Suyeon Choi

Curriculum Vitae

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Education

9/2020-Present **Ph.D. Student**, *Electrical Engineering*, Stanford University, Stanford, CA.
Advisor: Gordon Wetzstein

9/2019-6/2021 **M.Sc. Student**, *Electrical Engineering*, Stanford University, Stanford, CA.
Advisor: Gordon Wetzstein

3/2013-2/2019 **B.Sc. Student**, *Electrical Engineering*, Seoul National University, Seoul, Korea.
Advisor: Deog-kyoon Jeong, Soo-Mook Moon, and Byoungho Lee.
2-year absence to fulfill military duty (8/2015 – 5/2017)

3/2010-2/2013 Seoul Science High School, Seoul, Korea.

Internships

7/2022-9/2022 **Intern**, *Display Systems Research Team*, Reality Labs, Redmond, WA.

7/2020-9/2020 **Intern**, *New Experience Team*, NVIDIA, Santa Clara, CA.
Culminated in first-authorship on an Optica paper [J5].
Worked with Jonghyun Kim, Ward Lopes and David Luebke. Manager: Morgan McGuire

Publications

*denotes equal contribution.

Journals

[J8] **S. Choi***, M. Gopakumar*, Y. Peng, J. Kim, and G. Wetzstein, "Neural 3D Holography: Learning Accurate Wave Propagation Models for 3D Holographic Virtual and Augmented Reality Displays", *ACM Transactions on Graphics* (Proc. SIGGRAPH Asia 2021).

[J7] Y. Peng*, **S. Choi***, J. Kim, and G. Wetzstein, "Speckle-free Holography with Partially Coherent Light Sources and Camera-in-the-loop Calibration", *Science Advances*, 2021.

[J6] M. Gopakumar, J. Kim, **S. Choi**, Y. Peng, and G. Wetzstein, "Unfiltered Holography: Optimizing High Diffraction Orders without Optical Filtering for Compact Holographic Displays", *Optics Letters*, 2021

[J5] **S. Choi**, J. Kim, Y. Peng, and G. Wetzstein "Optimizing image quality for holographic near-eye displays with Michelson Holography", *Optica*, 2021.

[J4] Y. Peng, **S. Choi**, N. Padmanaban, and G. Wetzstein "Neural Holography with Camera-in-the-loop Training", *ACM Transactions on Graphics* (Proc. SIGGRAPH Asia 2020).

[J3] D. Yoo*, S. Lee*, Y. Jo, J. Cho, **S. Choi**, and B. Lee "Volumetric Head-Mounted Display with Locally Adaptive Focal Blocks", *IEEE Transactions on Visualization and Computer Graphics*, 2020.

[J2] Y. Jo*, S. Lee*, D. Yoo, **S. Choi**, D. Kim, and B. Lee, "Tomographic Projector: Large Scale Volumetric Display with Uniform Viewing Experiences", *ACM Transactions on Graphics* (Proc. SIGGRAPH Asia 2019).

[J1] **S. Choi**, S. Lee, Y. Jo, D. Yoo, D. Kim, and B. Lee, "Optimal Binary Representation via Non-convex Optimization on Tomographic Displays", Optics Express, 2019.

Conference Proceedings

[C4] **S. Choi***, M. Gopakumar*, Y. Peng, J. Kim, M. O'Toole, and G. Wetzstein, "Time-multiplexed Neural Holography: A Flexible Framework for Holographic Near-eye Displays with Fast Heavily-quantized Spatial Light Modulators", in *SIGGRAPH*, 2022.

[C3] J. Kim, M. Gopakumar, **S. Choi**, Y. Peng, W. Lopes, and G. Wetzstein, "Holographic glasses for Virtual Reality", in *SIGGRAPH*, 2022.

[C2] **S. Choi**, Y. Peng, J. Kim, and G. Wetzstein "High-quality holographic displays using double SLMs and camera-in-the-loop optimization", Proc. SPIE 11765, *Optical Architectures for Displays and Sensing in Augmented, Virtual, and Mixed Reality (AR, VR, MR) II*, 2021.

[C1] D. Yoo*, S. Lee*, Y. Jo, J. Cho, **S. Choi**, and B. Lee, "15 focal planes head-mounted display using LED array backlight", Proc. SPIE 11040, *SPIE Photonics West Student Optical Design Challenge*, 2019.

Awards

2022-2024 Meta Research PhD Fellowship

2022 NVIDIA Graduate Fellowship Finalist

2019-2024 Kwanjeong Scholarship *(for Ph.D. degree)*

2019-2021 Korea Government Scholarship *(for M.Sc. degree)*

2019 2nd Prize, SPIE Student Optical Design Challenge 2019 [C1]

2013-2018 Presidential Science Scholarship *(for B.Sc. degree)*

2012 Silver Medal, the International Physics Olympiad **(IPhO)**

Public Demonstrations

2020 **Neural Holography**, Y. Peng, S. Choi, N. Padmanaban, J. Kim, G. Wetzstein, ACM SIGGRAPH 2020 Emerging Technologies.

Talks

2021 Neural Holography Pro: Computationally Enabling Compact, High-quality 3D Holographic Displays, *Graphics and Mixed Environment Seminar (GAMES)*, Virtual.

2021 Enabling Next-generation Holographic Displays with Artificial Intelligence, *FiO LS AR/VR*, Virtual.

2021 High-quality holographic displays using double SLMs, *SPIE AR,VR,MR Technical Talks*, Virtual.

2020 Neural Holography: High-quality, Real-time Computer-generated Holographic Displays, *Graphics and Mixed Environment Seminar (GAMES)*, Virtual.

Teaching Experience

Teaching Assistant

Spring 21-22, Spring 2020-21 EE267: Virtual Reality, Stanford University

Undergraduate Teaching Assistant

Fall 2018 Digital Systems Design and Experiments, Seoul National University

Fall 2017 Introduction to Electromagnetism, Seoul National University

Spring 2015 Introduction to Circuit Theory and Laboratory, Seoul National University

Fall 2014 Digital Logic Design and Lab, Seoul National University

Tutor

Basic Physics, Seoul National University, Spring 2018, Fall 2018, Spring 2015, Fall 2014

Professional Activities

Reviewer Optics Express, Applied Optics, ISMAR

Member ACM SIGGRAPH, OSA, SPIE