

Seoyul Oh

Ph.D. Candidate at the University of Illinois Urbana-Champaign (UIUC)

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Interests

My research interest lies in making networks more efficient, reliable, and secure.

Education

University of Illinois Urbana-Champaign, IL, USA Doctor of Philosophy, Computer Science Advisor: Prof. Deepak Vasisht	Sep 2023 - Current
Korea University, Seoul, Korea Master of Science, Electrical and Computer Engineering Advisor: Prof. Sangheon Pack	Feb 2023
Korea University, Seoul, Korea Bachelor of Science, Electrical Engineering	Feb 2021

Publications

- [1] **A Call for Decentralized Satellite Networks** 
[Seoyul Oh](#), Deepak Vasisht
ACM Workshop on Hot Topics in Networks HotNets 2024
- [2] **EcoCell: Energy-aware Traffic Shaping for Cellular Radio Access Networks** [Poster version](#) 
Zikun Liu, [Seoyul Oh](#), Bill Tao, Anuj Kalia, Yaxiong Xie, Deepak Vasisht
Under Review at Mobicom 2025 Under Review
- [3] **(Poster) BACKWARD: A Victim-Centric DDoS Detection and Mitigation Scheme in Programmable Data Plane** 
[Seoyul Oh](#), Sol Han, Hochan Lee, Sangheon Pack
IEEE Consumer Communications & Networking Conference CCNC 2023
- [4] **Holistic Orchestration for Edge-Native Applications: A Review** 
Taeyun Kim, [Seoyul Oh](#), Inho Cha, Seunghyun Lee, Haneul Ko, Sangheon Pack
IEEE International Conference on Information and Communication Technology Convergence ICTC 2022

Research Experience

Wonderful Wireless Lab, University of Illinois Urbana-Champaign IL, USA <i>Research Assistant</i>	Sep 2023 - Current
Project: Decentralized Satellite Networking <ul style="list-style-type: none">Proposed MP-LEO, a decentralized satellite network where participants share spare satellite capacity ensuring robust coverage without needing independent large constellations [1]	
Project: Energy-Aware Cellular Networking <ul style="list-style-type: none">Developed EcoCell, a software-only middlebox solution that reduces base station energy consumption through traffic shaping techniques like subframe packing, UE segregation, and temporal traffic shifting [2]Validated EcoCell across applications, achieving energy savings with minimal impact on user experience	
Mobile System, Security and Networking Lab, Purdue University West Lafayette, IN, USA <i>Visiting Graduate Researcher</i> (Advisor: Prof. Chunyi Peng)	Aug 2022 - Feb 2023
Project: Better Mobility Support in 5G Cellular Networks <ul style="list-style-type: none">Proposed a low-latency video delivery scheme for 5G cellular-connected dronesMeasured 5G performance in the sky through real-world experiments	

Research Assistant

Project: Network Security Utilizing Programmable Data Planes

- Led research on a P4-based victim centric DDoS detection and mitigation scheme [3]

Project: Development of an Open-source-based Edge Cloud Service Platform Prototype

- Analyzed future edge cloud service platform requirements
- Proposed a framework that performs holistic orchestration in edge cloud environments [4]

Honors and Awards

International R&D Program Grant for Graduate Students in Science & Technology Ministry of Science and ICT, Korea
(12,580 USD) Jun 2022 - Feb 2023

Merit-based Scholarship School of Electrical Engineering, Korea University Spring 2020

Semester High Honors School of Electrical Engineering, Korea University 2020, 2019, 2017

Teaching Experience

EGRN322: Technology Trends for Establishing and Managing Business Korea University Fall 2021
Teaching Assistant

KECE370: Digital Signal Processing, Korea University Korea University Fall 2021
Korea University Center for Teaching and Learning (KUCTL) Tutor
Best Tutor Award & Best Team Award

References

- Prof. Deepak Vasisht Assistant Professor in Computer Science at UIUC [📧]
- Prof. Chunyi Peng Associate Professor in Computer Science at Purdue University [📧]
- Prof. Sangheon Pack Professor in Electrical Engineering at Korea University [📧]