

Seoyul Oh

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

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Interests

My research focuses on advancing the efficiency, reliability, and safety of networked systems through the application of game-theoretic models and practical machine learning techniques.

Education

University of Illinois Urbana-Champaign, IL, USA

Sep 2023 - Current

Doctor of Philosophy, Computer Science

Advisor: [Prof. Francis Y. Yan](#) & [Prof. Deepak Vasisht](#)

GPA: 4.0 / 4.0

Korea University, Seoul, Korea

Feb 2023

Master of Science, Electrical and Computer Engineering

Advisor: [Prof. Sangheon Pack](#)

GPA: 4.5 / 4.5

Korea University, Seoul, Korea

Feb 2021

Bachelor of Science, Electrical Engineering

GPA: 4.04 / 4.5

Publications

- [1] **A Call for Decentralized Satellite Networks** 📄
[Seoyul Oh](#), Deepak Vasisht
ACM Workshop on Hot Topics in Networks HotNets 2024
- [2] **OrbitShare: A Multi-party Architecture for Decentralized LEO Satellite Networks** 📄
[Seoyul Oh](#), Bill Tao, Shreya Kannan, Deepak Vasisht
Under Review at NSDI 2026 Under Review
- [3] **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 SIGCOMM 2025 Under Review
- [4] **An Efficient Winner and Payment Determination Algorithm in Reverse Auction for Edge Federation** 📄
Taeyun Kim, Joonwoo Kim, Hochan Lee, [Seoyul Oh](#), Sangheon Pack
IEEE Transactions on Network and Service Management IEEE TNSM
- [5] **(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
- [6] **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

Illinois Networked Systems and AI (INSAI) Lab, University of Illinois Urbana-Champaign	IL, USA	Jan 2025 - Current
Research Assistant		
Project: Safe Network Policies		
<ul style="list-style-type: none">Conducting research on developing safe network control policies using RL, with a focus on ensuring stability and robustness in dynamic network environments		
Wonderful Wireless Lab, University of Illinois Urbana-Champaign	IL, USA	Sep 2023 - Current
Research Assistant		
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] [2]		
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 [3]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	Aug 2022 - Feb 2023
Visiting Graduate Researcher (Advisor: Prof. Chunyi Peng)		
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		
Mobile Network and Communications Lab, Korea University	Seoul, South Korea	Mar 2021 - Jul 2022
Research Assistant		
Project: Network Security Utilizing Programmable Data Planes		
<ul style="list-style-type: none">Led research on a P4-based victim centric DDoS detection and mitigation scheme [5]		
Project: Development of an Open-source-based Edge Cloud Service Platform Prototype		
<ul style="list-style-type: none">Analyzed future edge cloud service platform requirementsProposed a framework that performs holistic orchestration in edge cloud environments [4] [6]		

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

CS538: Advanced Computer Networks	University of Illinois, Urbana-Champaign	Spring 2025
Teaching Assistant (Instructor: Francis Yan)		
EGRN322: Technology Trends for Establishing and Managing Business	Korea University	Fall 2021
Teaching Assistant (Instructor: Sangheon Pack)		
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. Francis Y. Yan Assistant Professor in Computer Science at UIUC [📧]
• 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 [📧]