattle Tracking Prototype System over LoRa.*, Summer 2018
- Roshin Cherian. MS Project Title: *Making a robust agricultural sensor using Particle Photon.* Spring 2018
- Arunkumar Odedara. MS Project Title: *Heterogeneous sensing for high-fidelity spectrum characterization.* Spring 2017

Undergraduate Students (with Project/Thesis)

- Jason Viviano. UbiNET NSF REU Fellow, Summer 2018
- Eman Shah. UbiNET NSF REU Fellow, Summer 2018
- Stuti Misra. Honors Thesis: *High-Fidelity Spectrum Characterization with Low-Cost Sensors.*, Spring 2017
 - SUNY Chancellor's Award for Student Excellence
 - The 2017 UAlbany Presidential Award for Undergraduate Research.
- Timothy Larock. Honors Thesis Title: *Wireless Frequency Spectrum Characterization and Transmitter Detection Using Wavelets.*, Spring 2016.
 - The 2016 UAlbany Presidential Award for Undergraduate Research.

High School Students

- Amina Webster, Niskayuna High School, *Project Title: E!App graphics design and implementation.*, Summer 2019

Visiting Students

- Erma Perenda, PhD Student, KU Leuven, Spring 2020