

Juhyeon Kim

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EDUCATION

Dartmouth College

PhD Program in Computer Science

Hanover, New Hampshire

Sep. 2022 – Current

Seoul National University

Master of Science in Electrical and Computer Engineering

Seoul, Korea

Sep. 2019 – Feb. 2022

Seoul National University

Bachelor of Science in Electrical and Computer Engineering (GPA 4.14/4.3, summa cum laude)

Seoul, Korea

Mar. 2014 – Aug. 2019

Seoul Science High School for Gifted Students

High school for talented students in science and mathematics

Seoul, Korea

Mar. 2011 – Feb. 2014

RESEARCH INTERESTS

- Physically-based rendering
- Real-time rendering
- Neural-time rendering

PUBLICATIONS

Juhyeon Kim, Craig Benko, Magnus Wrenninge, Ryusuke Villemin, Zeb Barber, Wojciech Jarosz, Adithya Pediredla, “A Monte Carlo Rendering Framework for Simulating Optical Heterodyne Detection” SIGGRAPH (journal track, honorable mention), 2025

Ruomai Yang, **Juhyeon Kim**, Adithya Pediredla, Wojciech Jarosz “A wave-optics BSDF for correlated scatterers” EGSR, 2025

Juhyeon Kim, Joshua Multhaup, Mahima Sneha, Adithya Pediredla, “Efficient Time Sampling Strategy for Transient Absorption Spectroscopy” ICCP, 2024

Juhyeon Kim, Wojciech Jarosz, Ioannis Gkioulekas, “Doppler Time-of-Flight Rendering” SIGGRAPH Asia (journal track), 2023

Changwoon Choi*, **Juhyeon Kim***, Young Min Kim, “IBL-NeRF: Image-Based Lighting Formulation of Neural Radiance Fields” Computer Graphics Forum, Proceedings of Pacific Graphics, 2023 (*: equal contribution)

Albert Reed, **Juhyeon Kim**, Thomas Blanford, Adithya Pediredla, Daniel C. Brown, Suren Jayasuriya, “Neural Volumetric Reconstruction for Coherent Synthetic Aperture Sonar” SIGGRAPH (journal track), 2023

Juhyeon Kim and Young Min Kim, “Fast and Lightweight Path Guiding Algorithm on GPU” Pacific Graphics Short Paper, 2021

Juhyeon Kim and Kihyun Kim, “Optimizing Large-Scale Fleet Management on a Road Network using Multi-Agent Deep Reinforcement Learning with Graph Neural Network” IEEE International Conference on Intelligent Transportation Systems (ITSC), 2021

Juhyeon Kim and Young Min Kim, “Novel View Synthesis With Skip Connections” IEEE International Conference on Image Processing (ICIP), 2020

EXPERIENCE

Summer Internship

June. 2024 – Sep. 2024

Intel Graphics Lab

Seattle, USA

- Conducted research on low-sample adaptive-sampling.

Summer Internship

June. 2022 – Aug. 2022

Pearl Abyss

Seoul, Korea

- Implemented real time path tracer using recent techniques such as ReSTIR and ReBLUR

Industry-academic Cooperation Project

Mar. 2020 – June. 2022

Kohyoung Technology

Seoul, Korea

- Developed photo-realistic circuit board rendering application for automated optical inspection (AOI)
- Developing inter-reflection removal algorithm in phase shift profilometry

Undergraduate Research Intern

Jan. 2019 – Jul. 2019

Kakao Mobility

Pangyo, Korea

- Developed efficient taxi dispatching algorithm using multi-agent deep reinforcement learning
- After the internship, I personally further researched it and published the paper to ITSC

Teaching Assistant

Seoul National University, Dartmouth College

- 2024, Fall : Rendering Algorithm
- 2023, Winter : Computer Graphics
- 2023, Spring : Computer Vision
- 2020, Spring : Graphics Programming
- 2019, Fall : Machine learning and optimization for 3D data

PERSONAL PROJECTS

Custom ray-tracing engine | *Python, OptiX*

Jan. 2021 – Present

- Personally developing a fast GPU ray-tracing engine written in Python

Micro game units control with RL | *Python, BWAPI* | [Youtube](#)

Jan. 2019 – Jul. 2019

- Developed 'StarCraft:Brood War' micro unit control using multi-agent reinforcement learning

ISLAND | *Java, OpenGL* | [Youtube](#)

Jan. 2017 – Dec. 2017

- Developed open world survival game 'ISLAND' from scratch without using any commercial game engine
- Developed real-time photo realistic rendering of large 3D natural scenes using OpenGL
- Wrote a paper from development experience and got best paper award in SNU Academic Festival for Undergraduate Students (title : 'Real-time photo-realistic rendering of large 3d natural scenes')

Personal blog about programming | [link](#) (Korean)

2016 – 2018

- Posted various articles about game and graphics programming during my undergraduate years
- Most featured : developing 'StarCraft:Brood War' using reverse engineering

AWARDS AND HONORS

SNU Alumni Association President Award (for top honored graduate)

Seoul, Korea

Seoul National University

Aug. 2019

SNU Academic Festival for Undergraduate Students, best paper award

Seoul, Korea

Seoul National University

Dec. 2017

Presidential Science Scholarship (full tuition)

Seoul, Korea

Korea Student Aid Foundation

2014 – 2019

RELEVANT COURSEWORK

Computer graphics / deep learning / reinforcement learning / stochastic control and optimization / compiler and operating system

TECHNICAL SKILLS

Languages: Python, Java, C/C++

APIs: OpenGL, OptiX, VisRTX, Mitsuba2