Hyeonwoo Cho

Seoul, Korea

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Bio

Hyeonwoo Cho is an AI research scientist at VUNO, 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 *Fukuoka, Japan*

MS in Information Science and Electrical Engineering *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 *Fukuoka, Japan*

BS in Aeronautics and Astronautics *March 2016 - March 2020*

- GPA: 3.4/4.0

Work Experience

VUNO Inc *Seoul, Korea*

AI Research Scientist *March 2022 - Current*

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

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 CVPR 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

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

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

Languages

English	Professional Working Proficiency
Japanese	Full Professional Proficiency

References available upon request.