

Younjoon Chung

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RESEARCH INTERESTS

Medical Imaging, Data Focused Computer Vision, Robust Machine Learning, Fairness in AI, Generative AI

EDUCATION

Carnegie Mellon University, School of Computer Science Pittsburgh, PA
M.S. in Computer Vision (Robotics Institute); GPA: 4.11/4.00 *Aug 2022 — Current*
Selected Coursework: Machine Learning, Computer Vision, (Bio)Medical Image Analysis

Sogang University, Department of Computer Science and Engineering Seoul, Korea
B.S. in Computer Science and Engineering; GPA: 3.58/4.30 (3.52/4.00) *Mar 2014 — Feb 2018*
Graduated with Magna Cum Laude

PUBLICATIONS

Under Submission & Pre-Print

Robust Machine Learning / Generative AI

- [1] [Younjoon Chung](#) (*), [Yinong Oliver Wang](#) (*), [Chen Henry Wu](#), [Fernando De la Torre](#), “Domain Gap Embeddings for Generative Dataset Augmentation”. Paper submitted to CVPR 2024.

Peer-reviewed Conference / Workshop / Journal

Medical Image Analysis

- [2] [Younjoon Chung](#), [Hyun Joon An](#), [Ryungwoo Jang](#), [Minki Chung](#), [Jinkyong Sung](#), [Eunyoung Hong](#) and [Kyuhan Jung](#), “Automatic Windowing Parameter Estimation For Chest Radiographs: A Deep Learning Approach”, Radiological Society of North America 2021 Scientific Assembly and Annual Meeting (RSNA), 2021. [Oral Presentation]
- [3] [Yoon-Chul Kim](#), [Younjoon Chung](#), [Yeon Hyeon Choe](#), “Automatic localization of anatomical landmarks in cardiac MR Perfusion using random forests”, Biomedical Signal Processing and Control (Biomed. Signal Process. Control), 2017.
- [4] [Yoon-Chul Kim](#), [Younjoon Chung](#), [Yeon Hyeon Choe](#), “Deep learning for classification of late gadolinium enhancement lesions based on the 16-segment left ventricular model”, Physica Medica (Phys. Med.), 2023.

Graphical-User Interface

- [5] [Younjoon Chung](#), [Yoon-Chul Kim](#), [Yeon Hyeon Choe](#), “Python GUI implementation of training data generator for deep learning in cardiac cine MRI”, International Congress on MRI (ICMRI), 2018. [Oral Presentation]
- [6] [Yoon-Chul Kim](#), [Khu Rai Kim](#), [Kwanghee Choi](#), [Minwoo Kim](#), [Younjoon Chung](#), [Yeon Hyeon Choe](#), “EVCMR: A tool for the quantitative evaluation and visualization of cardiac MRI data”, Computers in Biology and Medicine (Comput. Biol. Med.), 2019.

PATENTS

- [1] [Beomhee Park](#), [Minki Chung](#), [Seo Taek Kong](#), [Younjoon Chung](#), “Method to read chest image”, U.S. Patent Application 17/466,697, filed March 10, 2022.
- [2] [Minki Chung](#), [Beomhee Park](#), [Seo Taek Kong](#), [Younjoon Chung](#), “Method for detecting abnormal findings and generating interpretation text of medical image”, U.S. Patent Application 17/471,001, filed March 17, 2022.

ACADEMIC EXPERIENCE

Human Sensing Laboratory, Carnegie Mellon University
Graduate Research Assistant

Pittsburgh, PA
Jan 2023 — Current

- Advised by [Prof. Fernando De la Torre](#).
- Led a project as a co-first author on developing unsupervised dataset generation using foundational models for generative data augmentation. *Results submitted to CVPR 2024*.
- Prototyped an image generation pipeline for Chest X-ray images, validated by a radiologist, achieving a 60% accuracy rate in producing realistic images.

Samsung Medical Center
Undergraduate Research Assistant

Seoul, Korea
Jan 2016 — Mar 2018

- Advised by [Prof. Yoon-Chul Kim](#).
- Designed and developed data labeling tools for 4-dimensional MRI data using PyQT.
- Developed random-forest models for detecting anatomical landmarks in myocardial perfusion MR data.

