HOJEONG LEE

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1111 Engineering Dr, Boulder, CO 80309, U.S.

EDUCATION

Korea University — Mar 2022 - Present
M.S. in Department of Computer Science and Engineering — *Seoul, Korea*
Emphasis on Artificial Intelligence Applications
Major GPA 4.5/4.5, Overall GPA 4.5/4.5

Korea University — Mar 2016 - Feb 2022
B.E. in Department of Computer Science and Engineering — *Seoul, Korea*
Major GPA 4.02/4.5, Overall GPA 3.66/4.5

EXPERIENCE

Internet Systems Lab, University of Colorado Boulder — Mar 2024 - Present
Visiting Scholar, advised by Prof. Sangtae Ha and Dr. Seyeon Kim — *Boulder, CO, U.S.*
Fully funded by Korea University ($22,140)

Carnegie Mellon University — Aug 2022 - Feb 2023
Collaborating Visitor, AI-Related Project-Focused Intensive Program — *Pittsburgh, PA, U.S.*
Selected on merit-basis in national competition process
Fully funded by Korean Government ($18,282)

Wireless Data Communications Lab, Korea University — Jun 2021 - Feb 2022
Undergraduate Research Intern, advised by Prof. Hyogon Kim — *Seoul, Korea*

NAVER — Jul 2021 - Aug 2021
Coach, Boost Course PY4E (Python Programming) — *Seoul, Korea*
Selected as an Excellent Coach

NAVER — Jan 2021 - Feb 2021
Coach, Boost Course Harvard CS50 — *Seoul, Korea*

RESEARCH INTERESTS

Network Systems
Volumetric video streaming, augmented reality, virtual reality
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

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. Hyeongji 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 (in Korean). Annual Spring Conference of Korea Information Processing Society (ASK), Seoul, Korea, 2022. **(Outstanding Paper Award)**

PROJECTS

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
  Academic project, with Joseph Konan
- **Natural Language Processing (NLP) Enabled Edge Device (NEED)** [GitHub] Dec 2022 - Feb 2023
  Mentored by Clifford C. Huff
- **Multi-Agent Reinforcement Learning based Distributed Congestion Joint Control for V2X Communication** Sep 2022 - Dec 2022
  Advanced Topics in Machine Learning and Game Theory, instructed by Prof. Fei Fang
  Project leader, academic project, 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
  Academic project

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)

- **Efficient Communication for Expansion of Situation Awareness of Autonomous Vehicles** Jul 2021 - Aug 2022

AWARDS & GRANTS

IEEE Communications Society (ComSoc) Student Travel Grant May 2024
ICMLCN 2024 ($700) *Stockholm, Sweden*

IEEE Vehicular Technology Society (VTS) Student Travel Grant Oct 2023
VTC2023-Fall ($1,000) *Hong Kong*

Research Assistant
Fall 2023 ($5,000)

Teaching Assistant
Internet Protocol, Spring 2023 ($1,600)
Computer Network, Spring 2022 ($5,000)

Korea University Department of CSE Merit Based Scholarship
Fall 2021 ($2,000), Spring 2021 ($2,000), Fall 2020 ($2,000)

Korean Government Scholarship
Fall 2021 ($1,400), Spring 2021 ($1,200), Fall 2020 ($1,400), Fall 2016 ($3,200)

EXTRACURRICULAR ACTIVITIES

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