Jeho Lee

Ph.D. Candidate
Department of Computer Science and Engineering, Yonsei University
Seoul, Republic of Korea

jeho-lee.github.io linkedin.com/in/jeho-lee jeholee@yonsei.ac.kr

Research Interests

- **Efficient On-Device Vision AI**
  AI-system co-design for real-time perception under hardware resource constraints
- **Mobile and Edge Computing Systems**
  Heterogeneous computing on mobile SoCs, ML inference dataflow scheduling and optimization

Education

Yonsei University, Seoul, Korea Mar 2020 – Present
Ph.D. Student 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

Conference and Journal Publications (*Co-first authors)

6. ARIA: Optimizing Vision Foundation Model Inference on Heterogeneous Mobile Processors for Augmented Reality
   Chanyoung Jung*, **Jeho Lee***, Gunjoong Kim, Jiwon Kim, Seonghoon Park, Hojung Cha
   ACM International Conference on Mobile Systems, Applications and Services (MobiSys 2025)
5. 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)
4. 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)
3. 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)
2. Crow API: Cross-device I/O Sharing in Web Applications
   Seonghoon Park, **Jeho Lee**, Hojung Cha
   IEEE Conference on Computer Communications (INFOCOM 2023)
1. 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)

Other Publications

2. 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)

1. 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)

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 Panopticus, a BEV-based 3D object detection system that dynamically selects optimal inference paths per camera view, achieving 2.1× latency reduction and 62% higher accuracy under 33ms real-time constraints on Jetson edge devices (MobiCom '24), implemented with PyTorch/TensorRT, CUDA multi-streaming.
- Built a mobile 360° perception testbed with camera, LiDAR, and IMU sensors; developed a custom dataset across urban/street scenes with precise synchronization, calibration, and annotation. `github.com/jeho-lee/Panoptic3D`
- Initiated and led the project proposal, defining its core objective and system architecture to address real-time 360° perception on edge platforms.

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

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.

Skills

Programming: Python, C/C++, Java, JavaScript
Languages: English (Professional Working), Korean (Native)
Frameworks: Android, QNN, TensorRT, PyTorch, MMDetection3D, ROS, Node.js

Awards and Honors

SIGMOBILE Student Travel Grant, ACM MobiSys 2025

Rising Star, ACM MobiSys 2025

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

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