

# HOJEONG LEE

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1205 University Ave, Madison, WI 53706, USA

## EDUCATION

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### University of Wisconsin–Madison

Ph.D. in Department of Computer Sciences

Sep 2025 - Present

*Madison, WI, USA*

### Korea University

M.S. in Department of Computer Science and Engineering

Emphasis on Artificial Intelligence Applications

Mar 2022 - Aug 2025

*Seoul, Korea*

### Korea University

B.E. in Department of Computer Science and Engineering

Mar 2016 - Feb 2022

*Seoul, Korea*

## EXPERIENCE

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### Internet Systems Lab, University of Colorado Boulder

Visiting Scholar, advised by Prof. Sangtae Ha and Prof. Seyeon Kim

Fully funded by Korea University

Mar 2024 - Mar 2025

*Boulder, CO, USA*

### Carnegie Mellon University

Collaborating Visitor, AI-Related Project-Focused Intensive Program

Selected on merit-basis in national competition process

Fully funded by Korean Government

Aug 2022 - Feb 2023

*Pittsburgh, PA, USA*

### Wireless Data Communications Lab, Korea University

Undergraduate Research Intern, advised by Prof. Hyogon Kim

Jun 2021 - Feb 2022

*Seoul, Korea*

### NAVER Corp.

Coach, Boost Course PY4E (Python Programming) and Harvard CS50

Selected as an Excellent Coach in PY4E

Jan 2021 - Aug 2021

*Seoul, Korea*

## RESEARCH INTERESTS

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### Network Systems

Volumetric video streaming [14], augmented reality, virtual reality, (live) video streaming

Skills: Python, C++, Open3D, Draco, PCL, FFmpeg, Intel Realsense SDK

### Wireless Networks

LTE, 5G, 6G, vehicle-to-everything (V2X) communications [1-3, 5, 7-13], satellite communications [6]

Skills: 3GPP & SAE standards, Matlab (LTEV2Vsim), Python, C++

### Artificial Intelligence

Deep learning [1, 2, 4, 5], reinforcement learning [8, 11]

Skills: Python, PyTorch, TensorFlow, CUDA, Docker, NumPy

## PUBLICATIONS

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14. **Hojeong Lee**, Yu Hong Kim, Sangwoo Ryu, James Won-Ki Hong, Sangtae Ha, and Seyeon Kim. DeltaStream: 2D-Inferred Delta Encoding for Live Volumetric Video Streaming. ACM International Conference on Mobile Systems, Applications, and Services (MobiSys), Anaheim, California, USA, 2025.
13. **Hojeong Lee**, Seungmo Kang, and Hyogon Kim. Causality-sensitive scheduling to reduce latency in vehicle-to-vehicle interactions. *Sensors*, 24 (22), 2024.
12. Seungmo Kang, **Hojeong Lee**, and Hyogon Kim. Mitigating Latency Inflation in V2C Transactions Using Periodic Sidelink Communication. IEEE Vehicular Networking Conference (VNC), Kobe, Japan, 2024.

