# 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, robot and physical AI, 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
Auvenir

*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

*Random Conditioning with Distillation for Data-Efficient Diffusion Model Compression*
Conference on Computer Vision and Pattern Recognition (CVPR) 2025.
Kim, D., Park, S., Han, G., **Kim, S.W.**, Seo, P.H.

*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.**, Philion, 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., Philion, 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.

**TECHNICAL REPORTS**

*Cosmos World Foundation Model Platform for Physical AI*
ArXiv Preprint, 2025.
NVIDIA.

**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

*Samuel Beatty In-Course Award* 2014
Awarded to students in the Departments of Mathematics, Physics, Statistics or Computer Science for outstanding academic performance

*NSERC USRA* 2013
Undergraduate Student Research Awards

*University of Toronto In-Course Scholarship* 2013
Awarded to students who demonstrate academic merit

*Later Life Learning Scholarship* 2013
Awarded to students in the Faculty of Arts and Science for outstanding academic performance

*AUCC Bunge Canada Scholarship* 2011-2013
Awarded for high academic achievement

*Governor General's Bronze Medal* 2009
Awarded to the student graduating with the highest grade point average from a Canadian high school