

KUN WOO CHO

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EDUCATION

Princeton University

Doctor of Philosophy (Ph.D.) in Computer Science

Master of Art (M.A.) in Computer Science

Advisor: Kyle Jamieson

Princeton, NJ

Expected 2024

2019

University at Buffalo, SUNY

Bachelor of Science (B.S.) in Computer Science and Engineering with distinction

Advisor: Wenyao Xu

Buffalo, NY

2018

University of Cambridge

Visiting Scholar

Advisor: Cecilia Mascolo

Cambridge, UK

2017

RESEARCH

Areas of interest: wireless networked systems, smart surfaces, and AI-assisted wireless networks.

Vision: The goal of my research is to build cross-layer designs of programmable, high-frequency smart surfaces, to make NextG networks faster, more interference-free, and more reliable.

PROFESSIONAL EXPERIENCE

Princeton University, Princeton, NJ

Aug. 2018 -

Research assistant at PAWS Laboratory, teaching assistant

- Major projects include the first programmable metamaterial surface that brings outdoor 5G signals indoors by refracting or reflecting incoming mmWave transmissions (mmWall), a dual-frequency smart surface that enables fast beam alignment between the satellite and mobile users in LEO satellite networks (Wall-E), multi-view representation learning for predicting channels in massive IoT networks (CLCP).

- TA for COS461 Computer Networks, COS IW Mobile Computing Design for Assistive Technology

Facebook, Menlo Park, CA

May 2021 - Aug. 2021

Ph.D. intern at Facebook Connectivity Laboratory

- Designed generative models for anomaly detection and root cause analysis on a mmWave mesh network.

University of Cambridge, Cambridge, UK

June 2017 - Aug. 2017

Research intern at NetOS Laboratory

- Developed a mobile phone-based adaptive platform to track user emotion via voice analysis.

University at Buffalo, Buffalo, NY

July 2015 - May 2018

Research intern at ESC Laboratory

- Major projects include user authentication for smart headwear using cancelable brain biometrics, validation of sensor-equipped insoles for environment-free gait analysis, and early screening of Autism using discrete gaze patterns.

REFERRED PUBLICATIONS

C1. [Kun Woo Cho](#), Mohammad H. Mazaheri, Jeremy Gummeson, Omid Abari, Kyle Jamieson. “mmWall: A Transflective Metamaterial Surface for mmWave Networks”. In the *20th USENIX Symposium on Networked Systems Design and Implementation* (NSDI '23). 20 pages. Acceptance rate: 15.9% (46/288, fall round).

C2. [Kun Woo Cho](#), Marco Cominelli, Francesco Gringoli, Joerg Widmer, Kyle Jamieson. “Cross-Link Channel Prediction for Massive IoT Networks”. To appear in the *24th International Symposium on Theory, Algorithmic Foundations, and Protocol Design for Mobile Networks and Mobile Computing* (MobiHoc '23). 10 pages. Acceptance rate: 21.9% (30/136).

- C3. Kun Woo Cho, Srikar Kasi, Kyle Jamieson. “A Low-Power OAM Metasurface for Rank-Deficient Wireless Environments”. To appear in the *IEEE Global Communications Conference (GLOBECOM '23)*. 6 pages.
- C4. Kun Woo Cho, Yasaman Ghasempour, Kyle Jamieson. “Towards Dual-Band Reconfigurable Metasurfaces for Satellite Networking”. In the *21st ACM Workshop on Hot Topics in Networks (HotNets '22)*. 7 pages. Acceptance rate: 30% (32/104).
- C5. Kun Woo Cho, Mohammad Hossein Mazaheri, Jeremy Gummesson, Omid Abari, Kyle Jamieson. “mmWall: A Reconfigurable Metamaterial Surface for mmWave Networks”. In the *22nd ACM Workshop on Mobile Computing Systems and Applications (HotMobile '21)*, 6 pages. Acceptance rate: 36% (22/61).
- C6. Feng Lin, Kun Woo Cho, Chen Song, Wenyao Xu, Zhanpeng Jin, “Exploring a Brain-based Cancelable Biometrics for Smart Headwear: Concept, Implementation, and Evaluation”, *IEEE Transactions on Mobile Computing (TMC '19)*. 19 pages.
- C7. Feng Lin, Kun Woo Cho, Chen Song, Wenyao Xu, Zhanpeng Jin, “Brain Password: A Secure and Truly Cancelable Brain Biometrics for Smart Headwear”. In the *16th ACM Annual International Conference on Mobile Systems, Applications, and Services (MobiSys '18)*. 13 pages. Acceptance rate: 18.1% (34/188).

HONORS AND AWARDS

IEEE ComSoc School Grant Award	2023
USENIX NSDI Travel Grant Award	2023
Princeton Graduate Student Fellowship	2018
SEAS Dean’s Undergraduate Achievement Award	2018
UB CSE Departmental Award of Research	2018
Grace Hopper Celebration of Women in Computing (GHC) Scholarship	2017
Honors College Scholarship	2017
UB Undergraduate Research and Scholarship Award of Distinction	2017
International Merit Scholarship	2014-2018
Barbara & Jack Davis Dean’s Scholarship	2014-2018
University Honors Program	2014-2018
Dean’s List	2014-2018

MEDIA COVERAGES

“Surface steers signals for next-gen networks”, Princeton News [link]	2023
“Ten SEAS students recognized for outstanding research”, UB News [link]	2018
“Student develops smartphone app for early autism detection”, UPI [link]	2016
“Smartphone app for early autism detection being developed by UB undergrad”, UB News	2016

PATENT

US Patent Application. Pub. No.:US202/030259 A1. Pub. Date: Oct.13,2022. RECONFIGURABLE METAMATERIAL SURFACE FOR MMWAVE NETWORKS. Kun Woo Cho, Mohammad H. Mazaheri, Jeremy Gummesson, Omid Abari, Kyle Jamieson. Assignee: Princeton University

SERVICE

Reviewer , <i>ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (ACM IMWUT/UbiComp)</i>	2020
Reviewer , <i>ACM Transactions on Computing for Healthcare (HEALTH)</i>	2019

SKILLS

Programming Languages:	C, C++, Python, MATLAB, Java, JavaScript, SQL, ARM, MIPS
Circuit Design and Simulations:	HFSS, CST, ADS, Altium Designer, Multisim, Verilog, LabView
Experiments:	VNA, Spectrum Analyzer, USRP
Others:	TensorFlow, Torch, Android Studio, Git, LaTeX, BibTeX, EEGLAB