

Juhyeon Kim

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EDUCATION

Dartmouth College <i>PhD in Computer Science</i>	Hanover, New Hampshire <i>Sep. 2022 – Current</i>
Seoul National University <i>Master of Science in Electrical and Computer Engineering</i>	Seoul, Korea <i>Sep. 2019 – Feb. 2022</i>
Seoul National University <i>Bachelor of Science in Electrical and Computer Engineering (GPA 4.14/4.3, summa cum laude)</i>	Seoul, Korea <i>Mar. 2014 – Aug. 2019</i>
Seoul Science High School for Gifted Students <i>High school for talented students in science and mathematics</i>	Seoul, Korea <i>Mar. 2011 – Feb. 2014</i>

RESEARCH INTERESTS

- Computer Graphics (especially physically-based rendering, real-time rendering and neural rendering)
- Reinforcement Learning
- 3D Computer Vision

PUBLICATIONS

- 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

Industry-academic Cooperation Project <i>Kohyoung Technology</i>	Mar. 2020 – June. 2022 <i>Seoul, Korea</i>
<ul style="list-style-type: none">• Developed photo-realistic circuit board rendering application for automated optical inspection (AOI)• Developing inter-reflection removal algorithm in phase shift profilometry	
Undergraduate Research Intern <i>Kakao Mobility</i>	Jan. 2019 – Jul. 2019 <i>Pangyo, Korea</i>
<ul style="list-style-type: none">• 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 <i>Seoul National University</i>	<i>Seoul, Korea</i>
<ul style="list-style-type: none">• 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