

# Yoonseok Choi

Seoul, South Korea

Updated: September 2025

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🌐 [yunseokchoi-ai.github.io](https://yunseokchoi-ai.github.io)

🌐 [yunseokchoi](https://yunseokchoi-ai.github.io)

## Biography

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I am a third-year Ph.D. student at Yonsei University, advised by **Prof. Dong-Hyun Kim** in the **Medical Imaging AI Lab (MILAB)**. In 2025, I am also conducting research as a **visiting student** at the **Vision and Learning Lab (VLLab), UC Merced**, under the supervision of **Prof. Ming-Hsuan Yang**, expanding my expertise in computer vision and generative modeling.

My doctoral research focuses on medical image analysis and computer vision, with a particular emphasis on developing deep learning methods to address **clinical unmet needs** such as the **missing modality issue** in MRI. My broader research interests include **segmentation, super-resolution, motion artifact correction, image generation, disentangled representation learning, and MRI analysis**. I am motivated by challenges that bridge fundamental deep learning techniques with real-world clinical applications, aiming to create robust and generalizable AI solutions for healthcare.

## Education

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### Ph.D. in Electrical and Electronic Engineering

Yonsei University

Advisor: Dong-Hyun Kim

Seoul, South Korea

*Mar 2023 – Present*

### M.S. in Electrical and Electronic Engineering

Yonsei University

Advisor: Dong-Hyun Kim

Seoul, South Korea

*Mar 2021 – Feb 2023*

### B.S. in Biomedical Engineering

Yonsei University

Advisor: Young-Ro Yoon

Wonju, South Korea

*Mar 2015 – Feb 2021*

## Selected Publications (\* Equal Contribution)

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### Conference Paper

1. TESLA: Test-time Reference-free Through-plane Super-resolution for Multi-contrast Brain MRI

**Yoonseok Choi**, Sunyoung Jung, Mohammed A. Al-masni, Ming-Hsuan Yang, and Dong-Hyun Kim  
**MICCAI 2025, Oral presentation, Top 2.2%**

2. Deformation-Aware Segmentation Network Robust to Motion Artifacts for Brain Tissue Segmentation using Disentanglement Learning

Sunyoung Jung, **Yoonseok Choi**, Mohammed A. Al-masni, Minyoung Jung, and Dong-Hyun Kim  
**MICCAI 2024**

3. Brain Tissue Segmentation Robust to motion artifacts using Deformation-Aware Network

Sunyoung Jung, **Yoonseok Choi**, Mohammed A. Al-masni, and Dong-Hyun Kim  
*ISMRM 2024, Oral presentation*

4. Two-Stage Deep Learning with Multi-Pathway Network for Brain Tumor Segmentation and Malignancy Identification From MR Images

**Yoonseok Choi**, Mohammed A. Al-masni, Hyeok Park, Jun-ho Kim, and Dong-Hyun Kim  
*ISMRM 2023, Oral presentation*

5. 3D CMM-Net with Deeper Encoder for Semantic Segmentation of Brain Tumors in BraTS2021 Challenge

**Yoonseok Choi**, Mohammed A. Al-masni, and Dong-Hyun Kim  
*MICCAI 2021 Brain Lesion Workshop*

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## Journal Paper

1. Test-time Reference-free Through-plane Super-resolution Network for Multi-contrast Brain MRI via Disentangled Representations

**Yoonseok Choi**, Sunyoung Jung, Gayoon Choi, Mohammed A. Al-masni, Kyu-Jin Jung, Wei-Ting Chen, Ming-Hsuan Yang, and Dong-Hyun Kim  
*Medical Image Analysis (MedIA), submitted, 2025, impact factor 11.8*

2. A Single Stage Knowledge Distillation Network for Brain Tumor Segmentation on Limited MR Image Modalities

**Yoonseok Choi**, Mohammed A. Al-masni, Kyu-Jin Jung, Roh-Eul Yoo, Seong-Yeong Lee, and Dong-Hyun Kim  
*Computer Methods and Programs in Biomedicine (CMPB), 2023, impact factor 6.1*

## Patents

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1. Integrated Software Platform to Visualize Brain Tumor Segmentation Masks from MR Image

**Yoonseok Choi**, Hyeok Park, and Dong-Hyun Kim  
*Registration Number: C-2022-032255 (Software Registration), Registration Date: Aug 17, 2022*

2. Apparatus and Method for Segmenting Brain Tumors from MR Images

**Yoonseok Choi** and Dong-Hyun Kim  
*Application Number: 10-2022-0136260, Application Date: Oct 21, 2022*

## Experience

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### Vision and Learning Lab (VLLab) - Visiting Student

University of California at Merced

Merced, USA  
Feb 2025 – Present

- Research on super-resolution and diffusion models in medical imaging

**Medical Imaging Artificial Intelligence Lab (MILab) - Intern**  
Yonsei University

Seoul, South Korea  
Jul 2020 – Feb 2021

- Research on parallel imaging and semantic segmentation in Brain MRI

**Signal Processing Lab - Intern**  
Yonsei University

Wonju, South Korea  
Mar 2019 – Feb 2021

- Development of a skin condition measurement device using TEWL (TransEpidermal Water Loss)

## Awards and Honors

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1. Cognitive and Biological Factors Related to the Development of Question-Asking Abilities in School-Aged Children, Junior Convergence Research Group (1st place, 1,500,000 won), 2025

Hyebin Sung, Seoran Kim, Yuju Shin, Dongwook Kim, Jae-Yoon Kim, Jun-Ho Kim, Soohyoung Lee, **Yoonseok Choi**, and Eun-Gyu Ha

2. BK21 FOUR (Brain Korea 21 Four) Project; Support Program for Outstanding Graduate Students' International Joint Training (1 year from the commencement of training (12months, 26,000,000 won), 2024

**Yoonseok Choi**

3. Structural brain correlates of foreign language proficiency and experiences, Junior Convergence Research Group (3rd place, 500,000 won), 2023

XIAOQIAO WANG, Seoran Kim, Jae-Yoon Kim, Jun-Ho Kim, **Yoonseok Choi**, and Eun-Gyu Ha

4. DSU-Net2D: Deep Supervision U-Net2D, Medical Image Processing Contest with Rayence and Yonsei University (2nd place, 2,000,000 won), 2022

**Yoonseok Choi** and Sewook Kim

## Academic Activities

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### Conference Reviewer

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| <i>MEDICAL IMAGE COMPUTING AND COMPUTER ASSISTED INTERVENTION (MICCAI)</i> | 2025 |
| <i>International Conference on Computer Vision (ICCV)</i>                  | 2025 |