

Jaewoo Jung

AI/ML Engineer

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Education

- Yonsei University**, Ph.D Candidate in Electrical and Electronics Engineering – Seoul, South Korea Mar 2020 – present
 - Advisor: Prof. Seung Ah Lee
- Yonsei University**, B.S. in Electrical and Electronics Engineering – Seoul, South Korea Mar 2015 – Feb 2020
- Changwon Science High School**, in Chemistry – Changwon, South Korea Mar 2013 – Feb 2015
 - Early Graduated

Experience

- Research Engineer**, Seoul National University – Seoul, South Korea July 2025 – present

Imaging intelligence Laboratory, supervised by Prof. Seung Ah Lee

 - Researched deep learning-based research on lensless image reconstruction
 - Oversaw GPU server operation, maintenance, and resource management
- Research Engineer**, LUXROBO Co., Ltd. – Seoul, South Korea July 2023 – June 2025

MODI Factory

 - Designed and developed AI models for automated PCB component placement and routing
 - Built backend systems in Golang for AI-driven EDA workflows
 - Deployed and validated AI model serving pipelines
 - Implemented LLM-based systems for intelligent electronic component categorization and recommendation
 - Constructed structured databases for electronic component management
- Graduate Research Assistant**, Yonsei University – Seoul, South Korea Mar 2020 – Aug 2023

Optical Imaging Laboratory, supervised by Prof. Seung Ah Lee

 - Researched deep learning-based research on lensless image reconstruction
 - Researched lensless holographic microscopy and image reconstruction methods
 - Oversaw GPU server operation, maintenance, and resource management
- Internship**, Yonsei University – Seoul, South Korea Jan 2019 – Mar 2020

Optical Imaging Laboratory, supervised by Prof. Seung Ah Lee

 - Researched lensless holographic microscopy and image reconstruction methods
 - Researched human-biological interactions
- Co-Founder & Engineer**, Toky – Seoul, South Korea July 2019 – Feb 2020

Tabletop voice-controlled kiosk

 - Developed and optimized embedded firmware for voice recognition systems
 - Fine-tuned speech recognition models for on-device inference

Internship, Yonsei University – Seoul, South Korea

Aug 2016 – Dec 2018

Biological Cybernetics Laboratory, supervised by Prof. Dae Eun Kim

- Researched swarm robotics using vibration-based locomotion robots
- Designed and fabricated experimental robotic hardware
- Developed ESP32-based firmware for robot control and communication(Wi-Fi, BLE)
- Implemented over-the-air (OTA) update systems for robot firmware updates

Research Engineer, LUXROBO Co., Ltd. – Seoul, South Korea

Mar 2017 – Dec 2017

Embedded Firmware Development

- Developed ESP32-based firmware for MODI network modules
- Architected Wi-Fi and BLE protocol stacks for modular devices
- Designed and validated a Bluetooth 5 mesh networking prototype
- Conducted RTOS performance and reliability testing using Contiki OS

Skills

Languages: Python, C/C++, Go, MATLAB

ML Frameworks: PyTorch

Tools: Docker, Git, EasyEDA, SketchUp

Languages: Korean (Native), English (Fluent)

Peer-reviewed Publications

Rolling shutter speckle plethysmography for quantitative cardiovascular monitoring 2024

Y. Lee, S. Byun, C. Yi, *J. Jung*, S. A. Lee

[10.1364/BOE.511755](https://doi.org/10.1364/BOE.511755) (Biomedical Optics Express)

High-resolution display screen as programmable illumination for Fourier ptychography 2024

K. Lee, K. C. Lee, *J. Jung*, H. Chae, S. A. Lee

[10.1016/j.optlaseng.2024.108121](https://doi.org/10.1016/j.optlaseng.2024.108121) (Optics and Lasers in Engineering)

Design and single-shot fabrication of lensless cameras with arbitrary point spread functions 2023

K. C. Lee, J. Bae, N. Baek, *J. Jung*, W. Park, S. A. Lee

[10.1364/OPTICA.466072](https://doi.org/10.1364/OPTICA.466072) (Optica)

Single-shot temporal speckle correlation imaging using rolling shutter image sensors 2022

C. Yi, *J. Jung*, J. Im, K. C. Lee, E. Chung, S. A. Lee

[10.1364/OPTICA.465361](https://doi.org/10.1364/OPTICA.465361) (Optica)

Lensless polarization camera for single-shot full-stokes imaging 2022

N. Baek, Y. Lee, T. Kim, *J. Jung*, S. A. Lee

[10.1063/5.0120465](https://doi.org/10.1063/5.0120465) (APL Photonics)

