

# Esther Jang

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## EDUCATION

### UW

PHD IN ICTD/NETWORKS  
Expected Jun 2024 | Seattle

### MIT

MENG IN NETWORKS AND  
COMMUNICATIONS  
Jun 2016 | Cambridge

BSC IN ELECTRICAL  
ENGINEERING AND  
COMPUTER SCIENCE  
May 2014 | Cambridge  
GPA: 4.7 / 5.0

## COURSEWORK

Computer Networks  
Computer Systems  
Digital Communications  
Discrete Stochastic Processes  
Distributed Systems  
Heterogeneous Networks  
Human-Computer Interaction  
ICTD (Information &  
Communication Technology for  
Development)  
Inference and Information  
Machine Learning  
Natural Language Processing  
Probabilistic Graphical Models  
Programming Languages  
Signals & Systems

## SKILLS

### PROGRAMMING

Python • R • C++ • Java •  
MATLAB • Mathematica •  
Javascript • HTML • CSS •

### TEACHING

Connect Across Tacoma  
BBR Digital Stewards  
TBB Wireless Instruction  
UW CS for Social Good  
UW Computer Networks  
MIT Machine Learning

### SPOKEN LANGUAGES

English (native) • Korean  
(heritage) • Spanish  
(conversational) • Swahili  
(conversational) • Tagalog  
(beginner)

## RESEARCH INTERESTS

Broadband access • participatory methods • action research • community infrastructure •  
repair and sustainability • digital equity • computing education & pedagogy

## PUBLICATIONS

- CSCW '24 (SUBMITTED)** Participatory Design of IoT in Self-Managed Tiny House Villages  
*Jang & ANON et al.*
- CSCW '24 (IN REVISION)** Seattle Community Network: A Model for Grassroots Infrastructur-  
ing of a Technical Learning Commons *Jang & ANON et al.*
- SIGCOMM '23** Stories from the Field (of Networking): Lessons from Deploying  
Research Systems in the Real World *Heimerl, Jang, Obi*
- IMC '20** Accept the Risk and Continue: Measuring the Long Tail of  
Government <https> Adoption *Singanamalla, Jang, Heimerl*
- CSCW '20** Network Capacity as Common Pool Resource: Community-Based  
Congestion Management in a CN *Johnson & Jang, et al.*
- CSCW '20** “The Network as an Excuse”: Hardware Maintenance Supporting  
Community *Garrison, Jang, Pace, Lithgow*
- CSCW '19** Trust and Technology Repair Infrastructures in the Remote Rural  
Philippines *Jang & Garrison, et al.*
- ASSETS '19** Deep Learning for Automatically Detecting Sidewalk Accessibility  
Problems Using Streetscape Imagery *Weld & Jang, et al.*
- HOTNETS '18** dLTE: Building a more WiFi-like Cellular Network (Instead of  
the Other Way Around) *Johnson, Sevilla, Jang, Heimerl*
- CHI '18** Crowdsourcing Rural Network Maintenance and Repair via Network  
Messaging *Jang, Barela, Johnson, Martinez, Festin, Lynn, Dionisio, Heimerl*
- LIMITS '17** Unplanned Obsolescence: Hardware and Software After Collapse  
*Jang, Johnson, Burnell, Heimerl*
- ICTON '17** Cognitive all-optical fiber network architecture *Chan & Jang*

## OTHER PRESENTATIONS

- CSCW '22** Situating Network Infrastructure with People, Practices, and  
Beyond: A Community Building Workshop *Jang, Bidwell, Liu*
- ICTD '19** Open Session: Creating Your Own Path in ICTD *Jang and Karusala*

## AWARDS

- |      |                                 |      |   |
|------|---------------------------------|------|---|
| 2023 | Benton Opportunity Fund Fellow  | 2018 | Mozilla/NSF-WINS Smart CNs<br>Challenge Honorable Mention |
| 2022 | IEEE Connecting the Unconnected | 2015 | MIT Assistive Tech Hackathon 1st pl                       |
| 2020 | Intel SWE Graduate Fellowship   | 2014 | IEEE CommSoc Student Comp. 2nd pl                         |
| 2019 | ASSETS 2019 Best Student Paper  | 2014 | Siebel Scholarship  |
| 2019 | CSCW 2019 Diversity & Inclusion | 2012 | MIT Public Service Center Fellow                          |
| 2019 | UW SWE Outstanding Engineer     |      |   |

## RESEARCH EXPERIENCE

### UW PAUL G. ALLEN SCHOOL OF COMPUTER SCIENCE AND ENGINEERING | PHD

Jun 2019 – Present | Seattle, WA

**Seattle Community Network (SCN).** Building an urban community Internet access network for low-income residents of south Seattle. Support from **Internet Society**, King County, City of Seattle, and UW. Advised by **Dr. K. Heimerl**.

