Yoon Chae

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RESEARCH INTERESTS

My research interests span a wide spectrum of topics in wireless networking, mobile computing, and low-power Internet of Things (IoT) systems for cyber-physical system applications.

- **Wireless Systems and Networking:** high-speed next-generation wireless network architectures (6G and beyond networks, 802.11 ad/ay 60GHz mmWave WiFi), mmWave V2X communication, Internet-of-Things (IoT), ultra-wide-band millimeter wave backscatter communication.
- **Mobile Computing:** mmWave sensing systems (virtual/augmented reality, localization, blockage detection), ubiquitous computing, and cyber-physical systems (CPS)

EDUCATION

George Mason University, *Fairfax, USA* 2017.01 – 2024.12
Ph.D., in Computer Science
Advisor: Prof. Parth Pathak

University of Minnesota, Twin Cities *Minneapolis, USA* 2010.09 – 2012.02
M.S., in Electrical and Computer Engineering

Yonsei University, *Seoul, South Korea* 2003.03 – 2009.08
B.S., in Electrical and Electronic Engineering Military service (2005.02 – 2007.02)

PROFESSIONAL EXPERIENCE AND EMPLOYMENT

University of Texas at Arlington, TX, USA 2025.01 - Present
Assistant professor in the Department of Computer Science and Engineering

George Mason University, Fairfax, USA 2024.09 - 2024.12
Teaching Assistant

George Mason University, Fairfax, USA 2017.01 - 2024.08
Research Assistant

Seagate Technology, South Korea 2012.03 - 2017.01
Firmware Engineer, Firmware and ASIC Team

PUBLICATIONS

Peer Reviewed Conference and Workshop:

1. **[SenSys'26]**
   Zhenzhe Lin*,**Yoon Chae***, Mingyo Jeong, Parth Pathak. (*: equal contribution) "B^3: Bistatic Backscatter Beamforming for mmWave IoTs" *Proceedings of the 24st the 16th ACM Conference on Embedded Networked Sensor System, Saint-Malo, France.* **(Acceptance Rate 49/258=18.9%**)

2. **[NSDI'24]**
   Yoon Chae, Zhenzhe Lin, Kang Min Bae, Song Min Kim, Parth Pathak. "mmComb: High-speed mmWave CommodityWiFi Backscatter." *Proceedings of the 21st USENIX Symposium on*

Networked Systems Design and Implementation, Santa Clara, California. **(Acceptance Rate: 17.6%)**

3. **[GetMobile'24]**
   Kang Min Bae, Namjo Ahn, **Yoon Chae**, Parth Pathak, SungMin Sohn, Song Min Kim. "OmniScatter: Extreme Sensitivity mmWave Backscattering Using Commodity FMCW Radar." *ACM GetMobile: Mobile Computing and Communications 27 (4), 26-30, Jan. 2024* **(Invited)**

4. **[MobiCom'23]**
   Ahmad Kamari, **Yoon Chae**, Parth Pathak. "mmSV: mmWave Vehicular Networking using Street View Imagery in Urban Environments." *Proceedings of the 29th Annual International Conference on Mobile Computing and Networking, Madrid, Spain.* **(Acceptance Rate: 24.4%)**

5. **[MobiSys'22]**
   Kang Min Bae, Namjo Ahn, **Yoon Chae**, Parth Pathak, SungMin Sohn, Song Min Kim. "OmniScatter: Extreme Sensitivity mmWave Backscattering Using Commodity FMCW Radar." *Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services, Portland, Oregon.* **(Acceptance Rate: 21.6%)**
   (Best Paper Award, SIGMOBILE Research Highlight)

6. **[SenSys'18]**
   Yoon Chae, Shuai Wang, Song Min Kim. "Exploiting WiFi Guard Band for Safeguarded ZigBee." *Proceedings of the 16th ACM Conference on Embedded Networked Sensor Systems, Shenzhen, China.* **(Acceptance Rate: 15.6%)**

7. **[WiNTECH'20]**
   Yoon Chae, Kang Min Bae, Parth Pathak, Song Min Kim. "On the feasibility of Millimeter-wave Backscatter using Commodity 802.11ad 60 GHz Radios." *Proceedings of the 14th International Workshop on Wireless Network Testbeds, Experimental evaluation and Characterization, London, United Kingdom.*

