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

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   **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**)*

Preprints

2023   **DirecT2V: Large Language Models are Frame-level Directors for Zero-shot Text-to-Video Generation**
Susung Hong, Junyoung Seo, Sunghwan Hong, Heeseong Shin, and Seungryong Kim

Research Experience

2024–   **UW GRAIL**
Research Assistant
Working on generative AI (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** ★ **25.4k**
Significantly contributed to the integration of Self-Attention Guidance (SAG) for high-fidelity image generation.

2023   **threestudio-project/threestudio** ★ **6.2k**
Provided descriptions for the usage of Debiased Score Distillation Sampling (D-SDS).

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   **President's List**, Korea University

2019   **Dean's List**, Korea University

Other Experience

2024–   **Conference Reviewer**, CVPR, NeurIPS, ECCV

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