

# Hyeonwoo Cho

Seoul, Korea

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Hyeonwoo Cho

## Bio

Hyeonwoo Cho is an AI research engineer at OSSTEM, a healthcare artificial intelligence company based in Seoul, South Korea. He received his MS in computer vision from Kyushu University in 2022, where his research focused on domain adaptation and semi-supervised learning. His research interests include continual learning, test-time adaptation, noisy label learning, and 3D vision. He has developed a AI system for early diagnosis of lung cancer. He is currently developing a tool for analyzing multiple diseases associated with dementia from brain MRI.

## Education

### Kyushu University

MS in Information Science and Electrical Engineering

Fukuoka, Japan

March 2020 - March 2022

- GPA: 4.0/4.0
- Lab: HumanInterface
- Advisor: **Ryoma Bise**
- Research fields: Computer Vision, Bio medical image analysis, pattern recognition

### Kyushu University

BS in Aeronautics and Astronautics

Fukuoka, Japan

March 2016 - March 2020

- GPA: 3.4/4.0

## Work Experience

### VUNO Inc

AI Research Scientist

Seoul, Korea

March 2022 - March 2024

- Developed a system for early diagnosis of lung cancer.
- Developing a tool for analyzing multiple diseases associated with dementia from brain MRI.

### OSSTEM IMPLANT

AI Research Engineer

Seoul, Korea

March 2024 - Current

- Developing a Q&A AI system for answering questions from clients.

## Skills

**Programming** Python (Pandas, PyTorch, NumPy, Scikit-learn. etc.), C/C++

**Miscellaneous** Linux, Shell (Bash/Zsh),  $\LaTeX$ (Overleaf), Microsoft Office, Firebase, Git, Docker.

**Soft Skills** Time Management, Teamwork, Problem-solving, Documentation, Engaging Presentation.

## Publications

### JOURNAL ARTICLES

Effective pseudo-labeling based on heatmap for unsupervised domain adaptation in cell detection

Hyeonwoo Cho, Kazuya Nishimura, Kazuhide Watanabe, Ryoma Bise

*Medical Image Analysis* 79 (2022) p. 102436. Elsevier, 2022

### CONFERENCE PROCEEDINGS

Cell detection in domain shift problem using pseudo-cell-position heatmap

Hyeonwoo Cho, Kazuya Nishimura, Kazuhide Watanabe, Ryoma Bise

*Medical Image Computing and Computer Assisted Intervention–MICCAI 2021: 24th International Conference, Strasbourg, France, September 27–October 1, 2021, Proceedings, Part VIII* 24, 2021

Semi-supervised cell detection in time-lapse images using temporal consistency

Kazuya Nishimura, Hyeonwoo Cho, Ryoma Bise

*Medical Image Computing and Computer Assisted Intervention–MICCAI 2021: 24th International Conference, Strasbourg, France, September 27–October 1, 2021, Proceedings, Part VIII* 24, 2021

Cell detection for various cell shapes

Cho Hyeonwoo, Kazuya Nishimura, Ryoma Bise

*Record of 2020 Joint Conference of Electrical, Electronics and Information Engineers in Kyushu*, 2020

## UNDER REVIEW

- **Recently submitted 2 papers to ECCV 2024! (Under Review)**

- One paper is about test-time adaptation method for test-time distribution shift, the other one is about self-supervised method for universal segmentation.

## Projects

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### Competition: Google - Isolated Sign Language Recognition

Seoul, Korea

VUNO

February 2023 - May 2023

- Achieved silver medal from this competition.
- Data: Time-Series, Tabular
- Main Approach: Self-Supervised Method (pretraining) - Masked Auto Encoder
- More details: <https://hyeonwoocho7.github.io/hwc.github.io/project/google-isolated-sign-language-recognition/>

### Lung Cancer Detection

Seoul, Korea

VUNO

March 2022 - October 2023

- Development of a solution for early detection and analysis of nodules that can develop into lung cancer from lung CT scan information of patients.
- Designed two stage detection algorithm for lung CT
- More details: <https://hyeonwoocho7.github.io/hwc.github.io/project/lung-cancer-detection/>

### Domain Adaptation for Person Tracking

Fukuoka, Japan

Kyushu University

June 2021 - March 2022

- Analyzed and handled multi object tracking datasets in various domains
- Defined a domain shift on a person tracking and developed domain adaptation methods using a center point based tracking method.
- **Research Keyword:** Domain Adaptation, Object Tracking, Pseudo labeling

## Achievements

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2015	<b>Korea-Japan Joint Scholarship Program</b> , A full funding for undergraduate studies in science and engineering departments under the government of South Korea and the government of Japan	Korea
2021	<b>N1</b> , Japanese-Language Proficiency Test	Japan
2021	<b>850/999</b> , TOEIC	Japan
2021	<b>Level6</b> , TOEIC Speaking	Japan
2022	<b>Excellent student award</b> , Kyushu University graduation	Japan
2023	<b>Silver Medal, top5%</b> , Kaggle: Google-Isolated Sign Language Recognition	Korea

## Languages

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<b>English</b>	Professional Working Proficiency
<b>Japanese</b>	Full Professional Proficiency

**References available upon request.**