

## Industry Experience

- SpaceX Sr. SW Engineer – Redmond, WA 2022-Present  
Member of the Starlink MAC team, focusing on improving Starlink efficiency, performance, and QoE/QoS across application domains and use cases.
- (Google) X, The Moonshot Factory SW Intern– Mountain View, CA 2017  
Developed production network diagnostic tools and services for the Project Loon backhaul network. Researched the team's network debug workflows and suggested improvements to decrease diagnostic and repair time.
- TrellisWare Technologies Sr. SW Engineer– San Diego, CA 2013-16  
Architected updates to an embedded mobile ad-hoc MAC for rate adaptation, quality of service, and adaptive resource allocation. Implemented C++ software in a real-time operating systems operating on OMAP3 and i.MX6. Led SW team in the expansion of radio's situational awareness subsystem.
- National Instruments Hardware Intern, Austin, TX 2012  
Gathered market information, then specified, designed, and prototyped hardware to interface the MyRIO platform with 3<sup>rd</sup> party daughtercards.

## Academic and Community Projects

- Seattle Community Network Co-Founder – Seattle, WA 2019-Present  
Founding board member of nonprofit focused on digital equity and local empowerment in the Puget Sound. Assisted deploying and maintaining community-run CBRN LTE networks serving difficult to reach populations via collaborations with anchor institutions like school and libraries.
- CoLTE Project Developer– Seattle, WA 2017-Present  
Developed a standalone LTE network for rural communities in collaboration with other researchers and community partners. Implemented software and hardware deployed in multiple field sites nationally and internationally. Measured and reported long-term usage and performance metrics.
- dAuth Distributed Network Coordination– Seattle, WA 2020-2023  
PhD research to develop a 4G & 5G cellular network architecture for resource sharing between non-trusted neighbors on the network edge.

## Teaching, Mentoring, and Leadership

- CSE-461 Instructor – Seattle, WA 2022  
Primary instructor for the ~100 student undergraduate computer networks elective. Updating course materials and assignments for hybrid learning and re-working wireless network content to include basics of cellular networks.
- ICTD Lab Undergrad Research Mentor – Seattle, WA 2016-2022  
Mentored undergraduates in my lab in conducting research. Primary mentor for 4 students, supplementary mentor for 10+ additional students.
- CSE-461, CSE481L TA – Seattle, WA 2019, 2021  
Updated course infrastructure, led discussion sessions, coordinated grading, and delivered multiple lectures. Provided additional tutoring as needed.
- Biomedical Student Training – Jimma, Ethiopia 2013  
Mentored engineering students on final project designs and presentations.
- Empower STEM Expo Coordinator – Houston, TX 2012-13  
Managed 150 visiting students and 50+ advisors. Recruited faculty to lead age appropriate sessions inspiring interest in continuing STEM education.

## Education

- U. Washington, Seattle – CS Ph.D. 2016- 2022  
GPA: 3.94 | Integrated M.S. Computer Science & Engineering (2018)  
Research Areas: Community Cellular Networking, ICTD, Network Systems
- Rice University – BS in Electrical Engineering 2009-2013  
GPA: 3.97, Magna Cum Laude  
Specializations: Systems & Signals, Computer Engineering  
Other Coursework: Poverty Justice & Human Capabilities, Technical Theater, Economics, Engineering Management

Matt Johnson

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## Programming Languages & Tools

Primary: Python, Rust, C++, SQL, Git, Latex, Linux  
Familiar: Javascript, CSS, Go, Java, Erlang, Verilog, C, Meson

## Areas of Interest

Mobile Networking (LTE/5G/xG, WiFi, MANET), Technology for Development, Global Connectivity/Edge/Access, Education

## Selected Publications

- Matthew Johnson, Esther Jang, Frankie O'Rourke, Rachel Ye, and Kurtis Heimerl. *Network Capacity as Common Pool Resource: Community-Based Congestion Management in a Community Network*. ACM CSCW '21.
- Matthew Johnson, Jenny Liang, Michelle X. Lin, Sudheesh Singanamalla, and Kurtis Heimerl. *Whale Watching in Inland Indonesia: Analyzing a Small, Remote, Internet-Based Community Cellular Network*. The Web Conference (WWW) '21.
- Shaddi Hasan, Mary Claire Barela, Matthew Johnson, Eric Brewer, and Kurtis Heimerl. *Scaling community cellular networks with community cellular manager*. USENIX NSDI'19.
- Spencer Sevilla, Matthew Johnson, Pat Kosakanchit, Jenny Liang, and Kurtis Heimerl. *Experiences: Design, Implementation, and Deployment of CoLTE, a Community LTE Solution*. MobiCom'19.
- Matthew Johnson, Spencer Sevilla, Esther Jang, and Kurtis Heimerl. *DLTE: Building a more WiFi-like Cellular Network: (Instead of the Other Way Around)*. ACM HotNets '18.

## Grants, Honors and Awards

- NSF Graduate Research Fellowship 2018-2022  
Studying network management in rural edge networks
- NSDI'19 Community Award 2019  
Award given to the Community Cellular Manager project for its impact on the overall research community
- Gaetano Borriello Fellowship for Change 2016-17  
Fellowship for study at intersection of CS and humanitarianism
- McCormick Engineering President's Scholarship 2009-13  
Merit based scholarship for students in the engineering school
- Rice University Outstanding Senior Award 2013  
Given to a graduating senior for outstanding contributions to the wider university community
- Speros P. Martel Service Award 2013  
Recognition of service and dedication to community in one or more years, irrespective of assigned duties or activities
- Eagle Scout 2008

## Other Activities

### Societies

ACM: SIGCAS, SIGCOMM, SIGCSE  
IEEE: Communications Society, Humanitarian Technologies  
Phi Beta Kappa, Tau Beta Pi, Eta Kappa Nu

### Service

Outreachy Technical Advisor 2021-2022  
New Grad Mentor Program 2017-2020  
Allen School Grad Committee (G5PAC) Member 2018-20  
Visit Days Chair 2017  
Intro Series Tutor 2016-17  
Reality Changers High School Tutor 2015-16