

Personal Profile

I am a postdoctoral researcher at Seoul National University, working with Prof. Yoonchan Jeong. I received my PhD in Electrical and Computer Engineering from Seoul National University as a member of OEQELAB, which was formerly led by the late Prof. Byoungcho Lee and is now led by Prof. Yoonchan Jeong. Prior to this, I received my BS degree in Electrical and Computer Engineering from Seoul National University.

My research area includes holography, AR/VR, computational imaging, visual perception, and metasurfaces.

Work Experience

- 03/2025 – Present **Postdoc**, Electrical and Computer Engineering, Seoul National University, Korea
- Optical Engineering and Quantum Electronics Lab led by Prof. Yoonchan Jeong
- 09/2024 – 10/2024 **Visiting Student Researcher**, Stanford University, CA, USA
- Stanford Computational Imaging Lab led by Prof. Gordon Wetzstein
- 06/2023 – 12/2023 **Research Scientist Intern**, Meta Reality Labs, WA, USA

Education

- 09/2019 – 02/2025 **Ph.D.** Electrical and Computer Engineering, Seoul National University, Korea
- Advisor: Byoungcho Lee, Yoonchan Jeong
- 03/2015 – 08/2019 **B.S.** Electrical and Computer Engineering, Seoul National University, Korea
- 03/2012 – 02/2015 Gyeonggi Science High School for the Gifted, Korea

Publications

First Author (* Denotes equal contribution)

- [7] S. Lee*, **S.-W. Nam***, K. Rio, R. Landig, H.-H. Cheng, L. Lu, and B. Silverstein, "Perceptual Evaluation of Steered Retinal Projection," ACM **SIGGRAPH 2024** Conference Proceedings
- [6] D. Kim*, **S.-W. Nam***, S. Choi*, J.-M. Seo, G. Wetzstein, and Y. Jeong, "Holographic Parallax Improves 3D Perceptual Realism," ACM Transactions on Graphics (**SIGGRAPH 2024**)
- [5] **S.-W. Nam***, Y. Kim*, D. Kim, and Y. Jeong, "Depolarized Holography with Polarization-multiplexing Metasurface," ACM Transactions on Graphics (**SIGGRAPH ASIA 2023**)
- [4] D. Kim*, **S.-W. Nam***, B. Lee, J.-M. Seo, and B. Lee, "Accommodative holography: improving accommodation response for perceptually realistic holographic displays," ACM Transactions on Graphics (**SIGGRAPH 2022**)
- [3] **S.-W. Nam**, D. Kim, and B. Lee, "Accelerating a spatially varying aberration correction of holographic displays with low-rank approximation," Optics Letters, 2022 (**Editor's pick**)
- [2] D. Kim*, **S.-W. Nam***, K. Bang, B. Lee, S. Lee, Y. Jeong, J.-M. Seo, and B. Lee, "Vision-correcting holographic display: evaluation of aberration correcting hologram," Biomedical Optics Express, 2021
- [1] **S.-W. Nam**, S. Moon, B. Lee, D. Kim, S. Lee, C.-K. Lee, and B. Lee, "Aberration-corrected full-color holographic augmented reality near-eye display using a Pancharatnam-Berry phase lens," Optics Express, 2020.

Co-Author

- [11] M. Choi*, J. Kim*, S. Moon*, K. Shin*, **S.-W. Nam**, Y. Park, D. Kang, G. Jeon, K. Lee, D. Yoon, Y. Jeong, C.-K. Lee and J. Rho, "Roll-to-plate printable RGB achromatic metalens for wide-field-of-view holographic near-eye displays," *Nature Materials*, 2025
- [10] E. Lee, Y. Jo, **S.-W. Nam**, M. Chae, C. Chun, Y. Kim, Y. Jeong, and B. Lee, "Speckle reduced holographic display system with a jointly optimized rotating phase mask," *Optics Letters*, 2024
- [9] C. Chen, **S.-W. Nam**, D. Kim, J. Lee, Y. Jeong, and B. Lee, "Ultrahigh-fidelity full-color holographic display via color-aware optimization," *Photonix*, 2024
- [8] S. Lee, **S.-W. Nam**, J. Lee, Y. Jeong, and B. Lee, "HoloSR: deep learning-based super-resolution for real-time high-resolution computer-generated holograms," *Optics Express*, 2024.
- [7] D. Lee, K. Bang, **S.-W. Nam**, B. Lee, D. Kim, and B. Lee, "Expanding energy envelope in holographic display via mutually coherent multi-directional illumination," *Scientific Reports*, 2022.
- [6] D. Yoo, **S.-W. Nam**, Y. Jo, S. Moon, C.-K. Lee, and B. Lee, "Learning-based compensation of spatially varying aberrations for holographic display [Invited]," *Journal of the Optical Society of America A*, 2022.
- [5] D. Yoo, Y. Jo, **S.-W. Nam**, C. Chen, and B. Lee, "Optimization of computer-generated holograms featuring phase randomness control," *Optics Letters*, 2021.
- [4] S. Lee*, D. Kim*, **S.-W. Nam**, B. Lee, J. Cho, and B. Lee, "Light source optimization for partially coherent holographic displays with consideration of speckle contrast, resolution, and depth of field," *Scientific Reports*, 2020.
- [3] S. Lee, D. Kim, **S.-W. Nam**, and B. Lee, "Speckle reduced holographic displays using tomographic synthesis," *Optics Letters*, 2020
- [2] S. Moon, **S.-W. Nam**, Y. Jeong, C.-K. Lee, H.-S. Lee, and B. Lee, "Compact augmented reality combiner using Pancharatnam-Berry phase lens," *IEEE Photonics Technology Letters*, 2020.
- [1] S. Moon, C.-K. Lee, **S.-W. Nam**, C. Jang, G.-Y. Lee, W. Seo, G. Sung, H.-S. Lee, and B. Lee, "Augmented reality near-eye display using Pancharatnam-Berry phase lenses," *Scientific Reports*, 2019.

Research Demos

- 08/2024 Holographic Parallax, **SIGGRAPH 2024** Emerging Technologies
- 08/2022 Lenslet VR, IMID 2022 Exhibition

Honors and Awards

- 2020 – 2024 Korea Foundation for Advanced Studies (KFAS) Graduate Study Scholarship
- 2023 Silver prize, Samsung Display Industry-University Cooperation Paper Award 2023
- 2020 Best Poster Paper Awards, The 20th International Meeting on Information Display
- 2015 – 2018 National Science and Engineering Undergraduate Scholarship

Services

- Reviewer ACM Transactions on Graphics, IEEE ISMAR, Optics Letters, Applied Optics, ETRI Journal

Reference

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