WORK EXPERIENCE

VUNO Inc.
Research Engineer

Seoul, Korea
Jun 2020 — Jun 2022

- Developed a Residual 3D U-Net segmentation model for Computer-Aided Detection (CADe) of lung nodules in CT scans, achieving an IoU score of 0.8. Deployed in *VUNO Med[®]-LungCT AI[™]*.
- Developed Computer-Aided Diagnosis (CADx) system for Lung-RADS classification with internal SOTA performance. Awaiting clinical trials to be deployed in *VUNO Med[®]-LungCT AI[™]*.
- Led on-device CAD development for Samsung's mobile digital X-ray *GM85 Fit*. Reduced CPU inference time by 70% while maintaining accuracy with the OpenVINO toolkit.
- Proposed a novel automatic windowing method for Chest X-ray images, improving Dice similarity coefficient by 1-2% on Pneumothorax detection. Manuscript accepted as an oral presentation in RSNA 2021. [\[slides\]](#)

Selvas AI Inc.
Software Developer

Seoul, Korea
Mar 2018 — Jun 2020

- Designed ML pipelines for developing OCR models, including data collection, labeling, training, evaluation.
- Developed FPN-based text localization models for Korean characters with 0.75 F1-score, on par with the SOTA. Successfully completed PoC projects with SK Telecom and Doosan Heavy Industries & Construction.

AWARDS

Contributhon Silver Award (2nd Place)

Korean Ministry of Science & ICT

Led a team of 20 for the official Keras project “Korean Translation of the Keras Document”. [\[code\]](#) *Dec 2019*

Contributhon Bronze Award

Korean Ministry of Science & ICT

Awarded for the open-source project on translating Keras tutorials to Korean. [\[code\]](#) *Nov 2018*

Best Evangelism Award

Microsoft Student Partners

Awarded two consecutive semesters for the technical evangelism series on AI/ML. *Feb 2018, Jul 2017*

NAVER D2 Campus Fest “Beyond Fest Award (1st Place)”

NAVER Corp.

Awarded for the successful development of the open-source project, “coding-night-live”. [\[code\]](#) *Aug 2017*

SELECTED TALKS

- How is Medical AI different?** [\[link\]](#) Fast Campus 2022
Introduction to Open Source [\[link\]](#) Samsung Open Source Conference (SOSCON) 2019
Keras Hands-on Lab [\[code\]](#) [\[slides\]](#) Global AI Bootcamp (Microsoft) - Seoul 2019

TEACHING EXPERIENCE

- Online Deep Learning/AI Class** Fast Campus 2021
Taught an 8-hour-long online hands-on programming session with TF/Keras, covering image processing, image classification/segmentation models, and video classification models.
- Introduction to Artificial Intelligence** Seoul Metropolitan Gov. 2019
Taught a class on image processing and CNN basics for beginners.
- Mission Mars** [\[code\]](#) APAC ML & DS Community Summit (Microsoft) 2017
Conducted a workshop on developing text classification models with Azure Machine Learning Studio.

SCHOLARSHIPS

- NAVER Student Scholarship** Dec 2017
Silicon Valley Data Science Program (Data Science projects with on-site engineers) Fall 2017
Merit-based Scholarship for Academic Excellence Spring, Fall 2014

OUTREACH ACTIVITIES

- Mentor**, CMU Undergraduate AI Mentoring Program Fall 2023
Committee Member, Keras Korea Mar 2018 — Present
Technology Evangelist, Microsoft Student Partners Mar 2015 — Mar 2016

OPEN SOURCE CONTRIBUTIONS

- Keras**
Over 25+ commits merged in the Keras ecosystem (keras, keras-applications, keras-preprocessing) [\[link\]](#) [\[link\]](#) [\[link\]](#)
Maintaining the official Korean translation of the Keras documentation project [\[link\]](#)
- Introduction to Practical Data Science**
Implemented various visualization codes for a popular data science handbook. [\[code\]](#)

SKILLS

Programming
Major: Python
Minor: C, C++, HTML

Language
English: iBT TOEFL 110 [R 30/ L 30/ S 26/ W 24]
Korean: Native

REFERENCES

Available upon request

Last updated: November 30, 2023