

# Seonghui Min

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## Research Interests

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Deep Learning, Computer Vision, Generative Modeling, Data-Efficient Learning, Foundation Models, Medical Image Analysis

## Education

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### Korea University

*M.S. in Computer Science and Engineering*

Advisor: Won-Ki Jeong

Seoul, South Korea

Mar. 2022 - Feb. 2024

### Korea University

*B.Eng. in Biomedical Engineering*

Seoul, South Korea

Mar. 2018 - Feb. 2022

## Research Experience

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### High-performance Visual Computing Lab

*Research Assistant @ Korea University*

Advisor: Won-Ki Jeong

Seoul, South Korea

Sep. 2021 - Mar. 2024

- Generative Modeling for Data Augmentation in Histopathology Images
- Weakly-Supervised Nuclei Segmentation in Histopathology Images
- Interactive Tumor Region Segmentation in Histopathology Images

### Brain Reverse Engineering by Intelligent Neuroimaging Lab

*Research Intern @ Korea University*

Advisor: Joon-Kyung Seong

Seoul, South Korea

Mar. 2021 - Aug. 2021

- Regional Amyloid Positivity Prediction using Brain MRI in Alzheimer's Disease

## Publications

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### Conference Proceedings (\* equal contribution)

[C-3] **Seonghui Min\***, Hyun-Jic Oh\*, Won-Ki Jeong, "Co-synthesis of Histopathology Nuclei Image-Label Pairs using a Context-Conditioned Joint Diffusion Model"

*European Conference on Computer Vision (ECCV)*, 2024

[C-2] SeungKyu Kim, Hyun-Jic Oh, **Seonghui Min**, Won-Ki Jeong, "Evaluation and improvement of Segment Anything Model for interactive histopathology image segmentation"

*MICCAI Workshop on Foundation Models for General Medical AI*, 2023

[C-1] **Seonghui Min**, Won-Ki Jeong, "CGAM: click-guided attention module for interactive pathology image segmentation via backpropagating refinement"

*IEEE International Symposium on Biomedical Imaging (ISBI)*, 2023

### Journal Publications (\* equal contribution)

[J-2] Hyun-Jic Oh\*, **Seonghui Min\***, Won-Ki Jeong, "S2L-CM: Scribble-supervised Nuclei Segmentation in Histopathology Images using Contrastive Regularization and Pixel-Level Multiple Instance Learning"

*under review at Computers in Biology and Medicine*

[J-1] **Seonghui Min**, Won-Ki Jeong, "ZoomISEG: Interactive Multi-Scale Fusion for Histopathology Whole Slide Image Segmentation"

*Journal of the Korea Computer Graphics Society*, 29(3), 2023

## Teaching

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**(COSE490) Special Lecture for Computer Science**

*Fall 2022*

*Teaching Assistant @ Korea University*

**(COSE213) Data Structure**

*Spring 2022*

*Teaching Assistant @ Korea University*

## Academic Activities

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**Biomedical Engineering Academic Team**

Seoul, South Korea

*Team Member @ Korea University*

*Fall 2020 - Spring 2021*

Advisor: Joon-Kyung Seong

- Studied deep learning theories and participated in research paper seminars

## Honors and Awards

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**Research Scholarship**, Korea University (Fall 2022, Spring 2023, Fall 2023)

**Research Assistant Scholarship**, Korea University (Spring 2022, Fall 2022, Spring 2023)

**Semester High Honors**, Korea University (Spring 2019, Fall 2020 - Fall 2021)

**3<sup>rd</sup> Place Award**, Campus CEO Start-Up Competition, *Team Leader @ Korea University* (Fall 2020)

## Skills

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### Programming

- Python, PyTorch, OpenCV, Scikit-learn, Matlab

### Languages

- English: TOEFL 107/120
- Korean: Native