Jongpil Jeong

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EDUCATION

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

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

SKILLS

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

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

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 Peplography," *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/JCSSE61278.2024.10613728, (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 filling.

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Additional Research Experience

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

Kyushu Institute of Technology
Waivers from Tuition Fees

- 2025, 1^{st} semester
- 2024, $1^{st}/2^{nd}$ 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, $1^{st}/2^{nd}$ semester
- 2022, 1^{st} semester
- 2021, 2^{nd} semester
- 2018, 2^{nd} semester

Advisory Professor Scholarship from Dong-A University

- 2022, 2^{nd} semester

Undergraduate Education Assistant Scholarship from Dong-A University

- 2023, $1^{st}/2^{nd}$ semester
- 2022, 2^{nd} semester

Leadership & Volunteering

大学見本市2025～イノベーション・ジャパン Tokyo, Japan
Innovation Japan 2025 Aug. 21 2025 — Aug. 22 2025
Student Staff

オープンキャンパス 2025 Fukuoka, Japan
Open Campus 2025 (Iizuka Campus, Kyushu Institute of Technology) Jul. 19 2025 — Jul. 20 2025
Student Staff

協定校との国際交流及びセミナー Fukuoka, Japan
International Capstone Design Presentation with Partner Universities Jan. 2025
Participant (Student Delegate)

協定校との国際共同研究打合せ及び共同セミナー Kumamoto, Japan
International Joint Research Meeting and Seminar Aug. 2024
Participant (Student Delegate)

Dong–A Ping–Pong Association (DAPPA) Busan, Korea
President Mar. 2021 — Feb. 2022

Military Service

Republic of Korea Army Haman-gun, Gyeongsangnam-do, Korea
Sergeant (E-5), Active Duty Soldier 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