# Hyungjin Chung, Ph.D.

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## Research interests

Generative models, Imaging, Multimodality

## Work Experience

**Korea University** *Seoul, Korea*
(Incoming) Assistant Professor, Dept. of CSE 2026.09 —
**EverEx** *Seoul, Korea*
Lead AI Research Scientist 2024.08 — Current
**NVIDIA Research** *San Jose, USA (remote)*
Research Scientist Intern, AI4Science 2023.11 — 2024.01
**Google Research** *Mountain View, USA*
Student Researcher, team LUMA 2023.07 — 2023.10
**Los Alamos National Laboratory** *Los Alamos, USA*
Research intern, Applied math & Plasma physics 2022.06 — 2022.08

## Education

**KAIST** *Daejeon, Korea*
Ph.D., Bio & Brain Engineering 2019.03 — 2025.02
Advisor: Jong Chul Ye
Thesis: *Practical approximations of posterior sampling in diffusion model-based inverse problems*
**Korea University** *Seoul, Korea*
B.S., Biomedical Engineering 2015.03 — 2019.02

## Conf. publications

*First authors, †Corresponding authors. If absent, first/last authors are first/corresponding.

**[C22]** ReDirector: Robust Video Diffusion with Reversible Frame Reordering
Byeongjun Park, Byung-Hoon Kim, Hyungjin Chung†, Jong Chul Ye†
*CVPR 2026*

**[C21]** Video Parallel Scaling: Aggregating Diverse Frame Subsets for VideoLLMs
Hyungjin Chung, Hyelin Nam, Jiyeon Kim, Hyojun Go, Byeongjun Park, Junho Kim, Joonseok Lee, Seongsu Ha, Byung-Hoon Kim
*CVPR 2026 Findings*

**[C20]** A Foundational Brain Dynamics Model via Stochastic Optimal Control
Joonhyeong Park*, Byoungwoo Park*, Chang-Bae Bang, Jungwon Choi, Hyungjin Chung, Byung-Hoon Kim†, Juho Lee†
*ICLR 2026*

**[C19]** InvFusion: Bridging Supervised and Zero-shot Diffusion for Inverse Problems
Noam Elata*, Hyungjin Chung*, Jong Chul Ye, Tomer Michaeli, Michael Elad
*NeurIPS 2025*

**[C18]** Lesion-Aware Post-Training of Latent Diffusion Models for Synthesizing Diffusion MRI from CT Perfusion
Junhyeok Lee, Hyungwoong Kim, Hyungjin Chung, Heeseong Eom, Jang Joon, Chul-Ho Sohn, Kyu Sung Choi
*MICCAI 2025*

**[C17]** CapeLLM: Support-Free Category-Agnostic Pose Estimation with Multimodal Large Language Models
Junho Kim, Hyungjin Chung†, Byung-Hoon Kim†
*ICCV 2025*

**[C16]** VideoRFSplat: Direct Scene-Level Text-to-3D Gaussian Splatting Generation with Flexible Pose and Multi-View Joint Modeling
Hyojun Go*, Byeongjun Park*, Hyelin Nam, Byung-Hoon Kim, Hyungjin Chung†, Changick Kim†
*ICCV 2025*

**[C15]** SteerX: Creating Any Camera-Free 3D and 4D Scenes with Geometric Steering
Byeongjun Park*, Hyojun Go*, Hyelin Nam, Byung-Hoon Kim, Hyungjin Chung†, Changick Kim†
*ICCV 2025*

**[C14]** Derivative-Free Diffusion Manifold-Constrained Gradient for Unified XAI
Won Jun Kim*, Hyungjin Chung*, Jemin Kim*, Byeongsu Sim, Sangmin Lee, Jong Chul Ye
*CVPR 2025*

**[C13]** CFG++: Manifold-constrained Classifier Free Guidance for Diffusion Models
Hyungjin Chung*, Jeongsol Kim*, Geon-Yeong Park*, Hyelin Nam*, Jong Chul Ye
*ICLR 2025*

**[C12]** Regularization by texts for latent diffusion inverse solvers
Jeongsol Kim*, Geon-Yeong Park*, Hyungjin Chung, Jong Chul Ye
*ICLR 2025 (spotlight)*

**[C11]** Deep Diffusion Image Prior for Efficient OOD Adaptation in 3D Inverse Problems
Hyungjin Chung and Jong Chul Ye
*ECCV 2024*

