

# Daniel Rho

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## Research Interests

Machine learning, neural rendering, representation learning, hyperbolic neural networks, and audio understanding and generation

## Education

### Sungkyunkwan University (SKKU)

MSE in Artificial Intelligence

Seoul, Korea

Sep. 2020 - Aug. 2022

- Thesis: "Neural Residual Flow Fields for Efficient Video Representations" (Advisor: Jong Hwan Ko, Co-advisor: Eunbyung Park)
- CGPA: 4.31 / 4.5

### Sungkyunkwan University (SKKU)

Bachelor of Economics & BSE in Computer Science and Engineering

Seoul, Korea

Mar. 2014 - Aug. 2020

- CGPA: 4.23 / 4.5
- Major GPA (Computer Science and Engineering): 4.44 / 4.5 (top 3%)
- Dean's List (2018)

## Publications

### CONFERENCE PUBLICATIONS

#### Coordinate-Aware Modulation for Neural Fields

Joo Chan Lee, **Daniel Rho**, Seungtae Nam, Jong Hwan Ko, Eunbyung Park  
ICLR 2024 (**spotlight**) - International Conference on Learning Representations

#### Mip-Grid: Anti-aliased Grid Representations for Neural Radiance Fields

Seungtae Nam, **Daniel Rho**, Jong Hwan Ko, Eunbyung Park  
NeurIPS 2023 - Advances in Neural Information Processing Systems

#### FFNeRV: Flow-Guided Frame-Wise Neural Representations for Videos

Joo Chan Lee, **Daniel Rho**, Jong Hwan Ko, Eunbyung Park  
ACM MM 2023 - Proceedings of the 31th ACM International Conference on Multimedia

#### Masked Wavelet Representation for Compact Neural Radiance Fields

**Daniel Rho**<sup>\*</sup>, Byeonghyeon Lee<sup>\*</sup>, Seungtae Nam, Joo Chan Lee, Jong Hwan Ko, Eunbyung Park  
CVPR 2023 - Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition

#### Regression to Classification: Waveform Encoding for Neural Field-Based Audio Signal Representation

TaeSoo Kim<sup>\*</sup>, **Daniel Rho**<sup>\*</sup>, Gahui Lee, JaeHan Park, Jong Hwan Ko  
ICASSP 2023 - IEEE International Conference on Acoustics, Speech and Signal Processing

#### Neural Residual Flow Fields for Efficient Video Representations

**Daniel Rho**, Junwoo Cho, Jong Hwan Ko, Eunbyung Park  
ACCV 2022 - Proceedings of the Asian Conference on Computer Vision

#### Streamable Neural Fields

Junwoo Cho<sup>\*</sup>, Seungtae Nam<sup>\*</sup>, **Daniel Rho**, Jong Hwan Ko, Eunbyung Park  
ECCV 2022 - Proceedings of the European Conference on Computer Vision

#### NAS-VAD: Neural Architecture Search for Voice Activity Detection

**Daniel Rho**, Jinhyeok Park, Jong Hwan Ko  
Interspeech 2022 - Proceedings of Interspeech

### PREPRINTS

#### Compact 3D Gaussian Representation for Radiance Field

Joo Chan Lee, **Daniel Rho**, Xiangyu Sun, Jong Hwan Ko, Eunbyung Park  
arXiv preprint arXiv:2311.13681 (2023)

#### Understanding Contrastive Learning Through the Lens of Margins

**Daniel Rho**, TaeSoo Kim, Sooill Park, Jaehyun Park, JaeHan Park  
arXiv preprint arXiv:2306.11526 (2023)

## Professional Experience

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### Research Engineer

AI Tech Lab, KT

Seoul, Korea

Jul. 2022 - Present

### Undergraduate Research Assistant

IRIS LAB, SKKU

Seoul, Korea

Jun. 2019 - Aug. 2020

## Patents

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### “A Method for Inferring of Generating Direction of Sound Using Deep Network and an Apparatus for the Same”

Application No.: 10-2020-0032737

Korea

2020

## Research Projects

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### “Deep Learning Techniques for Multi-Intelligence using Drones”

Ministry of Science and ICT, Korea

Korea

Jan. 2021 - Dec. 2021

### “Deep Neural Network Based Real-Time Accurate Voice Source Localization using Drones”

Ministry of Science and ICT, Korea

Korea

Jun. 2019 - Dec. 2020

## Awards, Honors and Scholarships

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Jan. 2021 **First Place & Ministerial Award**, Artificial Intelligence Grand Challenge, Ministry of Science and ICT

Korea

Fall 2020 **Sungkyun Honorable Scholarship (Fall 2020 - Spring 2022)**, Sungkyunkwan University

Korea

Jun. 2019 **Third Place**, Artificial Intelligence Grand Challenge, Ministry of Science and ICT

Korea

Fall 2019 **Academic Excellence Scholarship**, Sungkyunkwan University

Korea

Fall 2018 **Academic Excellence Scholarship**, Sungkyunkwan University

Korea

## Academic Services

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**Conference Reviewer** CVPR 2024

## Skills

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**Programming** Python (PyTorch, TensorFlow), C/C++, CUDA, git

**Miscellaneous** Piano, Zertifikat Deutsch B1

## Extracurricular Activities

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### Teaching Assistant

Sungkyunkwan University (SKKU)

Korea

- Operating Systems (Fall 2020)

- Basic data structures and algorithms (Spring-Fall 2019)

### Volunteer

SKKU-HKUST Intercultural Peer Learning Program

Korea

Jul. 2018

### Honorary Discharge as a Sergeant

Republic of Korea Air Force

Korea

Jan. 2016 - Jan. 2018

### Student Council Member

College of Social Sciences, SKKU

Korea

Mar. 2015 - Dec. 2015