

Hayeon Kim

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EDUCATION

- **M.S. in Seoul National University** Seoul, Korea
Department of Electrical and Computer Engineering *Mar 2023 – Present*
- **B.S. in Seoul National University** Seoul, Korea
Department of Electrical and Computer Engineering *Mar 2018 – 2023*
- **Incheon Science High School** Incheon, Korea
Specialized high school for gifted students in math and science (1 year early graduation) *Mar 2016 – Feb 2018*

RESEARCH INTEREST

- **Multimodal Generative AI**
Text, Image, 3D Point Cloud generation
- **High-dimensional Generative AI**
8K images, Video, 3D, 4D
- **Low-level Vision using pre-trained model**
Image restoration with fine-tuning, Image segmentation using CLIP

PUBLICATION

- (ECCV 2024) **BeyondScene: Higher-Resolution Human-Centric Scene Generation With Pretrained Diffusion**
G. Kim.*, H. Kim.*, H. Seo*, D. Kang*, SY. Chun
: Paper, Homepage Code Result
 - (ECCV 2024) **Contribution-based Low-Rank Adaptation with Pre-training Model for Real Image Restoration**
D. Park., H. Kim., SY. Chun
: Paper, Homepage
 - (ArXiv 2023) **DITTO-NeRF: Diffusion-based Iterative Text To Omni-directional 3D Model**
H. Seo.*, H. Kim.*, G. Kim*, SY. Chun
: Paper, Homepage, Code
- * denoted for equal contribution

WORK EXPERIENCE

- **BlueSignum Inc.**
Developer (iOS), Product Manager *Jan 2021 – Dec 2021*
 - **DailyBean App development:** Developed the entire app and refactored data structure using clean architecture.
 - Impact - The App “DailyBean” is selected as the App of the day in the global AppStore
 - **App maintenance:** With the Firebase and BigQuery, sorted user’s data selectively and used it on debugging & marketing.
 - **Your Counseling Center App Product management:** Created main story & constructed app’s detailed feature.
- **Beyond Limit – Samsung Industrial Research Project**
Student Researcher - Developer (Python) *Feb 2021 – Nov 2021*
 - **Develop Variational quantum linear solver:** Improvement in Variational Quantum Algorithms by measurement simplification using Python & Mathematica
 - **Refactoring naive quantum simulator:** Refactoring the whole structure of naive quantum simulator by using Python `simplify` library

ADDITIONAL EXPERIENCE

- **XCORPS – Practical Issue Research Contest**
Machine Learning Develop, Report, Presentation *Jun 2020 – Nov 2020*
 - **Speech Split:** Developed specific code to decomposed the input speech into pitch, identity, rhythm and content using PyTorch, and optimized them for voice personalization.
 - **CycleGAN Voice Conversion:** Trained the model to synthesize two different voice domains and differentiate individual voices.
 - **Creating Homepage:** Designed the overall homepage and implemented responsive website with JavaScript, HTML and CSS5
- **Metaverse Developer Competition – Ministry of Science and ICT**
iOS App development, report, presentation *Aug 2022 – Sep 2022*
 - **vocAR App development:** Developed and designed the whole mobile application using AR, MobileNet v2, text recognition technologies

EXTRA CURRICULUM ACTIVITY

- **Student Mentor:** Coached in a special program for physics in Incheon Science High School *Sep 2019*
- **Writing a journal :** Wrote an article in *ECELife*, a quarterly-issued journal of the department of Electrical and Computer Engineering, “Together with Research and Friendship–XCORPS contest challenge” *Sep 2021*

SKILLS SUMMARY

- **Languages:** Python, Swift, C++, Matlab, C, HTML, L^AT_EX
- **Frameworks:** PyTorch, SwiftUI, UIKit, CoreML, ARKit

HONORS AND AWARDS

- Grand Prize at R&E competition in Korea Foundation for the Advancement of Science and Creativity *May 2017*
- Excellence Awards at XCORPS competition in Practical Issue Research *Nov 2020*
- Excellence Awards at Engineering Department Creative Design Fair in SNU *Sep 2022*
- Excellence Awards at Metaverse Developer Competition *Oct 2022*