

# PHILIP B. LUNDRIGAN

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## EDUCATION

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- 2018**   **University of Utah**, *Ph.D., Computer Science*  
Advisors: Sneha Kasera and Neal Patwari  
Dissertation Title: Reliable Real-Time Data Upload for Wireless Networks
- 2012**   **Brigham Young University**, *B.S., Computer Engineering*  
Advisor: Daniel Zappala  
Dean's List, College of Engineering, 2011  
Full Academic Brigham Young Young Scholarship, 2009-2012

## PROFESSIONAL EXPERIENCE

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- July 2016 to Present**   **Brigham Young University**, *Assistant Professor*  
Department of Electrical and Computer Engineering

## PUBLICATIONS

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### Book Chapters

1. Ramkiran Gouripeddi, **Philip Lundrigan**, Sneha Kasera, Scott Collingwood, Mollie Cummins, Julio C. Facelli, and Katherine Sward, "Exposure Health Informatics Ecosystem", in *Total Exposure Health: An Introduction*, CRC Press, 2019.

### Peer-Reviewed Journal Articles

2. S. Hegde, K. Min, J. Moore, **P. Lundrigan**, N. Patwari, S. C. Collingwood, and K. E. Kelly, "Household Indoor Particulate Matter Measurement Using a Network of Low Cost Sensors", in *Aerosol and Air Quality Research*, 2019.
3. J. Moore, P. Goffin, **P. Lundrigan**, N. Patwari, K. Sward, J. Weise, M. Meyer, "Managing In-home Environments Through Sensing, Annotating, and Visualizing Air Quality Data", in *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)*, 2018.
4. Tim Strayer, Samuel Nelson, Amando Caro, Joud Khoury, Bryan Tedesco, Olivia DeRosa, Carsten Clark, Kolia Sadeghi, Michael Matthews, Jake Kurzer, **Philip Lundrigan**, Vikas Kawadia, Dorene Ryder, Keith Gremban, Wayne Phoel, "Content Sharing with Mobility in an Infrastructure-less Environment", in *Computer Networks*, 2018.
5. B. Mager, **P. Lundrigan**, and N. Patwari, "Fingerprint-Based Device-Free Localization: Performance in Changing Environments", in *Journal on Selected Areas in Communications*, 2015.

## Peer-Reviewed International Conference Publications

6. (*Under Review*) Daniel Sharp, Brenden Peel, Allen Schultz, and **Philip Lundrigan**, “Extending the Use of DSRC RSUs Through Cross-Technology Communication”, in IEEE Vehicular Networking Conference (VNC), 2021.
7. L. Alcantara, J. Miera, B. Ariun-Erdene, C. Teng, **P. Lundrigan**, “The Hitchhiker’s Guide to Successful Remote Sensing Deployments in Mongolia”, in Intermountain Engineering, Technology, and Computing Conference (i-ETC), 2020.
8. **P. Lundrigan**, N. Patwari, S. K. Kasera, “On-off Noise Power Communication”, in International Conference on Mobile Computing and Networking (MobiCom), 2019.
9. S. Maheshwari, **P. Lundrigan**, S. K. Kasera, “Scheduling Virtual WiFi Interfaces for High Bandwidth Live Video Upstreaming Using Multipath TCP”, in International Conference on Distributed Computing and Networking (ICDCN), 2019. **Best Paper Award**.
10. **P. Lundrigan**, N. Patwari, S. K. Kasera, “STRAP: Secure TRansfer of Association Protocol”, in International Conference on Computer Communications and Networks (ICCCN), 2018.
11. K. Min, **P. Lundrigan**, N. Patwari, “Smart Home Air Filtering System: A Randomized Controlled Trial for Performance Evaluation”, in IEEE/ACM International Conference on Connected Health (CHASE), 2018.
12. **P. Lundrigan**, M. Khaledi, M. Kano, N. Subramanyam, and S. Kasera, “Mobile Live Video Upstreaming”, in International Teletraffic Congress (ITC 28), 2016.
13. R. Buck, R. Lee, **P. Lundrigan**, and D. Zappala, “WiFu: A composable toolkit for experimental wireless transport protocols”, in IEEE International Conference on Mobile Ad-Hoc and Sensor Systems, 2012.
14. C. Lavin, M. Padilla, J. Lamprecht, **P. Lundrigan**, B. Nelson, and B. Hutchings, “HMFlow: Accelerating FPGA Compilation with Hard Macros for Rapid Prototyping”, in IEEE International Symposium on Field-Programmable Custom Computing Machines (FCCM), 2011.
15. C. Lavin, M. Padilla, J. Lamprecht, **P. Lundrigan**, B. Nelson, and B. Hutchings, “RapidSmith: Do-It-Yourself CAD Tools for Xilinx FPGAs”, in International Conference on Field Programmable Logic and Applications (FPL), 2011.
16. C. Lavin, M. Padilla, **P. Lundrigan**, B. Nelson, and B. Hutchings, “Rapid prototyping tools for FPGA designs: RapidSmith”, in International Conference on Field-Programmable Technology (FPT), 2010.

