# Hyungjin Chung

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## Research interests

Deep Learning, Inverse problems, Computational Imaging, MR reconstruction

## Education

**KAIST** — Daejeon, Korea
PhD in Bio & Brain Engineering — 2021.03 – Present
Advisor: Professors Jong Chul Ye

**KAIST** — Daejeon, Korea
MA in Bio & Brain Engineering — 2019.03 – 2021.02
Thesis: TomoGAN: Unsupervised Learning-based Reconstruction of Tomography
Advisor: Professors Jong Chul Ye

**Korea University** — Seoul, Korea
BA in Biomedical Engineering — 2015.03 – 2019.02

## Honors and scholarships

**KAIST Scholarship** — 2021.02 - Present
**Korea Government Scholarship** — 2019.03 - 2021.02

## Publications

**Deep learning STEM-EDX tomography of nanocrystals**
Yoseob Han*, Jaeduck Jang*, Eunju Cha*, Junho Lee*, Hyungjin Chung*, Myoungho Jeong, Tae-Gon Kim, Byeong Gyu Chae, Hee Goo Kim, Shinae Jun, Sungwoo Hwang, Eunha Lee, Jong Chul Ye
*Nature Machine Intelligence, 2021.* **(*First author)**

**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.* **(*First author)**

**Unpaired training of deep learning tMRA for flexible spatio-temporal resolution**
Eunju Cha, Hyungjin Chung, Eung Yeop Kim, Jong Chul Ye.
*IEEE Transactions on Medical Imaging, 2020.*

**Unpaired deep learning for accelerated MRI using optimal transport driven cycleGAN**

Gyutaek Oh, Byeongsu Sim, Hyungjin Chung, Leonard Sunwoo, Jong Chul Ye.
*IEEE Transactions on Computational Imaging, 2020.*

International Confernce

**Deep learning fast MRI using channel attention in magnitude domain**

Joonhyung Lee*, Hyunjong Kim*, Hyungjin Chung*, Jong Chul Ye
*IEEE International Symposium on Biomedical Imaging, 2020.*
**(*First author)**

**Unsupervised Merge-Residual Learning for Time-of-Flight MRI**
Hyungjin Chung*, Eunju Cha, Leonard Sunwoo, Jong Chul Ye
*IEEE International Symposium on Biomedical Imaging Workshop, 2020.*
**(*First author)**

Patent

**Unsupervised deep learning method for tomography for complete removal of missing cone artifact and apparatus therefore**
Jong Chul Ye, Hyungjin Chung, JaeYoung Huh
*Korea patent application, 2020.*

**Two-Stage unsupervised learning method for 3D Time-of-flight MRA reconstruction and the apparatus therefore**
Jong Chul Ye, Hyungjin Chung, Eunju Cha, Leonard Sunwoo
*Korea patent application, 2020.*

Research experience

**Unsupervised deep learning for compressed sensing MRI reconstruction**
KAIST 2020.04 – 2021.02
Research project conducted in collaboration with Seoul National University Bundang Hospital.

**Deep learning-based performance prediction of deep learning**
KAIST 2020.03 – 2021.02
Project presented in VRPGP 2020

**Development of reconstruction algorithm of STEM-EDX tomography**
Samsung Electronics 2019.12 – 2020.11

Teaching experience

**Teaching assistant, KAIST** Fall 2020
BiS 452: Biomedical Imaging

**Teaching assistant, KAIST** Spring 2020
BiS 400, MAS 480 : Advanced Intelligence

**Teaching assistant, KAIST** Fall 2019
BiS 452: Biomedical Imaging

**Teaching assistant, KAIST** Spring 2020
BiS 301, : Bioengineering Laboratory I

## Skills

**Deep Learning Framework**
PyTorch, Tensorflow.

**Programming**
Python, C++, MATLAB.