

# Jongpil Jeong

Master course  
Department of Creative Informatics  
Graduate School of Computer Science and Systems Engineering  
Kyushu Institute of Technology  
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## EDUCATION

**Kyushu Institute of Technology** Iizuka, Fukuoka, Japan  
Master of Engineering, Graduate School of Computer Science and Systems Engineering Apr. 2024 — Present  
Department of Creative Informatics (Computer Science and Networks) Cumulative GPA:**3.33/4.00**  
Thesis (in progress): “*Visibility restoration via spatial frequency domain interpretation under harsh conditions*”  
Advisor: Prof. Min-Chul Lee

**Dong-A University** Busan, Korea  
Bachelor of Engineering in Electronics Engineering Mar. 2018 — Feb. 2024  
(Top 10%; 156 credits completed / 150 required) Cumulative GPA:**3.91/4.50**  
Recipient of Academic Excellence Scholarships (5 semesters)

## RESEARCH INTERESTS

Image Processing / Computer Vision  
Biomedical Imaging System  
Digital Holographic Microscopy (DHM)  
Optical Signal Processing  
Denoising / Deblurring Algorithm  
Deep Learning / Machine Learning

## SKILLS

**Languages** Korean (Native), English (OPIc IH), Japanese (Intermediate)  
**Programming** C/C++, Python, MATLAB  
**Libraries** PyTorch, TensorFlow, OpenCV, Qt, Pandas, NumPy, SciPy, Plotly  
**Tools / OS** Docker, L<sup>A</sup>T<sub>E</sub>X, Digit Cam, Spinnaker SDK, Pylon SDK, Git, Linux, Windows, macOS

## RESEARCH PROJECTS

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, Tokyo, Japan  
Development of an AR-Based Rescue Assistance System for Disaster Environments May 2024 — Mar. 2025  
with Poor Visibility Using Optical Signal Processing and AI  
*Research Assistant*  
Grant type: Consigned research (Funded by Fire and Disaster Management Agency of Japan)

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 Mar. 2024 — Nov. 2024  
*Research Assistant*  
Grant type: Joint Research (Funded by a private industry partner under NDA)

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 Apr. 2024 — Mar. 2025  
by Scattering Media such as Smoke  
*Research Assistant*  
Grant number: 24K01120 (Funded by KAKEN, JSPS)

## 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*, vol. 13, pp. 72769–72777, 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*, (IEEE), 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*, (SPIE), Paris, France, (Accepted).  
[3] S. Song, **J. Jeong**, M. Cho, and M.-C. Lee, “Single Haze Removal Method using Peplography,” *Proc. ICMV 2025*, (SPIE), 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*, (IEEE), Seoul, Korea, pp. xxx-xxx,  
DOI:10.1109/ITC-CSCC66376.2025.11137793  
[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*, (IEEE), Seoul, Korea, pp. 1–6,  
DOI:10.1109/ITC-CSCC66376.2025.11137616  
[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*, (IEEE), Seoul, Korea, pp. 1–5,  
DOI:10.1109/ITC-CSCC66376.2025.11137702  
[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*, (IEEE), Jeju, Korea, pp. 786–791,  
DOI:10.23919/ICCAS63016.2024.10773243  
[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*, (IEEE), Phuket, Thailand, pp. 68–73,  
DOI:10.1109/JCSSE61278.2024.10613728

### Patents

#### International Patents (PCT)

- [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,”  
“Image processing apparatus, image processing method, and image processing program,”  
PCT Patent, PCT/S2025-0068-N0. (Pending)

#### Domestic Patents (JST)

Japan

- [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,”  
“Image processing apparatus, image processing method, and image processing program,”  
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,”  
“Image processing apparatus, image processing method, and image processing program”  
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.

### Additional Research Experience

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#### Computational, Holographic and Optical signal processing Lab. at Hankyung National University

Visiting Research Intern

Anseong, Gyunggi-do, Korea  
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

Visiting Research Intern (Winter 2022 &amp; Summer 2023)

Advisor: Prof. Min-Chul Lee

Fukuoka, Japan  
Jan.-Feb. & Jul.-Aug. 2023

- 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

*Undergraduate Research Intern*

Busan, Korea

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

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#### Korea OpenCourseWare (KOCW)

Online, Korea

- Digital Image Processing

2025

#### IC Design Education Center (IDEC)

Online, Korea

- Implementation of CNN's FPGA with Verilog HDL
- Design embedded systems based on FPGA
- Data structure and algorithm
- FreeRTOS porting and utilization through Cortex-M processor
- MIMO - theory and improvement

2024

- Stereovision for autonomous driving system
- Design digital system utilized Verilog
- Neural network hardware accelerator "Architecture"
- DSP with MATLAB
- Foundation of CUDA-based GPU Programming

2023

- PLL Design and Jitter Interpretation
- Foundation of reinforcement learning

2022

#### Korea Advanced Institute of Science and Technology (KAIST)

Online, Korea

- Microdegree from Graduate School of Data Science

2023

### Scholarships and Tuition Waivers

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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

#### 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. 9 2024 — Aug. 10 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