## Peer-Reviewed International Workshop Publications

17. **P. Lundrigan**, K. Min, N. Patwari, S. K. Kasera, K. Kelly, J. Moore, M. Meyer, S. C. Collingwood, F. Nkoy, B. Stone, and K. Sward, “An In-Home IoT Architecture for Epidemiological Deployments”, in IEEE Workshop on Practical Issues in Building Sensor Network Applications (SenseApp), 2018. **Best Paper Runner-up**.

## Peer-Reviewed International Poster/Demo Presentations

18. **Philip Lundrigan**, Ramkiran Gouripeddi, Mollie Cummins, Julio Facelli, and Katherine Sward, “Materializing the Air Quality Exposome: The Center of Excellence for Exposure Health Informatics”, in Air Quality: Science for Solutions, 2020.
19. **Philip Lundrigan**, Derek Hansen, and Chia-Chi Teng, “Developing an Untethered Network of Low-Power Air Quality Sensors”, in Air Quality: Science for Solutions, 2019.
20. Kyeong T. Min, **Philip Lundrigan**, and Neal Patwari, “IASA - Indoor Air Quality Sensing and Automation”, in ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN), 2017.

## TALKS

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### Invited Talks

1. **Philip Lundrigan**, “Open Source: Learning in Public”, at BYU IEEE Branch Meeting, September 2021.
2. **Philip Lundrigan**, “STRAP and Beyond”, at BYU Networking Club, BYU, December 2019.
3. **Philip Lundrigan**, “Networking Research for Linux”, at BYU Linux Club, BYU, September 2019.
4. Katherine Sward, **Philip Lundrigan**, Ram Gouripeddi, “An Infrastructure for Generating Exposomes: Initial Lessons from the Utah PRISMS Platform”, at the 27th Annual Meeting of the International Society of Exposure Science (ISES), Research Park Triangle, NC, October 2017.
5. **Philip Lundrigan**, “In-Home Real-Time Sensor Networks”, at the 33rd Annual Utah Conference on Safety & Industrial Hygiene, Salt Lake City, UT, October 2016.
6. **Philip Lundrigan**, Mojgan Khaledi, Makito Kano, Naveen D.S., and Sneha K. Kasera, “Mobile Live Video Upstreaming”, at Raytheon BBN, Cambridge, MA, July 2015.

## TEACHING EXPERIENCE

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### Instructor

- **ECEN 330**: Intro to Embedded Systems Programming (Fall 2019)
- **ECEN 426**: Computer Networks (Fall 2021)
- **ECEN 493R**: Computer Networks (Fall 2020)
- **ECEN 522R**: Wireless Networks (Winter 2019, Winter 2020)
- **ECEN 526**: Wireless Networks (Winter 2021)

## AWARDS

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**2021 Most Influential Faculty Member Award, Electrical and Computer Engineering**

**2019 ICDCN Best Paper Award**

For “Scheduling Virtual WiFi Interfaces for High Bandwidth Live Video Upstreaming Using Multipath TCP”

## CITATIONS

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Citations: 469

h-index: 7

i10-index: 7

## EMPLOYMENT EXPERIENCE

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**2012 to 2018 Research Assistant, Advanced Networks Systems Research Lab**

University of Utah

**2015, Summer**   **Network Scientist Intern**, *Raytheon BBN Technologies*  
Cambridge, MA

**2014, Summer**   **Network Scientist Intern**, *Raytheon BBN Technologies*  
Cambridge, MA

**2013 to 2014**   **Wireless Researcher**, *Xandem Technology*  
Salt Lake City, UT

**2012, Summer**   **Software Engineering Intern**, *Ancestry.com*  
Provo, UT

**2011 to 2012**   **Research Assistant**, *Internet Research Lab*  
Brigham Young University

## PROFESSIONAL ACTIVITIES

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**Member of IEEE and ACM**

**Member of Center of Excellence for Exposure Health Informatics at the University of Utah**

**Publicity Co-Chair**

IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) - 2020

**Technical Program Committee (TPC) Member**

ACM/IEEE International Conference on Internet of Things Design and Implementation (IoTDI) - 2022

IEEE International Conference on Local Computer Networks (LCN) - 2021

ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN) - 2020

IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) - 2020

**Reviewer**

IEEE Transactions on Mobile Computing - 2020

## GRANTS

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**2021 to**   Bryan Hopkins, Ruth Kelly, and **Philip Lundrigan**

**2022**   “Water Conservation in the Arid West: Spatio-Temporal Analysis and Variable Rate Irrigation in the Urban Environment”  
*Redd Center, BYU, \$5,000*

**2020 to**   Karl Warnick and **Philip Lundrigan**

**2023**   “Spectrum Sharing Via Interference-resilient Passive Receivers and Passive-aware Active Services”

*National Science Foundation (NSF), \$258,000*

**2019 to Philip Lundrigan**

**2020** “Mongolian Ger Air Quality Measurement and Analysis”  
*Deseret International Charities, \$15,250*

**2019 to Philip Lundrigan**

**2020** “Self-Sustainable Air Quality Sensor”  
*Ira A. Fulton College of Engineering, BYU, \$12,500*

**2018 to Philip Lundrigan**

**2020** “PRISMS Informatics Platform - Federated Integration Architecture”  
*National Institutes of Health (NIH), \$21,208*