JUNSEO BANG

Ph.D. Candidate
Seoul National University, Seoul, South Korea

Email	Google Scholar	LinkedIn	Website
qkdwnstj10@snu.ac.kr	Click here	Click here	Click here

RESEARCH INTERESTS

My research addresses a broad range of imaging inverse problems, considering both optical system design and learned signal reconstruction with generative AI toward next-generation intelligent imaging systems.

- Generative models for imaging inverse problems
- Metasurfaces / nano-optics

EDUCATION

Ph.D. **Electrical and Computer Engineering** — Mar. 2021 – Feb. 2027
Seoul National University, Seoul, South Korea
Intelligent Computational Imaging Lab. (2024–2027)
Advisor: Prof. Se Young Chun
Optical Engineering and Quantum Electronics Lab. (2021–2024)
Advisors: the late Prof. Byoungho Lee, Prof. Yoonchan Jeong

B.S. **Electrical and Computer Engineering** — Mar. 2016 – Feb. 2021
Seoul National University, Seoul, South Korea

RESEARCH PROJECTS

- **Advanced Non-Bayer Demosaicing Network** — Oct. 2025 – Sep. 2027
  Lead Researcher, Samsung Electronics, Device Solutions (DS) Division
- **3D SEM Image Reconstruction using Stereo Imaging** — Jul. 2025 – Jun. 2027
  Lead Researcher, Samsung Electronics, Device Solutions (DS) Division
- **Metalens planar optic system for ultra-slim camera module** — Jun. 2020 – Jul. 2023
  Researcher, Samsung Science & Technology Foundation
- **Integrated meta-photonics system for mobile real-time 3D imaging** — Mar. 2020 – Nov. 2022
  Researcher, National Research Foundation of Korea
- **Improvement of μLED optical characteristics using metasurface technology** — Mar. 2021 – Feb. 2023
  Researcher, Samsung Display

PUBLICATIONS

† : equal contribution

First Author (6)

1. **J. Bang**†, D. J. Mun†, H. Seo, S. Hong, and S. Y. Chun, "Triadic Dynamics Aware Diffusion Posterior Sampling for Inverse Problems: Optimizing Guidance and Stochasticity Schedules," **International Conference on Machine Learning (ICML)**, 2026.
2. **J. Bang**, D. Choi, D. J. Mun, and S. Y. Chun, "FLINT: Coupling Proximal Initialization and Bounded Stochasticity for Flow-Matching Inverse Problems," **Submitted to NeurIPS**, 2026.
3. **J. Bang**†, J. Lee†, K. Lee†, H. Lee, D. U. Kang, and S. Y. Chun, "Self-Cascaded Diffusion Models for Arbitrary-Scale Image Super-Resolution," **arXiv preprint** arXiv:2506.07813, 2025.
4. H. Seo†, **J. Bang**†, H. Lee†, J. Lee, B. H. Lee, and S. Y. Chun, "Geometrical Properties of Text Token Embeddings for Strong Semantic Binding in Text-to-Image Generation," **arXiv preprint** arXiv:2503.23011, 2025.
5. **J. Bang**, Y. Kim, T. Choi, C. Kim, H. Son, S.-J. Kim, Y. Jeong, and B. Lee, "Cascaded Janus Meta-Optics: Generalized Platform for Bidirectional Asymmetric Modulation of Light," **ACS Photonics**, vol. 12, no. 3, pp. 1666–1675, 2025.
6. **J. Bang**, C. Kim, and B. Lee, "Single-Shot Metasurface-Based HDR Imaging System with Deep Neural Network," **Frontiers in Optics + Laser Science (FiO+LS)**, paper JTu5A.59, 2022.

Co-Author (5)

1. J. Lee, **J. Bang**, and S. Y. Chun, "Few-Shot Arbitrary Super-Resolution Considering Consistency and Realness," **International Conference on Electronics, Information, and Communication (ICEIC)**, pp. 1–4, 2025.
2. V. Hosu, M. V. Conde, L. Agnolucci, N. Barman, S. Zadtootaghaj, R. Timofte, *et al.* (incl. **J. Bang**), "AIM 2024 Challenge on UHD Blind Photo Quality Assessment," **European Conference on Computer Vision (ECCV) Workshops**, LNCS vol. 15632, pp. 261–286, 2024.
3. Y. Kim†, T. Choi†, G.-Y. Lee, C. Kim, **J. Bang**, J. Jang, Y. Jeong, and B. Lee, "Metasurface Folded Lens System for Ultrathin Cameras," **Science Advances**, vol. 10, no. 44, pp. eadr2319, 2024.
4. T. Choi, C. Choi, **J. Bang**, Y. Kim, H. Son, C. Kim, J. Jang, Y. Jeong, and B. Lee, "Multiwavelength Achromatic Deflector in the Visible Using a Single-Layer Freeform Metasurface," **Nano Letters**, vol. 24, no. 35, pp. 10980–10986, 2024.
5. H. Son, T. Choi, K. Kim, Y. Kim, **J. Bang**, S.-J. Kim, B. Lee, and Y. Jeong, "Strong Coupling Induced Bound States in the Continuum in a Hybrid Metal–Dielectric Bilayer Nanograting Resonator," **ACS Photonics**, vol. 11, no. 8, pp. 3221–3231, 2024.