

# Susung Hong

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## Education

- 2024– **University of Washington**  
Ph.D. in Computer Science & Engineering  
Advisors: Steve Seitz, Brian Curless, Ira Kemelmacher-Shlizerman
- 2018–24 **Korea University**  
B.S. in Computer Science & Engineering  
Honored on Dean's and President's Lists, GPA: 3.95/4.0
- 2023 **University of Washington**  
Exchange Student

## Publications

- 2024 **Smoothed Energy Guidance: Guiding Diffusion Models with Reduced Energy Curvature of Attention**  
**Susung Hong**  
*Advances in Neural Information Processing Systems (NeurIPS)*
- 2024 **Effective Rank Analysis and Regularization for Enhanced 3D Gaussian Splatting**  
Junha Hyung, **Susung Hong**, Sungwon Hwang, Jaeseong Lee, Jaegul Choo, and Jin-Hwa Kim  
*Advances in Neural Information Processing Systems (NeurIPS)*
- 2024 **Retrieval-augmented Score Distillation for Text-to-3D Generation**  
Junyoung Seo\*, **Susung Hong**\*, Wooseok Jang\*, Min-Seop Kwak, Hyeonsu Kim, Doyup Lee, and Seungryong Kim  
*International Conference on Machine Learning (ICML)*
- 2024 **Depth-Aware Guidance with Self-Estimated Depth Representations of Diffusion Models**  
Gyeongnyeon Kim\*, Wooseok Jang\*, Gyuseong Lee\*, **Susung Hong**, Junyoung Seo, and Seungryong Kim  
*Pattern Recognition (PR)*
- 2023 **DirectT2V: Large Language Models are Frame-level Directors for Zero-shot Text-to-Video Generation**  
**Susung Hong**, Junyoung Seo, Heeseong Shin, Sunghwan Hong, and Seungryong Kim  
*Short Version: First Workshop on Controllable Video Generation at ICML*
- 2023 **Debiasing Scores and Prompts of 2D Diffusion for View-consistent Text-to-3D Generation**  
**Susung Hong**\*, Donghoon Ahn\*, and Seungryong Kim  
*Advances in Neural Information Processing Systems (NeurIPS)*
- 2023 **Improving Sample Quality of Diffusion Models Using Self-Attention Guidance**  
**Susung Hong**, Gyuseong Lee, Wooseok Jang, and Seungryong Kim  
*IEEE/CVF International Conference on Computer Vision (ICCV)*
- 2022 **Neural Matching Fields: Implicit Representation of Matching Fields for Visual Correspondence**  
Sunghwan Hong, Jisu Nam, Seokju Cho, **Susung Hong**, Sangryul Jeon, Dongbo Min, and Seungryong Kim  
*Advances in Neural Information Processing Systems (NeurIPS)*

## Research Experience

- 2024– **UW GRAIL**  
Graduate Research Assistant  
Working on 4D generative simulation and agents (supervisors: Steve Seitz, Brian Curless, Ira Kemelmacher-Shlizerman)
- 2024 **NAVER**  
AI Research Intern  
Gaussian splatting and generative relighting (mentor: Jin-Hwa Kim)
- 2023 **UW GRAIL**  
Undergraduate Research Assistant  
Controllable NeRF editing (supervisor: Ira Kemelmacher-Shlizerman)
- 2023 **Twelve Labs**  
ML Research Intern  
Video-language models and data (mentor: Minjoon Seo)
- 2022–2023 **CVLAB**  
Undergraduate Research Assistant  
Images, 3D, video generation, and neural fields (supervisor: Seungryong Kim)

## Selected Open Source Contributions

- 2023 **[huggingface/diffusers](#) ★ 26.2k**  
Significantly contributed to the integration of Self-Attention Guidance (SAG) for high-fidelity image generation.
- 2023 **[threestudio-project/threestudio](#) ★ 6.3k**  
Contributed to utilizing Debiased Score Distillation Sampling (D-SDS) as the base method.

## Selected Honors and Awards

- 2022 **National Science and Engineering Scholarship**, Korea Student Aid Foundation
- 2022 **Outstanding Paper Award**, Signal Processing Joint Conference of IEIE
- 2021 **Innovation Award (7,000,000 KRW)**, SK AI Challenge
- 2019 **Special & 4th Prize**, Secure Coding Competition, Ministry of Public Administration and Security
- 2019 **President's List**, Korea University
- 2019 **Dean's List**, Korea University

## Other Experience

- 2024– **Conference Reviewer**, CVPR, NeurIPS, ECCV, ICLR
- 2024– **Journal Reviewer**, TIP
- 2023 **AI Mentoring**, Kyung Hee High School
- 2021– **Competitions Expert (Highest Rank: 815th)**, Kaggle
- 2020–2021 **Cybersecurity and AI Specialist**, Republic of Korea Army