**[C10]** Prompt-tuning Latent Diffusion Models for Inverse Problems
Hyungjin Chung, Jong Chul Ye, Peyman Milanfar, Mauricio Delbracio
*ICML 2024*

**[C9]** Decomposed Diffusion Sampler for Accelerating Large-Scale Inverse Problems
Hyungjin Chung, Suhyeon Lee, Jong Chul Ye
*ICLR 2024*

**[C8]** Direct Diffusion Bridge using Data Consistency for Inverse Problems
Hyungjin Chung, Jeongsol Kim, Jong Chul Ye
*NeurIPS 2023*

**[C7]** Improving 3D Imaging with Pre-Trained Perpendicular 2D Diffusion Models
Suhyeon Lee*, Hyungjin Chung*, Minyoung Park, Jonghyuk Park, Wi-Sun Ryu, Jong Chul Ye
*ICCV 2023*

**[C6]** Score-based Diffusion Models for Bayesian Image Reconstruction
Michael T. Mccann, Hyungjin Chung, Jong Chul Ye, Marc L. Klasky
*ICIP 2023*

**[C5]** Parallel Diffusion Models of Operator and Image for Blind Inverse Problems
Hyungjin Chung*, Jeongsol Kim*, Sehui Kim, Jong Chul Ye
*CVPR 2023*

**[C4]** Solving 3d inverse problems using pre-trained 2d diffusion models
Hyungjin Chung*, Dohoon Ryu*, Michael T. Mccann, Marc L. Klasky, Jong Chul Ye
*CVPR 2023*

**[C3]** Diffusion Posterior Sampling for General Noisy Inverse Problems
Hyungjin Chung*, Jeongsol Kim*, Michael T. Mccann, Marc L. Klasky, Jong Chul Ye
*ICLR 2023 (Notable-top-25%)*

**[C2]** Improving Diffusion Models for Inverse Problems using Manifold Constraints
Hyungjin Chung*, Byeongsu Sim*, Dohoon Ryu, Jong Chul Ye
*NeurIPS 2022*

**[C1]** Come-Closer-Diffuse-Faster: Accelerating Conditional Diffusion Models for Inverse Problems through Stochastic Contraction
Hyungjin Chung, Byeongsu Sim, and Jong Chul Ye
*CVPR 2022*

Journal publications

**[J15]** Deep Learning for Deep Learning Performance: How Much Data Is Needed in Biomedical Imaging?
Kyu Sung Choi, Junhyeok Lee, Hyungjin Chung, Jeong-Hoon Lee
*PLOS One, 2026*

**[J14]** Label-independent Framework for Objective Evaluation of Cosmetic Outcome in Breast Cancer
Sangjoon Park, Yong Bae Kim, Jee Suk Chang, Seo Hee Choi, Hyungjin Chung, Ik Jae Lee, Hwa Kyung Byun
*Artificial Intelligence in Medicine, 2025*

**[J13]** Steerable Conditional Diffusion for Out-of-Distribution Adaptation in Medical Image Reconstruction
Alexander Denker*, Riccardo Barbano*, Hyungjin Chung*, Tae Hoon Roh, Simon Arrdige, Peter Maass, Bangti Jin, Jong Chul Ye
*IEEE TMI, 2025*

**[P2]** Objective and Interpretable Breast Cosmesis Evaluation with Attention Guided Denoising Diffusion Anomaly Detection Model
Sangjoon Park, Yong Bae Kim, Jee Suk Chang, Seo Hee Choi, Hyungjin Chung, Ik Jae Lee, Hwa Kyung Byun
*IJROBP, 2024*

**[J12]** Fundus image enhancement through direct diffusion bridges
Sehui Kim*, Hyungjin Chung*, Se Hie Park, Eui-Sang Chung, Kayoung Yi, Jong Chul Ye
*IEEE JBHI, 2024*

**[J11]** MR Image Denoising and Super-Resolution Using Regularized Reverse Diffusion
Hyungjin Chung, Eun Sun Lee, Jong Chul Ye
*IEEE TMI, 2022*

**[J10]** Low-dose sparse-view HAADF-STEM-EDX tomography of nanocrystals using unsupervised deep learning
Eunju Cha*, Hyungjin Chung*, Jaeduck Jang, Junho Lee, Eunha Lee, Jong Chul Ye
*ACS Nano, 2022*

