Mark Endo

EDUCATION

Ph.D. student in Computer Science, Stanford University, Stanford, CA   **09/2023 – Present**

B.S. in Computer Science, Stanford University, Stanford, CA   **09/2018 – 04/2023**
- GPA: 4.06

RESEARCH EXPERIENCE

SVL and Computational Neuroscience Lab, Stanford, CA   **06/2021 – 09/2023**
Student Researcher
- Worked with Professor Ehsan Adeli as the lead researcher on Parkinson's disease (PD) motor symptom prediction and disease heterogeneity understanding
- Proposed a novel self-supervised approach for PD gait impairment severity prediction
- Work in review on a novel data-driven approach for PD subtyping that utilizes learned motion representations and fMRI connectivity data to capture underlying disease manifestation and understand disease heterogeneity

Stanford Vision and Learning Lab (SVL), Stanford, CA   **06/2022 – 04/2023**
CURIS Summer Research Intern
- Worked on methods for human motion question answering as part of my summer research internship and senior research project with Professor Jiajun Wu
- Developed a neuro-symbolic approach that grounds human motions through jointly learning motion segment representations, motion concepts, and temporal relation operators
- Generated a question answering dataset to evaluate our approach

Stanford Machine Learning Group, Stanford, CA   **09/2020 – 06/2022**
Student Researcher
- Researched medical imaging and report generation methods with Professors Pranav Rajpurkar and Andrew Ng
- Projects included 1) semi-supervised learning of chest X-rays using DNN-generated saliency maps and expert annotations, 2) utilizing robust chest X-ray and radiology report representations obtained from multi-modal contrastive learning to facilitate the retrieval of reports for the task of radiology report generation, and 3) measuring how automated radiology report metrics evaluate generated reports compared to radiologists

PEER-REVIEWED PUBLICATIONS

- **Endo, M.***, Hsu, J.*, Li, J., & Wu, J. (2023). Motion Question Answering via Modular Motion Programs. In *International Conference on Machine Learning* (pp. 9312-9328). PMLR.
- Yu, F.*, **Endo, M.***, Krishnan, R.*, Pan, I., Tsai, A., Reis, E. P., Fonseca, E. K. U. N., Lee, H. M. H., Abad, Z. S. H., Ng, A. Y., Langlotz, C. P., Venugopal, V. K., & Rajpurkar, P. (2023). Evaluating Progress in Automatic Chest X-Ray Radiology Report Generation. *Patterns - Cell Press*.
- **Endo, M.**, Poston, K. L., Sullivan, E. V., Fei-Fei, L., Pohl, K. M., & Adeli, E. (2022). GaitForeMer: Self-Supervised Pre-Training of Transformers via Human Motion Forecasting for Few-Shot Gait Impairment Severity Estimation. In *International Conference on Medical Image Computing and Computer-Assisted Intervention* (pp. 130-139). Springer, Cham.

- **Endo, M.***, Krishnan, R.*, Krishna, V., Ng, A. Y., & Rajpurkar, P. (2021). Retrieval-Based Chest X-Ray Report Generation Using a Pre-trained Contrastive Language-Image Model. In *Machine Learning for Health* (pp. 209-219). PMLR.
- Gadgil, S. U.*, **Endo, M.***, Wen, E.*, Ng, A. Y., & Rajpurkar, P. (2021). CheXseg: Combining Expert Annotations with DNN-generated Saliency Maps for X-ray Segmentation. In *Medical Imaging with Deep Learning* (pp. 190-204). PMLR.

TEACHING EXPERIENCE

Stanford University Department of Computer Science, Stanford, CA   01/2020 – 08/2021
Section Leader, CS106
- Served as a section leader for the introductory computer science courses at Stanford
- My responsibilities included 1) teaching weekly 50-minute sections to help students get practice with the material taught in lectures, 2) assisting students in LaIR (office hours) with their assignments, 3) grading assignments, 4) holding interactive grading sessions with students to give feedback on their work, and 5) grading midterms and finals

Stanford University Department of Computer Science, Stanford, CA   09/2020 – 12/2020
Small Group Leader, CS198
- Conducted weekly workshops with incoming CS106A section leaders to prepare them for their new position
- Workshop topics included Leading Your First Section, Leading a Section For Everyone, and Section Pedagogy

PRESENTATIONS

OpenCV Weekly Webinar. Semi-supervised Medical Image Segmentation with CheXseg.   03/2022
https://www.youtube.com/watch?v=U8P4U2nouDo&t=1598s

Short Oral Presentation of CheXseg: Combining Expert Annotations with DNN-generated   07/2021
Saliency Maps for X-ray Segmentation.
https://www.youtube.com/watch?v=pUZgiuHbk2o&t=391s

Harvard Medical AI Research Intensive: Walkthrough of a deep learning codebase.   08/2022
https://www.youtube.com/watch?v=k4yH04bnCnw

Harvard Medical AI: Mark Endo presents Masked Autoencoders Are Scalable   02/2022
Vision Learners.
https://www.youtube.com/watch?v=oaacl-lAGPs

AWARDS

NSF Graduate Research Fellowship Program	04/2024
Special Recognition Award for Outstanding Psychiatric Research, Stanford Department of Psychiatry and Behavioral Sciences	07/2022
Co-first authored paper featured on the cover of Cell Press' *Patterns* journal	09/2023
Phi Beta Kappa, Stanford University	06/2023