

## Jongpil Jeong

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## EDUCATION

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**Kyushu Institute of Technology**, Iizuka, Fukuoka, Japan Apr. 2024 — Mar. 2026 (Expected)  
Master of Engineering in Graduate School of Computer Science and Systems Engineering  
Department of Creative Informatics Cumulative GPA: 3.20/4.00  
Thesis (in progress): “Visibility restoration via spatial frequency domain interpretation under harsh conditions”  
Advisor: Prof. Min-Chul Lee

**Dong-A University**, Busan, Korea Mar. 2018 — Feb. 2024  
Bachelor of Engineering in Electronics Engineering, College of Engineering Cumulative GPA: 3.91/4.50

## RESEARCH INTERESTS

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- **Image processing**
- Computer vision
- Statistical optics
- **Denoising / Deblurring algorithm**
- Three-dimensional imaging system
- Biomedical imaging system
- Data science
- Deep learning / Machine learning

## SKILLS

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**Language:** Korean (Native), English (OPIc IH), Japanese  
**Programming:** C/C++, Python, MATLAB, LaTeX  
**Software:** PyTorch, TensorFlow, OpenCV, Qt, Pandas, NumPy, Scipy, Plotly  
**OS:** Windows, Linux, macOS

## RESEARCH PROJECTS

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視界が悪い災害現場を光信号処理とAIにより視界良好とするAR 救援補助システムの開発 Fukuoka, Japan  
Development of an AR-Based Rescue Assistance System for Disaster Environments  
with Poor Visibility Using Optical Signal Processing and AI *Researcher* May 2024 — Mar. 2025  
Grant type: Consigned research

孵化前のニワトリにおける性別診断技術の開発 Fukuoka, Gifu, Nagoya, Tokyo, Niigata, Ibaraki, Japan  
Development of a Sex Determination Technique for Pre-Hatched Chick Embryos *Researcher* Mar. 2024 — Nov. 2024  
Grant type: Joint Research

煙等の散乱媒質による視界不良現場を可視化するための画像処理技術の研究 Fukuoka, Japan  
Image Processing Techniques for Visualizing Low-Visibility Scenes Caused  
by Scattering Media such as Smoke *Researcher* Apr. 2024 — Mar. 2025  
Grant number: 24K01120

## PUBLICATIONS

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### Journal

- [1] **J. Jeong**, and M.-C. Lee, “Scattering Medium Removal Using Adaptive Masks for Scatter in the Spatial Frequency Domain,” *IEEE Access*, 2025. doi: 10.1109/ACCESS.2025.3563369

### Conference

- [1] Y. Takahashi, **J. Jeong**, M. Cho, and M.-C. Lee, “A research on scattering media removal and photon estimation using COLaNoPS,” *Proc. ICCAS 2025*, Incheon, Korea, (Accepted).
- [2] **J. Jeong**, M. Cho, and M.-C. Lee, “Advanced scattering media removal by modified ARMS and restoration of color information,” *Proc. ICMV 2025*, Paris, France, (Accepted).
- [3] S. Song, **J. Jeong**, M. Cho, and M.-C. Lee, “Single Haze Removal Method using Pplography,” *Proc. ICMV 2025*, Paris, France, (Accepted).
- [4] **J. Jeong**, M. Cho, and M.-C. Lee, “Scattering media removal under the harsh conditions using adaptive removal via mask for scatter,” *Proc. ITC-CSCC 2025*, Seoul, Korea, (Proceeding).
- [5] K. Nakamura, **J. Jeong**, M. Cho, and M.-C. Lee, “Adaptive Optimization of Kalman Filtering in Digital Holographic Microscopy for Improved Noise Reduction,” *Proc. ITC-CSCC 2025*, Seoul, Korea, (Proceeding).
- [6] S. Kim, **J. Jeong**, M. Cho, and M.-C. Lee, “Advanced double random phase encryption for simultaneous two primary data,” *Proc. ITC-CSCC 2025*, Seoul, Korea, (Proceeding).
- [7] T. Ono, **J. Jeong**, H.-W. Kim, M. Cho, and M.-C. Lee, “Kalman filtering optimization in digital holographic microscopy (DHM),” *Proc. ICCAS 2024*, Jeju, Korea, pp. 786–791, doi: 10.23919/ICCAS63016.2024.10773243, (Scopus).
- [8] **J. Jeong**, H.-W. Kim, M. Cho, and M.-C. Lee, “A study of noise reduction algorithm using statistical optimization in digital holographic microscopy,” *Proc. JCSSE 2024*, Phuket, Thailand, pp. 68–73, doi: 10.1109/JC-SSE61278.2024.10613728, (Scopus).

