Jaewoo Jung

AI/ML Engineer

 Seoul, South Korea   dev@lukael.kr   lukael.kr   lukael   Lukael   Google Scholar

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 (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 (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 (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 (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 (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 (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/acsphotonics.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   2025
J. Jung, D. Bae, K. C. Lee, S. A. Lee
(Poster, Advanced Biophotonics Conference, SPIE)

Jointly Optimized Lensless Imaging System with Trainable Phase Mask for Task-specific Imaging   2022
J. Jung, Y. Lee, S. A. Lee
(Poster, Advanced Biophotonics Conference, OSK)

Jointly Optimized Lensless Imaging System with Trainable Phase Mask for Task-specific Imaging   2022
J. Jung, Y. Lee, S. A. Lee
(Oral, IEEE Region 10 Conference, IEEE/IEIE)

EuglPollock: Rethinking Interspecies Collaboration through Art Making   2022
K. Lee, Y. Jang, *J. Jung*, D. H. Kim, H. J. Lee, S. A. Lee
(Oral, 30th ACM International Conference on Multimedia, ACMMM)

Deep Learning Approaches for Image Reconstruction in Lensless Cameras   2022
J. Jung, D. Bae, K. C. Lee, N. Baek, T. Kim, E. K. Ryu, S. A. Lee
(Poster, Gorden Research Conference Image Science, GRC)

Image Reconstruction in Lensless Cameras with Unrolled Optimization Algorithms   2021
J. Jung, T. Kim, D. Bae, E. K. Ryu, S. A. Lee
(Oral, ICCE-ASIA, IEEE/IEIE)

MicroAquarium: An immersive and interactive installation with living microorganisms   2020
K. Lee, *J. Jung*, S. A. Lee
(Extended Abstracts(Demo), CHI, ACM)

Swarm Robots Using Vibration Motor Control   2018
M. Kim, *J. Jung*, D. E. Kim
(Oral, ICROS, ICROS)

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   2018
Robots

Core-XY Autonomous Chess Board   2019

Localization using Multiple Gyroscope   2018

Autonomous Driving Cart   2017, 2018

Autonomous Driving Model Car   2016, 2017

Humanoid   2016
(KHR-1)

LED cube   2016
(8×8×8)

Robot Soccer   2016

Unmanned Aerial Vehicle (Quadcopter)   2016

Guitar Effect Pedal   2016
- Replicated and analyzed analog circuits used in bass guitar effects
- Designed and fabricated a guitar effect pedal

Smartphone Application for Chemistry Experiment   2014
- Designed electronic circuits for measurement probe development
- Developed a smartphone application for measurement data acquisition

Minesweeper Robot using LEGO Mindstorm   2013
- Developed line-following robot algorithms using RobotC
- Designed and integrated robotic hardware modules for payload deployment

Develop Filters made from ESM's Toxic substances Absorptive Ability   2013
- Developed air purifier filters made from ESM's toxic substances absorptive ability
- Analyzed airborne pollutants using UV–Vis spectroscopy

Extracurricular Activities

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