**[J9]** Score-based diffusion models for accelerated MRI
Hyungjin Chung and Jong Chul Ye
*Medical Image Analysis, 2021*

**[J8]** Unsupervised Deep Learning Methods for Biological Image Reconstruction and Enhancement
Mehmet Akçakaya, Burhaneddin Yaman, Hyungjin Chung, Jong Chul Ye
*IEEE SPM, 2021*

**[J7]** A Deep Learning Model for Diagnosing Gastric Mucosal Lesions Using Endoscopic Images: Development, Validation, and Method Comparison
Joon Yeul Nam*, Hyungjin Chung*, Kyu Sung Choi*, Hyuk Lee* et al.
*Gastrointestinal Endoscopy, 2021*

**[J6]** Feature Disentanglement in generating three-dimensional structure from two-dimensional slice with sliceGAN
Hyungjin Chung, Jong Chul Ye
*Nature Machine Intelligence, 2021*

**[J5]** Missing Cone Artifacts Removal in ODT using Unsupervised Deep Learning in Projection Domain
Hyungjin Chung*, Jaeyoung Huh*, Geon Kim, Yong Keun Park, Jong Chul Ye
*IEEE TCI, 2021*

**[J4]** Two-Stage Deep Learning for Accelerated 3D Time-of-Flight MRA without Matched Training Data
Hyungjin Chung, Eunju Cha, Leonard Sunwoo, Jong Chul Ye
*Medical Image Analysis, 2021*

**[J3]** Deep learning STEM-EDX tomography of nanocrystals
Yoseob Han*, Jaeduck Jang*, Eunju Cha*, Junho Lee*, Hyungjin Chung* et al.
*Nature Machine Intelligence, 2021 (March Issue cover)*

**[J2]** Unpaired training of deep learning tMRA for flexible spatio-temporal resolution
Eunju Cha, Hyungjin Chung, Eung Yeop Kim, Jong Chul Ye
*IEEE TMI, 2021*

**[J1]** Unpaired deep learning for accelerated MRI using optimal transport driven cycleGAN
Gyutaek Oh, Byeongsu Sim, Hyungjin Chung, Leonard Sunwoo, Jong Chul Ye
*IEEE TCI, 2020*

## Books

**[B2]** Generative Machine Learning Models in Medical Image Computing
Chapter 7: Diffusion Models for Inverse Problems in Medical Imaging
Hyungjin Chung, Jong Chul Ye

**[B1]** Deep Learning for Biomedical Image Reconstruction
Chapter 12: Image Synthesis in Multi-Contrast MRI with Generative Adversarial Networks
Tolga Çukur, Mahmut Yurt, Salman Ul Hassan Dar, Hyungjin Chung, Jong Chul Ye

## Awards

| | |
|---|---|
| **31st Samsung Humantech Silver Award** ($10,000) | 2025.02 |
| **Google Conference Scholarship** ($3,000) | 2024.05 |
| **30th Samsung Humantech Gold Award** ($20,000) | 2024.02 |
| **29th Samsung Humantech Gold Award** ($10,000) | 2023.02 |
| **2020-2024 BISPL Best Researcher Award** ($4,000×5) | 2020-2024.12 |

## Professional Service

**Committee Member**

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|---|---|
| KSIAM Imaging Science | 2026-2027 |
| Technical Group on Image Processing, IEIE | 2026- |

**Grant Reviewer**

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|---|---|
| The Royal Society (Leverhulme Trust Senior Fellowship) | 2026 |

**Reviewer (Conference)**

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|---|---|
| ICLR | 2024- |
| NeurIPS | 2022- |
| NeurIPS Datasets&Benchmarks | 2023- |
| CVPR | 2023- |
| ECCV | 2022- |
| ICCV | 2023- |
| AAAI | 2025- |
| SIGGRAPH | 2026- |
| SIGGRAPH Asia | 2025- |
| MICCAI | 2022- |

**Reviewer (Journal)**

NEJM AI

Nature Communications
npj Digital Medicine
Medical Image Analysis
IEEE TMI (*Gold Distinguished reviewer 2024*, *Bronze Distinguished reviewer 2023*)
IEEE TPAMI, TCI, TSP, TIP, SPS, SPL, TRPMS
See full list

## Invited talks & Letures

**Towards motion understanding and generation in videos**
- *Korean Society of Digital Health* 2025.09

**Texts in inverse problem solving using diffusion models**
- *University of Michigan* 2024.10

**Tutorial on Denoising Diffusion Model: Fundamentals & Applications**
- *IEIE: Winter School on Biomedical Signal Processing* 2024.02