11. **Hojeong Lee**, Chanwoo Kim, Eugene Yang, and Hyogon Kim. Distributed Joint Congestion Control for V2X Using Multi-agent Reinforcement Learning. IEEE International Conference on Machine Learning for Communication and Networking (ICMLCN), Stockholm, Sweden, 2024.
10. **Hojeong Lee** and Hyogon Kim. Improving One-Shot Transmission in NR Sidelink Resource Allocation for V2X Communication. arXiv preprint arXiv:2312.15914, 2023.
9. **Hojeong Lee** and Hyogon Kim. Rethinking Transmit Power Control for SAE J3161/1 Congestion Control Algorithm. IEEE Vehicular Technology Conference (VTC2023-Fall), Hong Kong, 2023.
8. Yeomyung Yoon, **Hojeong Lee**, and Hyogon Kim. Deep reinforcement learning-based dual-mode congestion control for cellular V2X environments. *Electronics Letters*, 59 (20), 2023.
7. Kyeongnam Park, **Hojeong Lee**, and Hyogon Kim. Speed-Aware V2X Congestion Control. IEEE Vehicular Technology Conference (VTC2023-Fall), Hong Kong, 2023.
6. Kyeongnam Park, Kyungha Kim, Hyungjoon Shin, **Hojeong Lee**, and Hyogon Kim. Strategically Positioning On-Board PEPs in LEO-based NTN for TCP Throughput Improvement. IEEE Vehicular Technology Conference (VTC2023-Fall), Hong Kong, 2023.
5. Hyeonji Seon, **Hojeong Lee**, and Hyogon Kim. Predicting CAM generation times through machine learning for cellular V2X communication. *ICT Express*, 9 (5), 2023.
4. Joseph Konan, Ojas Bhargave, Shikhar Agnihotri, **Hojeong Lee**, Ankit Shah, Shuo Han, Yunyang Zeng, Amanda Shu, Haohui Liu, Xuankai Chang, Hamza Khalid, Minseon Gwak, Kawon Lee, Minjeong Kim, and Bhiksha Raj. Improving Perceptual Quality, Intelligibility, and Acoustics on VoIP Platforms. arXiv preprint arXiv:2303.09048, 2023.
3. Hyeonji Seon, **Hojeong Lee**, and Hyogon Kim. Packet Delivery Impact of Predictive Resource Allocation for Quasi-Periodic Cellular V2X Communication. IEEE Vehicular Technology Conference (VTC2023-Spring), Florence, Italy, 2023.
2. Jonghwan Na, **Hojeong Lee**, and Hyogon Kim. Inferring Human Driver Intent in Partial Deployment of Connected Autonomous Vehicles: the Lane Change Case. IEEE Vehicular Technology Conference (VTC2023-Spring), Florence, Italy, 2023.
1. Hyeonji Seon, **Hojeong Lee**, and Hyogon Kim. Predicting CAM generation times through machine learning for cellular V2X communication (written in Korean). Annual Spring Conference of Korea Information Processing Society (ASK), Seoul, Korea, 2022. (**Outstanding Paper Award**)

## PROJECTS

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### Carnegie Mellon University

- **Speech Enhancement for Virtual Meetings on Cellular Networks** [arXiv] Sep 2022 - Mar 2023  
Introduction to Deep Learning, instructed by Prof. Bhiksha Raj
- **Natural Language Processing Enabled Edge Device** [GitHub] Dec 2022 - Feb 2023
- **Multi-Agent Reinforcement Learning based Distributed Joint Congestion Control for V2X Communication** Sep 2022 - Dec 2022  
Advanced Topics in Machine Learning and Game Theory, instructed by Prof. Fei Fang  
Project leader, published in IEEE ICMLCN 2024 [11]
- **Adaptive Subtitle Allocation with Speaker Separation** [GitHub] Sep 2022 - Dec 2022  
Large-Scale Multimedia Analysis, instructed by Prof. Alex Hauptmann and Prof. Rita Singh

### Korea Automotive Technology Institute

- **A New V2N Communication Structure for Accident Risk Alert Service** May 2023 - Sep 2023  
Project Leader, Autonomous Vehicle Pedestrian Collision Prevention and Injury Reduction Technology  
Government Project-Based Learning (gPBL)

### National Research Foundation of Korea (NRF)

## AWARDS & GRANTS

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### **Teaching Assistant, University of Wisconsin–Madison**

Foundations of Mobile Systems and Applications, Fall 2025

### **Scholarships for Internationalization, Korea University**

Fall 2024

### **Conference Student Travel Grants**

IEEE ICMLCN 2024, IEEE VTC2023-Fall

### **Research Assistant, Korea University**

Fall 2023

### **Teaching Assistant, Korea University**

Internet Protocol, Spring 2023

Computer Network, Spring 2022

### **Department of CSE Merit Based Scholarship, Korea University**

Fall 2021, Spring 2021, Fall 2020

### **Korean Government Scholarship**

Fall 2021, Spring 2021, Fall 2020, Fall 2016

## EXTRACURRICULAR ACTIVITIES

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### **Software Education Volunteer, Korea University**

Aug 2020 - Dec 2020

Software camp instructor and mentor for middle and high school students

Software-related educational video production and Arduino project coaching

### **Military Service, Republic of Korea Army**

Jul 2018 - Mar 2020

Division Commander's Award, 3rd Place, Division Combat Mission-Focused Physical Training Competition

### **Overwatch Professional Gamer, Team LW Red**

Jan 2017 - Dec 2017

Runner-up, Overwatch National University Tournament Season 2 (150+ teams participated)

Sep 2017

Winner, Overwatch APEX Challengers Season 3

Jul 2017