

YOUNJOON CHUNG

New Haven, CT 06511 (USA) | Citizenship: U.S., Republic of Korea (Dual Citizen)

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RESEARCH SUMMARY

My research focuses on building reliable machine learning systems that generalize under distribution shift, with applications in medical imaging and safety-critical visual perception. I develop domain adaptation, test-time adaptation, data-centric learning, and multimodal modeling methods to improve robustness on unseen datasets. Key contributions include energy-based adaptation frameworks for depth completion and medical image classification, generative data augmentation, and compact vision-language models for ophthalmologic diagnosis and clinical reasoning. My work aims to bridge theory and practice, with publications at top-tier venues including CVPR and ICCV.

EDUCATION

Yale University

Ph.D. in Computer Science

Ph.D. in Computational Biology and Biomedical Informatics (CBB)

Advisor: Prof. Qingyu Chen | Co-Advisor: Prof. Lucila Ohno-Machado

New Haven, CT

Aug 2024 – Aug 2025

Sep 2025 – Present

Carnegie Mellon University

M.S. in Computer Vision, School of Computer Science

Advisor: Prof. Fernando De la Torre

Pittsburgh, PA

Dec 2023

Sogang University

B.S. in Computer Science and Engineering

GPA 3.58/4.30 (3.52/4.00), *Graduated with Magna Cum Laude*

Seoul, Korea

Feb 2018

ACADEMIC EXPERIENCE

Yale University

Ph.D. Student in CBB

- Advised by Prof. Qingyu Chen and Prof. Lucila Ohno-Machado.

- Developed VOLMO, a compact 2B-parameter ophthalmology VLLM for disease diagnosis and clinical reasoning.

- Developed energy-based UDA method for medical image classification.

Ph.D. Student in Computer Science

- Advised by Prof. Alex Wong.

- Led first-author project ETA, an energy-based test-time adaptation framework for depth completion that reduces state-of-the-art error by 10.2% on indoor and 6.9% on outdoor benchmarks. Accepted to ICCV 2025.

- Co-author project on continual learning on depth completion. Accepted to CVPR 2025.

- Co-author project on diffusion-based monocular depth estimation. Accepted to CVPR 2026.

Carnegie Mellon University

Graduate Research Assistant

- Advised by Prof. Fernando De la Torre.

- Led first-author project DoGE, an inference-only framework repurposing off-the-shelf CLIP models for generative dataset augmentation for domain adaptation. Accepted to CVPR 2024.

Samsung Medical Center

Undergraduate Research Assistant

- Advised by Prof. Yoon-Chul Kim.

- Developed PyQt tools for 4D MRI data labeling, published in *Comput. Bio. Med.*

- Built random-forest models for anatomical landmark detection, published in *Biomed. Signal Process. Control*.

New Haven, CT

Aug 2025 – Present

Aug 2024 – Aug 2025

Pittsburgh, PA

Jan 2023 – Jun 2024

Seoul, Korea

Jan 2016 – Mar 2018

PUBLICATIONS (CONFERENCE)

- [1] Z. Zeng, J. Ni, D. Wang, P. Rim, **Y. Chung**, F. Yang, B. Hong, A. Wong, "Iris: Integrating Language into Diffusion-based Monocular Depth Estimation." **CVPR 2026**.
- [2] **Y. Chung** (*), H. Park (*), P. Rim (*), X. Zhang, J. He, Z. Zeng, S. Cicek, BW. Hong, J. Duncan, A. Wong, "ETA: Energy-based Test-time Adaptation for Depth Completion." **ICCV 2025**.
- [3] P. Rim, H. Park, S. Gangopadhyay, Z. Zeng, **Y. Chung**, A. Wong, "ProtoDepth: Unsupervised Continual Depth Completion with Prototypes." **CVPR 2025**.
- [4] YO. Wang (*), **Y. Chung** (*), CH. Wu, F. De la Torre, "Domain Gap Embeddings for Generative Dataset Augmentation." **CVPR 2024**.

