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, LaTeX, Digit Cam, Spinnaker SDK, Pylon SDK, Git, Linux, Windows, macOS

RESEARCH PROJECTS

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 poor-visibility scenes under scattering media — Apr. 2024 — Present
Research Assistant — (Project: Apr. 2024 – Mar. 2027)
Grant number: 24K01120 (Funded by KAKEN, JSPS)

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
AR-based rescue assistance system using optical signal processing and AI for enhanced visibility in disaster environments — May. 2024 — Mar. 2025
Research Assistant
Grant number: JPJ000255 (Funded by Fire and Disaster Management Agency of Japan)
Grant type: Consigned research

物体の360度3次元プロファイルを獲得可能なデジタルホログラフィック顕微鏡の開発 — Fukuoka, Japan
Development of a 360-degree Digital Holographic Microscope (DHM) for 3D object profiling — Apr. 2024 — Mar. 2025
Research Assistant — (Participation period)
Grant number: 23K19964 (Funded by KAKEN, JSPS)

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 pre-hatching sex determination technology for chickens — Apr. 2024 — Nov. 2024

Research Assistant (Participation period)
Grant type: Joint Research (Funded by a private industry partner under NDA)

PUBLICATIONS

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.
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.
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.
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.
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.
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

Computational, Holographic and Optical signal processing Lab. Anseong, Gyunggi-do, Korea
at Hankyung National University Jan. 2024 — Feb. 2024
Visiting Research Intern

- 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 2022 & 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 (KOCW) Online, Korea

- Digital Image Processing 2025

IC Design Education Center (IDEC) Online, Korea

- 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 (KAIST) Online, Korea

- Microdegree from Graduate School of Data Science 2023

Scholarships and Tuition Waivers

Kyushu Institute of Technology

Waivers from Tuition Fees

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

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. 9 2024 — Aug. 10 2024
Participant (Student Delegate)

Embedded Systems Lab. Busan, Korea
Leader Sep. 2023 — Dec. 2023

- Embedded system design using ATMega128A
- Teaching basic programming (Python) and data analysis using Pandas and NumPy

Donga Challenge Busan, Korea
Leader Sep. 2023 — Dec. 2023

- Self-directed learning and project-based teamwork initiative
- Teaching basic programming (Python) and data analysis using Pandas and NumPy

Digital System Lab. Busan, Korea
Leader Sep. 2023 — Dec. 2023

- Basic programming (C/C++) and embedded system desing using ATMega128A
- Teaching digital logic design and Verilog HDL

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