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

2018–2024 | **Korea University**
B.S. in Computer Science & Engineering
GPA: 3.95/4.0 | Military Service: 2020–2021

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 | **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)

Preprints

2024 | **Perturb-and-Revise: Flexible 3D Editing with Generative Trajectories**
Susung Hong, Johanna Karras, Ricardo Martin-Brualla, and Ira Kemelmacher-Shlizerman

2024 | **Spatiotemporal Skip Guidance for Enhanced Video Diffusion Sampling**
Junha Hyung*, Kinam Kim*, Susung Hong, Min-Jung Kim, and Jaegul Choo

Research Experience

2024–   **UW GRAIL**
Graduate Research Assistant
(1) Flexible NeRF editing and (2) generative simulation and agents
Supervisor: Steve Seitz, Brian Curless, Ira Kemelmacher-Shlizerman

2024   **NAVER**
AI Research Intern
(1) Effective rank regularization for 3D Gaussian splatting and (2) generative relighting
Mentor: Jin-Hwa Kim

2023   **Twelve Labs**
ML Research Intern
(1) Video-language model agents and (2) high-quality dataset
Mentor: Minjoon Seo

2022–2023   **CVLAB**
Undergraduate Research Assistant
(1) Images, 3D, and video generation, and (2) 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-quality generation.

Selected Honors and Awards

2024   **Graduate Student Conference Presentation Award**, University of Washington

2022   **National Science and Engineering Scholarship**, Korea Student Aid Foundation

2022   **Outstanding Paper Award**, Signal Processing Joint Conference of IEIE

2021   **Innovation Award**, 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**, Transactions on Image Processing

2023   **AI Mentoring**, Kyung Hee High School

2021–   **Competitions Expert (Highest Rank: 815th)**, Kaggle

2020–2021   **Cybersecurity and AI Specialist**, Republic of Korea Army