

Seung Wook Kim

Senior Research Scientist, NVIDIA

E-mail: seung.new.email@gmail.com

Phone: 82-010-4643-4493

Webpage: <https://seung-kim.github.io/seungkim>

- DEGREES**
- Doctor of Philosophy - Machine Learning* June 2024
Department of Computer Science, University of Toronto
Thesis: Controllable Scene Generation with Neural Networks
Advisor: Prof. Sanja Fidler
- Master of Science - Machine Learning* January 2019
Department of Computer Science, University of Toronto
Thesis: Visual Reasoning by Progressive Module Networks
Advisor: Prof. Sanja Fidler
- Honours Bachelor of Science with High Distinction* June 2016
Department of Computer Science, University of Toronto
Computer Science Specialist - Focus in Artificial Intelligence
Cumulative GPA 3.99/4.00
- RESEARCH INTERESTS** Generative models, neural content creation, 3D reconstruction and perception, scene understanding, representation learning
- EMPLOYMENT**
- Senior Research Scientist* June 2023 - Present
NVIDIA, Toronto AI Lab
- Research Scientist* January 2020 - May 2023
NVIDIA, Toronto AI Lab
- Research Intern* January 2019 - December 2019
NVIDIA, Toronto AI Lab
- Research Intern* May 2018 - August 2018
SKTelecom, T-brain
- Research Scientist* July 2016 - August 2017
Lunit Inc.
- Part-Time Research Engineer* September 2015 - April 2016
Avenir
- Software Developer Co-op, Full-Stack Rails developer* May 2014 - August 2015
IBM Canada
- JOURNAL PUBLICATIONS**
- Self-supervised driven consistency training for annotation efficient histopathology image analysis*
Medical Image Analysis
Srinidhi, C., **Kim, S.W.**, Chen, F., Martel, A.

CONFERENCE
PUBLICATIONS

* denotes equal contribution

L4GM: Large 4D Gaussian Reconstruction Model

Conference on Neural Information Processing Systems (NeurIPS) 2024.

Ren, J., Xie, K., Mizraei, A., Liang, H., Zeng, X., Kreis, K., Liu, Z., Torralba, A., Fidler, S., **Kim, S.W.**, Ling, H.

DistillNeRF: Perceiving 3D Scenes from Single-Glance Images by Distilling Neural Fields and Foundation Model Features

Conference on Neural Information Processing Systems (NeurIPS) 2024.

Wang, L., **Kim, S.W.**, Yang, J., Yu, C., Ivanovic, B., Waslander, S., Wang, Y., Fidler, S., Pavone, M., Karkus, P.

Diffusion Texture Painting

SIGGRAPH 2024.

Hu, A., Desai, N., Alhaija, H., **Kim, S.W.**, Shugrina, M.

Align Your Gaussians: Text-to-4D with Dynamic 3D Gaussians and Composed Diffusion Models (Highlight)

Conference on Computer Vision and Pattern Recognition (CVPR) 2024.

Ling, H.*, **Kim, S.W.***, Torralba, A., Fidler, S., Kreis, K.

EmerDiff: Emerging Pixel-level Semantic Knowledge in Diffusion Models

International Conference on Learning Representations (ICLR) 2024.

Namekata, K., Sabour, A., Fidler, S., **Kim, S.W.**

EmerNeRF: Emergent Spatial-Temporal Scene Decomposition via Self-Supervision

International Conference on Learning Representations (ICLR) 2024.

Yang, J., Ivanovic, B., Litany, O., Weng, X., **Kim, S.W.**, Li, B., Che, T., Xu, D., Fidler, S., Pavone, M., Wang, Y.

WildFusion: Learning 3D-Aware Latent Diffusion Models in View Space

International Conference on Learning Representations (ICLR) 2024.

Schwarz, K., **Kim, S.W.**, Gao, J., Fidler, S., Geiger, A., Kreis, K.

DreamTeacher: Pretraining Image Backbones with Deep Generative Models

International Conference on Computer Vision (ICCV) 2023.

Li, D., Ling, H., Kar, A., Acuna, D., **Kim, S.W.**, Kreis, K., Torralba, A., Fidler, S.