### Patents

- [1] M.-C. Lee and **J. Jeong**, “画像処理装置、画像処理方法および画像処理プログラム,” Japanese Patent (特願 2025-097331)
- [2] M.-C. Lee and **J. Jeong**, “画像処理装置、画像処理方法および画像処理プログラム,” Japanese Patent (特願 2024-214715)

\* In accordance with Japanese patent law, these applications are kept confidential and are not publicly disclosed for 18 months following their filing.

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### Additional Research Experience

**Computational, Holographic and Optical signal processing Lab. at Hankyung National University** Gyeonggi-do, Korea

Visiting Research Intern

Jan. 2024 — Feb. 2024

- Integral Imaging Systems
- Principle of image encryption such as double random phase encryption (DRPE)

**3D Optical Imaging System Lab. at Kyushu Institute of Technology**

Fukuoka, Japan

Visiting Research Intern (Winter & Summer 2023)

Jan.-Feb. & Jul.-Aug. 2023

Advisor: Prof. Min-Chul Lee

- Studied digital holographic microscopy and phase error correction
- Developed noise reduction algorithms under low-light (photon-starved) conditions
- Restored low-light images using photon-counting techniques

**SoC Design Lab. at Dong-A University**

Busan, Korea

Undergraduate Research Intern

Sep. 2022 — Jul. 2023

Advisor: Prof. Bongsoon Kang

Completed the IDEC SoC Design Course (48 hours, Spring 2023), which initiated my interest in image processing and computational systems. Topics covered: Verilog HDL fundamentals, structural and dataflow modeling, and algorithmic-level design.

- Basic image processing techniques.
- Principle of machine learning.
- Programming with C/C++, MATLAB, Python, and Verilog

### Relevant Coursework

**Korea OpenCourseWare**

- Digital Image Processing 2025

**IC Design Education Center**

- Implementation of CNN's FPGA with Verilog HDL 2024
- Design embedded systems based on FPGA
- Data structure and algorithm

- FreeRTOS porting and utilization through Cortex-M processor
- MIMO - theory and improvement
- Stereovision for autonomous driving system 2023
- Design digital system utilized Verilog
- Neural network hardware accelerator "Architecture"
- DSP with MATLAB
- Foundation of CUDA-based GPU Programming
- PLL Design and Jitter Interpretation 2022
- Foundation of reinforcement learning

### Korea Advanced Institute of Science and Technology

- Microdegree from Graduate School of Data Science 2023

## Scholarships, Tuition Waivers, and Research Support

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### Kyushu Institute of Technology

#### *Waivers from Tuition Fees*

- 2025, 1<sup>st</sup> semester
- 2024, 1<sup>st</sup>/2<sup>nd</sup> semester

#### Research Support

- 視界が悪い災害現場を光信号処理とAIにより視界良好とするAR 救援補助システムの開発 Mar. 2025 - Feb. 2026
- 孵化前のニワトリにおける性別診断技術の開発 Mar. 2024 - Feb. 2025
- 煙等の散乱媒質による視界不良現場を可視化するための画像処理技術の研究 Mar. 2024 - Feb. 2025

### Dong-A University

#### *Academic Excellence Scholarship*

- 2023, 1<sup>st</sup>/2<sup>nd</sup> semester
- 2022, 1<sup>st</sup> semester
- 2021, 2<sup>nd</sup> semester
- 2018, 2<sup>nd</sup> semester

#### *Advisory Professor Scholarship from Dong-A University*

- 2022, 2<sup>nd</sup> semester

#### *Undergraduate Education Assistant Scholarship from Dong-A University*

- 2023, 1<sup>st</sup>/2<sup>nd</sup> semester
- 2022, 2<sup>nd</sup> semester

## Leadership & Volunteering

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### 大学見本市2025～イノベーション・ジャパン

Innovation Japan 2025

Student Staff

Tokyo, Japan  
Aug. 21 2025 — Aug. 22 2025

### オープンキャンパス 2025

Open Campus 2025 (Iizuka Campus, Kyushu Institute of Technology)

Student Staff

Fukuoka, Japan  
Jul. 19 2025 — Jul. 20 2025

### 協定校との国際交流及びセミナー

International Capstone Design Presentation with Partner Universities

Participant (Student Delegate)

Fukuoka, Japan  
Jan. 2025

### 協定校との国際共同研究打合せ及び共同セミナー

International Joint Research Meeting and Seminar

Participant (Student Delegate)

Kumamoto, Japan  
Aug. 2024

### Dong-A Ping-Pong Association (DAPPA)

President

Busan, Korea  
Mar. 2021 — Feb. 2022

## Military Service

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### Republic of Korea Army

*Sergeant (E-5), Active Duty Soldier*

Haman-gun, Gyeongsangnam-do, Korea

Apr. 2019 — Nov. 2020

- Award for Outstanding Army Warrior
- Certificate of Appointment as Squad Leader
- Appointment Certificate as Squad Representative Soldier
- Commendation for Exemplary Soldier