Demo:

1. **[SenSys'18]**
   Yoon Chae, Song Min Kim. "Demo: Safeguarded ZigBee via WiFi Guard Band." *Proceedings of the 16th ACM Conference on Embedded Networked Sensor Systems, Shenzhen, China.*

Poster:

1. **[CCI'24]**
   Yoon Chae, Zhenzhe, Parth Pathak. "mmWave WiFi backscatter communication." *Commonwealth Cyber Initiative (CCI) Symposium.*

HONORS AND AWARDS

- **UT System Rising STARs (Science and Technology Acquisition and Retention), UT System** 2024
- **Best Paper Award at MobiSys** 2022
- **SIGMOBILE Research Highlight** 2023
- Honors Student Award in Electrical and Electronic Engineering, Yonsei University, 2009
- 2nd-award Undergraduate Creative Research, Yonsei University, 2008

- National Science and Technology Scholarship, Korea Science and Engineering Foundation department, 2003, 2004, 2007, and 2008

TEACHING EXPERIENCES

UR2PhD Mentorship | *Research Opportunities for Undergrads at UTA* 2025.09 – Present

- Ko, Ivan (UTA CSE undergraduate student)
- Abuhilal, Angelina (UTA CSE undergraduate student)

Instructor

- CSE 4344: Computer Network Organization 2025 Fall
- CSE 4344: Computer Network Organization 2025 Spring

Co-instructor | *CS 655: Wireless and Mobile Computing* 2023 Fall

- Conducting lectures on mobile computing and next-generation millimeter-wave wireless.
- Mentoring student course projects.

Mentorship | *Mentored Ph.D. students at George Mason University* 2021.02 – 2024.12

- Zhenzhe Lin (Ph.D. student), publication in NSDI '24
- Ahmad Kamari (Ph.D. student), publication in MobiCom '23
- Mingyo Jeong (Ph.D. student), mentoring in progress
- Hemant Kumar (Ph.D. student), mentoring in progress

Teaching Training Courses at George Mason University 2024.01

- Graduate Teaching Training (Online)
- Inclusive Teaching Mini-Course for STEM graduate students (Online)

TALKS & PRESENTATIONS

mmComb: Highspeed mmWave CommodityWiFi Backscatter 2024
USENIX NSDI'24 Conference in Santa Clara, USA

Millimeter-wave IoT: Towards High-speed and Massive-scale Next Generation IoT Systems 2024
Seminar in Electrical Engineering at University of Colorado Denver

On the feasibility of Millimeter-wave Backscatter using Commodity 802.11ad 60 GHz Radio 2020
Co-located with ACM MobiCom'20 Conference (online conference due to COVID)

Exploiting WiFi Guard Band for Safeguarded ZigBee 2018
ACM Sensys'18 Conference in Shenzhen, China

Demo: Safeguarded ZigBee via WiFi Guard Band 2018
ACM Sensys'18 Conference in Shenzhen, China

SERVICES

Department Committee

- Serving as a PhD Admissions Committee 2025
- Serving as a Student Outreach and Recruitment Committee 2025

Conference Committee

- Serving as a Technical Program Committee (TPC) for SenSys'26 2025

- Serving as a Registration Co-chairs for ICNP'25 2025
- Serving as a Artifact Evaluation Committee for MobiSys'25 2025

Conference Reviewer

- ACM/IEEE International Conference on Embedded Artificial Intelligence and Sensing Systems (SenSys) 2025
- IEEE 44th Military Communications Conference (MILCOM) 2024
- IEEE 21st International Conference on Mobile Ad-Hoc and Smart Systems (MASS) 2024
- ACM 30th Annual International Conference On Mobile Computing And Networking (MobiCom) 2024
- IEEE 25th International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM) 2024
- IEEE International Conference on Computer Communications (INFOCOM) 2022 - 2025
- IEEE Wireless Communications and Networking Conference (WCNC) 2023

Journal Reviewer

- ACM Transactions on Internet of Things (IF:3.9) 2025
- IEEE Wireless Communication Letter (IF:5.28) 2022 & 2024
- IEEE/ACM Transactions on Networking (IF: 3.7) 2023
- IEEE Transactions on Mobile Computing (IF:5.577) 2019 & 2023