

# Daniel Rho

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## Research Interests

Machine learning, neural fields, self-supervised learning, representation learning, 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

#### 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

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

Daniel Rho, TaeSoo Kim, Sooil Park, Jaehyun Park, JaeHan Park

arXiv preprint [arXiv:2306.11526](https://arxiv.org/abs/2306.11526) (2023)

## Professional Experience

### Research Engineer

AI2XL (AI to Everything 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

## 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

Korea

Sungkyunkwan University (SKKU)

- Operating Systems (Fall 2020)
- Basic data structures and algorithms (Spring-Fall 2019)

### Volunteer

Korea

SKKU-HKUST Intercultural Peer Learning Program

Jul. 2018

### Honorary Discharge as a Sergeant

Korea

Republic of Korea Air Force

Jan. 2016 - Jan. 2018

### Student Council Member

Korea

College of Social Sciences, SKKU

Mar. 2015 - Dec. 2015

## References

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### Jong Hwan Ko

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### Eunbyung Park

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### Sung-Ho Bae

Assistant Professor

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Email: [shbae@khu.ac.kr](mailto:shbae@khu.ac.kr)