Fabrication of integrated lensless cameras via uv-imprint lithography 2022

Y. Lee, H. Chae, K. C. Lee, N. Baek, T. Kim, *J. Jung*, S. A. Lee

[10.1109/JPHOT.2022.3157373](https://doi.org/10.1109/JPHOT.2022.3157373) (IEEE Photonics Journal)

A smartphone based fourier ptychographic microscope using the display screen for illumination 2021

K. C. Lee, K. Lee, *J. Jung*, S. H. Lee, D. Kim, S. A. Lee

[10.1021/acsp Photonics.1c00350](https://doi.org/10.1021/acsp Photonics.1c00350) (ACS Photonics)

Patents

1. Apparatus and method for manufacturing phase masks for lens-less camera (US Patent 12,343,954)
2. Methods for manufacturing phase masks and lens-less camera module (US Patent 12,108,134)
3. Apparatus and method for measuring eye movement (US Patent 12,062,190)
4. Smartphone for obtaining Fourier ptychography image and method for obtaining Fourier ptychography image using smartphone (US Patent 11,880,965)

Conference Presentations(Selected)

Multi-view Lensless Imaging using 3D Gaussian Splatting <i>J. Jung</i> , D. Bae, K. C. Lee, S. A. Lee (Poster, Advanced Biophotonics Conference, SPIE)	2025
Jointly Optimized Lensless Imaging System with Trainable Phase Mask for Task-specific Imaging <i>J. Jung</i> , Y. Lee, S. A. Lee (Poster, Advanced Biophotonics Conference, OSK)	2022
Jointly Optimized Lensless Imaging System with Trainable Phase Mask for Task-specific Imaging <i>J. Jung</i> , Y. Lee, S. A. Lee (Oral, IEEE Region 10 Conference, IEEE/IEIE)	2022
EuglPollock: Rethinking Interspecies Collaboration through Art Making K. Lee, Y. Jang, <i>J. Jung</i> , D. H. Kim, H. J. Lee, S. A. Lee (Oral, 30th ACM International Conference on Multimedia, ACM MM)	2022
Deep Learning Approaches for Image Reconstruction in Lensless Cameras <i>J. Jung</i> , D. Bae, K. C. Lee, N. Baek, T. Kim, E. K. Ryu, S. A. Lee (Poster, Gordon Research Conference Image Science, GRC)	2022
Image Reconstruction in Lensless Cameras with Unrolled Optimization Algorithms <i>J. Jung</i> , T. Kim, D. Bae, E. K. Ryu, S. A. Lee (Oral, ICCE-ASIA, IEEE/IEIE)	2021
MicroAquarium: An immersive and interactive installation with living microorganisms K. Lee, <i>J. Jung</i> , S. A. Lee (Extended Abstracts(Demo), CHI, ACM)	2020
Swarm Robots Using Vibration Motor Control M. Kim, <i>J. Jung</i> , D. E. Kim (Oral, ICROS, ICROS)	2018

Honors & Awards

- Best Poster Awards, Advanced Biophotonics Conference, SPIE (2025)
- Best Poster Awards, Advanced Biophotonics Conference, Optical Society of Korea (2022)
- Silver Awards, 28th Samsung Humantech Paper Awards, Samsung Electronics (2022)
- Grants, Undergraduate Research Program, KOFAC (2019)
- 4th Awards, International Student Car Competition, KTSA (2019)
- 2nd Awards, International Student Car Competition, KTSA (2018)
- 1st Awards, Embedded Software Contest, KESSIA (2013)
- 1st Awards, R&E Festival, KOSAF (2013)

Teaching & Services

- Introduction To Bioengineering For EE, teaching assistant with Prof. Seung Ah Lee (Spring 2023)
- Introduction To Bioengineering For EE, teaching assistant with Prof. Seung Ah Lee (Spring 2021)
- Analog Electronics Lab., teaching assistant with Prof. Seung Ah Lee (Fall 2020)

Projects

Arxiv Monitoring Bot	2025
Dev Environment	2024
Various Swarm Behavior Inspired by Nature using Vibration Locomotion Robots	2018
Core-XY Autonomous Chess Board	2019
Localization using Multiple Gyroscope	2018
Autonomous Driving Cart	2017, 2018
Autonomous Driving Model Car	2016, 2017
Humanoid (KHR-1)	2016
LED cube (8×8×8)	2016
Robot Soccer	2016
Unmanned Aerial Vehicle (Quadcopter)	2016
Guitar Effect Pedal	2016
Smartphone Application for Chemistry Experiment	2014
Minesweeper Robot using LEGO Mindstorm	2013
Develop Filters made from ESM's Toxic substances Absorptive Ability	2013

Extracurricular Activities

President , SBTM (Robotics Club in Yonsei University)	Jan 2017 – Dec 2017
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