**Adapting diffusion models for inverse problems**
- *UCLA, Caltech: Grundfest Memorial Lecture Series in Graphics and Imaging* 2024.02
- *2023 NeurIPS Workshop on diffusion models* 2023.12
- *Google Research* 2023.10

**Advances in diffusion models and their applications to inverse problems**
- *Guest Lecture, Korea University* 2023.11

**Generative (diffusion) models for medical imaging**
- *KoSAIM 2025 summer school* 2025.08
- *International Congress on Magnetic Resonance Imaging (ICMRI) 2023* 2023.11
- *Michigan State University* 2023.09
- *Stanford MedAI* 2023.08
- *MGH, School of Medicine, Harvard University* 2023.08
- *BRIC academic webinar* 2023.03
- *45$^{th}$ meeting, The Korean Society of Abdominal Radiology, 2022* 2022.06

**Diffusion models: foundations and applications in biomedical imaging**
- *IEEE International Symposium on Biomedical Imaging (ISBI) 2023* 2023.05

**Diffusion models for inverse problems**
- *LANL* 2024.11
- *IPA seminar, Korea University* 2024.09
- *Krafton AI* 2024.09
- *DRGem* 2024.08
- *LG AI Research* 2024.08
- *Twelve Labs* 2024.06
- *AI SEOUL 2024* 2024.02
- *Inference & control group seminar, Donders Institute, Radboud Univ.* 2023.01
- *LANL T-CNLS seminar, 2022* 2022.08

## Preprints

**[P7]** Advancing Ultra Low-Field MRI with Synthetic Data and Deep Learning-Based Image Enhancement for Brain Volume Analysis
Peter Hsu, Elisa Marchetto, Hyungjin Chung, Dohun Lee, Jong Chul Ye, Daniel Sodickson, Jelle Veraart, Patricia Johnson

**[P6]** ContextMRI: Enhancing Compressed Sensing MRI through Metadata Conditioning
Hyungjin Chung*, Dohun Lee*, Zihui Wu, Byung-Hoon Kim, Katie Bouman, Jong Chul Ye

**[P5]** Contrastive CFG: Improving CFG in Diffusion Models by Contrasting Positive and Negative Concepts
Jinho Chang, Hyungjin Chung, Jong Chul Ye

**[P4]** ACDC: Autoregressive coherent multimodal generation using diffusion correction

Hyungjin Chung*, Dohun Lee*, Jong Chul Ye

**[P3]** A survey on diffusion models for inverse problems

Giannis Daras, Hyungjin Chung, Chieh-Hsin Lai, Yuki Mitsufuji, Jong Chul Ye, Peyman Milanfar, Alexandros G Dimakis, Mauricio Delbracio

**[P2]** Amortized Posterior Sampling with Diffusion Prior Distillation

Abbas Mammadov*, Hyungjin Chung*, Jong Chul Ye

**[P1]** Generative AI for Medical Imaging: extending the MONAI Framework

Pinaya *et al.* (Hyungjin Chung: Contributing author)

## Patent

**US patent application**

- Score-based Diffusion Model for Accelerated MRI and Apparatus thereof 2023

**Korea patent publication**

- Crowd Deep Learning Method of Medical Artificial Intelligence and Apparatus thereof 2025
- Score-based Diffusion Model for Accelerated MRI and Apparatus thereof 2024
- Task-agnostic image processing method and apparatus using transformer and federated split learning 2024
- Tomography image processing method using neural network based on unsupervised learning to remove missing cone artifacts and apparatus therefor 2023
- Two-Stage unsupervised learning method for 3D Time-of-flight MRA reconstruction and the apparatus thereof 2023

**Korea patent application**

- Accelerating method of conditional diffusion models for inverse problems using stochastic contraction and the apparatus thereof 2021
- Extreme condition reconstruction method HAADF-STEM-EDX tomography using unsupervised deep learning and the apparatus thereof 2021

## References


**Byung-Hoon Kim** 2024.08 — Current
CIO (EverEx) egyptdj@yonsei.ac.kr
**Jong Chul Ye** 2019.03 — 2025.02
Ph.D. advisor (KAIST) jong.ye@kaist.ac.kr
**Michael T. McCann** 2022.06 — 2022.08
Host (LANL) mccann@lanl.gov
**Mauricio Delbracio** 2023.07 — 2023.11
Host (Google) mdelbra@google.com
**Peyman Milanfar** 2023.07 — 2023.11
Host (Google) milanfar@google.com