# Daniel Rho

daniel03c195@gmail.com | daniel03c1.github.io | github.com/daniel03c1 | google scholar

## Research Interests

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

## Education

### Sungkyunkwan University (SKKU)

*Seoul, Korea*

MSE in Artificial Intelligence

*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)

*Seoul, Korea*

Bachelor of Economics & BSE in Computer Science and Engineering

*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

Compact 3D Gaussian Representation for Radiance Field
Joo Chan Lee, **Daniel Rho**, Xiangyu Sun, Jong Hwan Ko, Eunbyung Park
*CVPR 2024 (**highlight**) - Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition*

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***, Byeonghyeon Lee*, 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*, **Daniel Rho***, 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*, Seungtae Nam*, **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, Sooill Park, Jaehyun Park, JaeHan Park
*arXiv preprint arXiv:2306.11526* (2023)

## Professional Experience

**Research Engineer** *Seoul, Korea*
AI Tech Lab, KT *Jul. 2022 - Present*

**Undergraduate Research Assistant** *Seoul, Korea*
IRIS LAB, SKKU *Jun. 2019 - Aug. 2020*

## Patents

**"A Method for Inferring of Generating Direction of Sound Using Deep Network and an Apparatus for the Same"** *Korea*
Application No.: 10-2020-0032737 *2020*

## Research Projects

**"Deep Learning Techniques for Multi-Intelligence using Drones"** *Korea*
Ministry of Science and ICT, Korea *Jan. 2021 - Dec. 2021*

**"Deep Neural Network Based Real-Time Accurate Voice Source Localization using Drones"** *Korea*
Ministry of Science and ICT, Korea *Jun. 2019 - Dec. 2020*

## Awards, Honors and Scholarships

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

**Conference Reviewer** CVPR 2024, ACM MM 2024, NeurIPS 2024

## Skills

**Programming** Python (PyTorch, TensorFlow), C/C++, CUDA, git
**Miscellaneous** Piano, Zertifikat Deutsch B1

## Extracurricular Activities

**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*