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# Jeho Lee

Ph.D. Candidate (expected graduation: Dec 2026)
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## Research Interests

- **On-Device AI**
- **Mobile and Embedded Systems**

## Education

**Yonsei University, Seoul, Korea** Mar 2020 – Present
Ph.D. Candidate in Computer Science (Advisor: Hojung Cha)

**Ajou University, Suwon, Korea** Mar 2015 – Feb 2020
B.S. in Computer Engineering GPA: 4.0/4.5

## Publications

10. ARIA: Optimizing Vision Foundation Model Inference on Heterogeneous Mobile Processors for Augmented Reality
**Jeho Lee***, Chanyoung Jung*, Gunjoong Kim, Jiwon Kim, Seonghoon Park, Hojung Cha
ACM International Conference on Mobile Systems, Applications and Services (**MobiSys 2025**)
**Best Paper Award**

9. Towards Accurate, Adaptive, and Real-time Machine Perception on Resource-constrained Platforms
**Jeho Lee**
ACM International Conference on Mobile Systems, Applications and Services (**MobiSys 2025 Rising Star**)

8. Panopticus: Omnidirectional 3D Object Detection on Resource-constrained Edge Devices
**Jeho Lee**, Chanyoung Jung, Jiwon Kim, Hojung Cha
ACM International Conference on Mobile Computing and Networking (**MobiCom 2024**)

7. MAUI: Enhancing Assistive Web Interaction through GUI Abstraction
**Jeho Lee**, Seonghoon Park, Yoonha Cha, Hojung Cha
Under Review, IEEE Transactions on Human-Machine Systems (**THMS**)

6. Ember: Task Wakeup Sequence–Based Energy Optimization for Mobile Web Browsing
Seonghoon Park, Jiwon Kim, **Jeho Lee**, Hojung Cha
ACM SIGBED International Conference on Embedded Software (**EMSOFT 2025**)

5. SecureRide: Detecting Safety-threatening Behavior of E-Scooters Using Battery Information
Jiwon Kim, Geon Kim, **Jeho Lee**, Thiemo Voigt, Hojung Cha
ACM SIGBED International Conference on Embedded Software (**EMSOFT 2025**)

4. Poster: Mixture of Class-aware Experts for Efficient AIoT Inference
Hyemin Jeong, **Jeho Lee**, Seunghyeok Jeon, Hojung Cha
ACM International Conference on Mobile Systems, Applications and Services (**MobiSys 2025 Poster**)

3. Vulture: Cross-Device Web Experience with Fine-Grained Graphical User Interface Distribution
Seonghoon Park, **Jeho Lee**, Yonghun Choi, Hojung Cha
IEEE Conference on Computer Communications (**INFOCOM 2024**)

2. OmniLive: Super-Resolution Enhanced 360° Video Live Streaming for Mobile Devices
Seonghoon Park, Yeonwoo Cho, Hyungchol Jun, **Jeho Lee**, Hojung Cha
ACM International Conference on Mobile Systems, Applications and Services (**MobiSys 2023**)

1. Crow API: Cross-device I/O Sharing in Web Applications
Seonghoon Park, **Jeho Lee**, Hojung Cha
IEEE Conference on Computer Communications (**INFOCOM 2023**)

## Projects

**Development of On-device DNN Inference System for Real-time 3D Perception with Mobile 360-degree Camera**
National Research Foundation of Korea (NRF) May 2024 – Present

- Designed a BEV (bird's-eye-view) 3D object detection system that dynamically selects optimal inference paths per camera view, achieving 2.1× latency reduction and 62% higher accuracy under 33 ms real-time constraints on NVIDIA Jetson devices, implemented with PyTorch, TensorRT, and CUDA (MobiCom '24)
- Built a mobile 3D perception testbed with 360-degree camera, LiDAR, and IMU sensors; created a nuScenes-compatible dataset across urban scenes, including sensor synchronization, calibration, and annotation: `github.com/jeho-lee/Panoptic3D`
- Initiated and led the project as a primary student researcher; secured $540 K in national funding by designing a 3-year research plan and leading a team of 10 graduate students

**Task Relation Graph Prediction based on RNN**
Samsung Electronics, Republic of Korea Mar 2023 – Feb 2024

## Awards and Honors

**Best Paper Award, ACM MobiSys 2025**

**SIGMOBILE Student Travel Grant, ACM MobiSys 2025**

**Rising Star, ACM MobiSys 2025**

## Patents

3. I/O Sharing Device and Method
Seonghoon Park, **Jeho Lee**, and Hojung Cha
Patent No. 10-2823808 (Republic of Korea; granted Jun. 18, 2025)

2. Method for Omnidirectional 3D Object Detection, Program Performing the Method, and Computing Device Executing the Program
**Jeho Lee**, Chanyoung Jung, Seonghoon Park, Hyungchol Jun, and Hojung Cha
Patent Pending, Patent Application No. 10-2024-0120347 (Republic of Korea; filed Sep. 04, 2024)

1. System and Operating Method for Cross-Device Experiences using In-Browser Virtual Proxy
Seonghoon Park, **Jeho Lee**, and Hojung Cha
Patent Pending, Patent Application No. 10-2024-0112156 (Republic of Korea; filed Aug. 21, 2024)

## Skills

**Programming**: Python, C/C++, Java, JavaScript
**Languages**: English (Professional Working), Korean (Native)
**Frameworks**: Android, Qualcomm Neural Processing SDK (QNN), TensorRT, PyTorch, TensorFlow Lite, MMDetection3D, ROS, Node.js
**Hardware Platforms**: Qualcomm Snapdragon SoCs, NVIDIA Jetson SoCs

## Experience

**CSIRO, Pulenvale, Australia** Summer 2019
Undergraduate Research Intern – Data61 Robotics and Autonomous Systems Group

- Developed a real-time fish detection system using TensorFlow to monitor coral trout in fish tanks
- Trained and evaluated Faster R-CNN and SSD MobileNet models on a custom-labeled dataset; optimized configurations to reduce overfitting and improve mAP

## Teaching Experience

**Guest Lecturer, Yonsei University** Spring 2024
On-Device Intelligence for 3D Perception: Challenges and Innovations

**Teaching Assistant, Yonsei University** Spring 2023
Operating Systems (CSI3101)

**Teaching Assistant, Yonsei University** Fall 2022
Introduction to Computer Science (CSI2106)

## Mentoring Experience

**Dasol Yoon**, Master student at Yonsei Univ., working on an on-device AI project 2025 – Present

**Jaehee Kim**, Master student at Yonsei Univ., working on an on-device AI project 2025 – Present

**Hyemin Jeong**, Master student at Yonsei Univ., a MobiSys 2025 poster 2025 – Present

**Gunjoong Kim**, Master student at Yonsei Univ., a MobiSys 2025 paper 2024 – Present

**Chanyoung Jung**, Master student at Yonsei Univ., a MobiSys 2025 paper 2024 – Present

**Chanyoung Jung**, Undergraduate student at Yonsei Univ., a MobiCom 2024 paper 2022 – 2023

**Software Capstone Design**, Yonsei Univ. Spring 2021, Fall 2021, Spring 2022, Spring 2023, Fall 2023

## Academic Services

**Student Volunteer**, MobiSys 2024