Jan 2022 – Present:

**NSF Smart & Connected Communities: Innovations in Community-Held Infrastructure.** Participatory design of IoT and sensor technologies with local Tiny Home Villages associated with **SCN**. Lead PI **Dr. K. Heimerl**

Aug 2023 – Present:

**NSF Smart & Connected Communities: Socially-integrated Robust Communication and Information-Resource Sharing Technologies for Post-disaster Community Self-reliance.** Community LTE network deployments with **SCN** in Laurelhurst and Westport, and development of offline-capable mobile applications for disaster resilience.

Jan 2019 – Aug 2020 | Oaxaca, Mexico and Quintana, Argentina

Qualitative field study of community network management and sustainability for wireless networks in Oaxaca and Quintana. Development of CN toolkit. Advised by **Dr. K. Heimerl** and **Dr. M. Lithgow**, with **AlterMundi**.

Aug 2019 – Dec 2019 | Iquitos, Peru

Planned deployment of community LTE in Majjuna communities in Peru. Participatory design of local applications for indigenous cultural preservation and digital literacy. Advised by **Dr. K. Heimerl**, **Dr. M. Gilmore**, and **Dr. J. Young**, with the **Pontificia Universidad Católica del Perú Grupo de Telecomunicaciones Rurales** and **Facebook**.

Sept 2016 – Dec 2018 | Aurora, Philippines

Participatory design and prototyping of phone-based services and repair tools for communities in rural Aurora, Philippines. Qualitative field study of repair culture. Deployment of 2G networks for RCT evaluation. Advised by **Dr. K. Heimerl**, with the **University of the Philippines WCEL** and **UC Berkeley**. **Rural Repair Project Site:** <https://goo.gl/awXmfZ>

### MIT RESEARCH LABORATORY FOR ELECTRONICS (RLE) | MASTER'S

Jan 2015 – Jun 2016 | Cambridge, MA

A delay-minimal cognitive routing algorithm with traffic estimation for metropolitan sensor networks. With **Dr. V. Chan**.

## PERSONAL PROJECTS

### CONNECT ACROSS TACOMA (BBR & UW TACOMA) | LEAD INSTRUCTOR AND ORGANIZER

Jul 2023 - Dec 2025 | Tacoma, WA

Curriculum and teaching for hands-on community networking course (up to 140 students over 2 years) funded by NTIA CMC.

### TRIBAL BROADBAND BOOTCAMP (TBB) | LEAD TECHNICAL INSTRUCTOR AND ORGANIZER

Jul 2019 - Present | USA

Hands-on wireless networking skills instructor and workshop organizer. Curriculum development, planning, teaching.

### DECENTRALIZED WEB CAMP | MESH NETWORK LEAD ORGANIZER

Aug 2022, Jun 2023 | San Francisco, CA

Led Dweb Camp Mesh Network implementation and teaching activities at Dweb Camp in Navarro, CA.

### EMW BOOKSTORE COMMUNITY BIO-HACKERSPACE | VOLUNTEER

Jul 2015 – Jun 2016 | Cambridge, MA

Set up bio lab equipment, taught, participated in MIT/Harvard bio-hacking course “How to Grow (Almost) Anything.”

### MIT ASSISTIVE TECH HACKATHON | 1ST PLACE & MIT LEAP GRANT FOR CONTINUED WORK

Feb 2015 – Jun 2016 | Cambridge, MA

With community partner A. Mallozzi, prototyped a portable sip-n'-puff joystick mouse for people without use of their hands.

**Project Site** <http://puffinsip.com> **NYT Summer of Science profile** <https://goo.gl/1aWSV4> **MIT News** <https://bit.ly/2OpM6tj>

### MIT PUBLIC SERVICE CENTER (PSC) | FELLOWSHIP

Oct 2011 – Aug 2012, Jan 2014 | Cambridge, MA & Arusha, Tanzania

Deployed a system for affordable Internet at Orkeeswa Secondary School in rural Tanzania (still in use today). **Website**

## SELECTED PRESS

SCN featured at NANOG <https://tinyurl.com/scn-nanog-23>

FastCompany article on LIMITS publication <https://bit.ly/3aoAJZU>

Feb 2020-KUOW radio segment on LIMITS publication <https://www.kuow.org/stories/which-face-is-real>