NeuralField-LDM: Scene Generation with Hierarchical Latent Diffusion Models

Conference on Computer Vision and Pattern Recognition (CVPR) 2023.

Kim, S.W.*, Brown, B.*, Yin, K., Kreis, K., Schwarz, K., Li, D., Rombach, R., Torralba, A., Fidler, S.

Align your Latents: High-Resolution Video Synthesis with Latent Diffusion Models

Conference on Computer Vision and Pattern Recognition (CVPR) 2023.

Blattmann, A., Rombach, R., Ling, H., Dockhorn, T., **Kim, S.W.**, Fidler, S., Kreis, K.

PolymorphicGAN: Generating Aligned Samples Across Multiple Domains With Learned Morph Maps (Oral)

Conference on Computer Vision and Pattern Recognition (CVPR) 2022.

Kim, S.W., Kreis, K., Li, D., Torralba, A., Fidler, S.

BigDatasetGAN: Synthesizing ImageNet with Pixel-wise Annotations
Conference on Computer Vision and Pattern Recognition (CVPR) 2022.
Li, D., Ling, H., **Kim, S.W.**, Kreis, K., Barriuso, A., Fidler, S., Torralba, A.

EditGAN: High-Precision Semantic Image Editing
Conference on Neural Information Processing Systems (NeurIPS) 2021.
Ling, H., Kreis, K., Li, D., **Kim, S.W.**, Torralba, A., Fidler, S.

DriveGAN: Towards a Controllable High-Quality Neural Simulation (Oral)
Conference on Computer Vision and Pattern Recognition (CVPR) 2021.
Kim, S.W., Phillion, J., Torralba, A., Fidler, S.

Variational Amodal Object Completion
Conference on Neural Information Processing Systems (NeurIPS) 2020.
Ling, H., Acuna, D., Kreis, K., **Kim, S.W.**, Fidler, S.

Learning to Simulate Dynamic Environments with GameGAN
Conference on Computer Vision and Pattern Recognition (CVPR) 2020.
Kim, S.W., Zhou, H., Phillion, J., Torralba, A., Fidler, S.

Visual Reasoning by Progressive Module Networks
International Conference on Learning Representations (ICLR) 2019.
Kim, S.W., Tapaswi, M., Fidler, S.

Keep and Learn: Continual Learning by Constraining the Latent Space for Knowledge Preservation in Neural Networks
Medical Image Computing and Computer Assisted Intervention (MICCAI) 2018.
Kim, H.E., **Kim, S.W.**, Lee, J.

WORKSHOP PUBLICATIONS *Cascaded Pyramid Network for 3D Human Pose Estimation Challenge*
European Conference on Computer Vision (ECCV) 2018.
Hong, S., Jung, W., Woo, I., **Kim, S.W.**

Transferring Knowledge To Smaller Network With Class-Distance Loss
International Conference on Learning Representations (ICLR) workshop 2017.
Kim, S.W., Kim, H.E.

Combining word prediction and r-ary Huffman coding for text entry
InterSpeech Speech and Language Processing for Assistive Technologies (SLPAT) 2016.
Kim, S.W., Rudzicz, F.

AWARDS & SCHOLARSHIPS *DiDi Graduate Student Award* 2020
Awarded to graduate students based on their academic standing and research potential, University of Toronto

Principal Janet Paterson Award 2016
Awarded to the student graduating with the highest grade point average from Innis college, University of Toronto

Dean's List 2013-2016
Recognition of exceptional academic achievement

<i>Samuel Beatty In-Course Award</i>	2014
Awarded to students in the Departments of Mathematics, Physics, Statistics or Computer Science for outstanding academic performance	
<i>NSERC USRA</i>	2013
Undergraduate Student Research Awards	
<i>University of Toronto In-Course Scholarship</i>	2013
Awarded to students who demonstrate academic merit	
<i>Later Life Learning Scholarship</i>	2013
Awarded to students in the Faculty of Arts and Science for outstanding academic performance	
<i>AUCC Bunge Canada Scholarship</i>	2011-2013
Awarded for high academic achievement	
<i>Governor General's Bronze Medal</i>	2009
Awarded to the student graduating with the highest grade point average from a Canadian high school	