

# Juhyeon Kim

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## EDUCATION

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### Dartmouth College

*PhD 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

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

## PUBLICATIONS

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

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

Changwoon Choi\*, **Juhyeon Kim**\*, Young Min Kim, “IBL-NeRF: Image-Based Lighting Formulation of Neural Radiance Fields” arXiv, 2022 (\*: equal contribution)

**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

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### Industry-academic Cooperation Project

*Kohyoung Technology*

Mar. 2020 – June. 2022

*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

*Kakao Mobility*

Jan. 2019 – Jul. 2019

*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*

*Seoul, Korea*

- 2020, Spring : Graphics Programming
- 2019, Fall : Machine learning and optimization for 3D data

## PERSONAL PROJECTS

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- 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

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- 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

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

## TECHNICAL SKILLS

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**Languages:** Python, Java, C/C++  
**APIs:** OpenGL, OptiX, VisRTX, Mitsuba2