PUBLICATIONS (JOURNAL)

- [1] YJ. Jeon, J. Jeong, D. Park, JH. Kang, EK. Hong, **Y. Chung**, B. Park, SY. Park, "Artificial Intelligence-Assisted Pulmonary Nodule Diagnosis by Thoracic Surgeons: A Comparative Study on Clinical Effectiveness." *Thoracic Cancer*, 2026.
- [2] YC. Kim, **Y. Chung**, YH. Choe, "Deep learning for classification of late gadolinium enhancement lesions based on the 16-segment left ventricular model." *Physica Medica*, 2024.

- [3] M. Chung, ST. Kong, B. Park, **Y. Chung**, KH. Jung, JB. Seo, "Utilizing synthetic nodules for improving nodule detection in chest radiographs." *Journal of Digital Imaging*, 2022.
- [4] YC. Kim, **Y. Chung**, YH. Choe, "Automatic localization of anatomical landmarks in cardiac MR Perfusion using random forests." *Biomedical Signal Processing and Control*, 2019.
- [5] YC. Kim, KR. Kim, K. Choi, M. Kim, **Y. Chung**, YH. Choe, "EVCMR: A tool for the quantitative evaluation and visualization of cardiac MRI data." *Computers in Biology and Medicine*, 2019.

PROFESSIONAL EXPERIENCE

NASA Ames Research Center

Research Intern

Mountain View, CA

Jun 2026 – Aug 2026

- Developed SemaLens Monitor, a CLIP/VLM-based runtime monitor that extracts visual predicate traces from rover/drone image sequences and verifies LTLf safety requirements using DFA-based temporal logic.

VUNO Inc.

Research Engineer

Seoul, Korea

Jun 2020 – Jun 2022

- Developed Residual 3D U-Net CADe model for lung nodules in CT scans. Deployed in VUNO Med@-LungCT AI™.
- Developed CADx system for Lung-RADS classification. Pending clinical trials.
- Optimized on-device CAD for Samsung's mobile digital X-ray GM85 Fit: 70% CPU speedup via OpenVINO.
- Developed automatic windowing parameter estimation method for Chest X-ray images. Abstract accepted as an oral presentation in RSNA 2021. [\[slides\]](#)

Selvas AI Inc.

Software Engineer

Seoul, Korea

Mar 2018 – Jun 2020

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

PATENTS

- [1] B. Park, M. Chung, S. T. Kong, **Y. Chung**, "Method to read chest image." U.S. Patent No. 12,125,197 B2, issued Oct 22, 2024.
- [2] M. Chung, B. Park, S. T. Kong, **Y. Chung**, "Method for detecting abnormal findings and generating interpretation text of medical image." U.S. Patent No. 12,380,554 B2, issued Aug 5, 2025.

OPEN SOURCE CONTRIBUTIONS

25+ commits to the Keras ecosystem (keras, keras-applications, keras-preprocessing). [\[keras\]](#) [\[keras-applications\]](#) [\[keras-preprocessing\]](#)

Maintainer, official Korean translation of Keras docs. [\[link\]](#)

Code contributions for the data science handbook *Introduction to Practical Data Science*. [\[link\]](#)

Code contributions to Matplotlib. [\[link\]](#)

SELECTED TALKS

- | | |
|---|----------|
| "Introduction to Open Source," Samsung Open Source Conference (SOSCON) [link] | Oct 2019 |
| "Keras Hands-on Workshop," Global AI Bootcamp - Seoul [link] | Dec 2019 |

SERVICE & OUTREACH

Reviewer npj Digital Medicine, IEEE TMM, ACM HEALTH

Organizer New England Computer Vision (NECV) Workshop 2024. [\[link\]](#)

Nov 2024

Volunteer CMU Special Olympics

Apr 2024

Mentor CMU Undergraduate AI Mentoring Program

Fall 2023

Committee Member Keras Korea

Mar 2018 – Present

Technology Evangelist Microsoft Student Partners

Mar 2015 – Mar 2016

SCHOLARSHIPS

NASA Space Grant, NASA Connecticut Space Grant Consortium

Jun 2026

NAVER Student Scholarship, NAVER Inc.

Dec 2017

Silicon Valley Data Science Program, Sogang University

Fall 2017

Merit-based Academic Scholarship, Sogang University

Spring, Fall 2014

SKILLS

Programming: Python, C.

Language Tests: TOEFL iBT 110 [R30/L30/S26/W24].

Languages: English (fluent), Korean (native).