

Hallee E. Wong

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SUMMARY

Final-year PhD candidate at MIT CSAIL working on interactive and in-context learning methods that enable vision models to adapt to new domains and tasks at inference time without retraining. Publications at CVPR (highlight), ECCV, ICCV, and ICLR. Experience training large-scale vision models from scratch, fine-tuning foundation models, and building data infrastructure for pre-training across 200+ datasets. Previously interned at Adobe Research. Seeking AI/ML research scientist, applied scientist, and research engineering roles.

EDUCATION

Massachusetts Institute of Technology

PhD in Electrical Engineering and Computer Science

SM in Electrical Engineering and Computer Science

- Advisors: John Guttag and Adrian V. Dalca

Cambridge, MA

Dec 2026 (expected)

2020 – 2022

Williams College

BA with Highest Honors in Mathematics, Magna Cum Laude

- Awards: Robert M. Kozelka Prize for excellence in statistics research (senior thesis)

Williamstown, MA

2014 – 2018

RESEARCH & WORK EXPERIENCE

Adobe Research, Vision Language Lab

Research Scientist Intern

San Jose, CA

May 2025 – Aug 2025

- Enabled consistent personalized editing of photo collections by adapting video foundation models for reference-based segmentation. Identified gaps in existing approaches and curated a new evaluation dataset to guide model development
- Designed synthetic training data pipeline to improve model robustness by fine-tuning diffusion transformer models

MIT CSAIL, Clinical and Applied Machine Learning Group

Graduate Student Researcher

Cambridge, MA

Sep 2020 – Present

- **Software:** Created BatchAug, an open-source library for batched GPU augmentation of 3D data with PyTorch and Triton backends, achieving up to 1000× speedup compared to existing pipelines
- **Multimodal Foundation Models:** Led effort across MIT, Cornell Tech, and Harvard/MGH to develop unified database and standardized format for 200+ biomedical imaging and text datasets, enabling large-scale pre-training
- **Scalable Interactive In-Context Segmentation [ICCV 2025]:** Developed deep learning framework for interactive in-context segmentation that learns from examples without retraining, reducing user effort by 36% on avg. and as much as 95% for some datasets. Collaborated with Kitware Inc. to deploy in 3D Slicer, a popular medical imaging platform
- **Interactive Segmentation for any Biomedical Image [ECCV 2024]:** Built lightweight model enabling human annotators to segment new structures using clicks, boxes, or scribbles. Designed algorithms for simulating realistic scribble interactions for model training and evaluation. Reduced annotation time by 28% while improving accuracy by 15% compared to SAM. Integrated the model into FreeSurfer, a widely used neuroimaging platform
- **Uncertainty Quantification for Segmentation [CVPR 2024, NeurIPS-W 2022]:** Designed generative models for multiple plausible predictions, enabling uncertainty-aware interactive and in-context segmentation
- **Sequential Decision Making Under Uncertainty (master's thesis):** Built a simulation of hospital bed allocation with infection events as a sparse reward signal. Evaluated offline reinforcement learning methods against both simulated and real hospital operations data

Analysis Group

Senior Analyst

Boston, MA

Sep 2018 – Jun 2020

- Fit and interpreted statistical models for health economics and outcomes research projects. Developed and maintained internal R package for causal inference used in 100+ healthcare cases per year, reducing case budgets by up to 70%
- Built core features of analytics platform for survival analysis of clinical trial data, supporting pricing decisions for a blockbuster cancer drug and creating multi-million dollar cost-savings opportunities

UCLA Research in Industrial Projects for Students REU Program

Project Manager (student team lead), collaborating with GumGum

Los Angeles, CA

Jun 2018 – Aug 2018

- Developed computer vision pipeline for detecting and covering crowds with advertisements in sports broadcast videos

SKILLS

Languages: Python, R · **Tools:** PyTorch, TensorFlow, Pandas, NumPy, OpenCV, Gradio, Slurm, Git, Docker

SELECTED PUBLICATIONS

 *Google Scholar:* <https://tinyurl.com/y5ybh2hb>

- CVPR-W 2026** G. Torpey, J. Gutttag, **H.E. Wong**
“Learning What To Ask For When: Image Ordering for In-Context Interactive Medical Image Segmentation”
PHAROS AI Factory for Medical Imaging & Healthcare Workshop at CVPR 2026 (oral)
- ICCV 2025** **H.E. Wong**, J.J. Gonzalez Ortiz, J. Gutttag, A.V. Dalca
“MultiverSeg: Scalable Interactive Segmentation of Biomedical Imaging Datasets with In-Context Guidance”
International Conference on Computer Vision (24% acceptance rate)
- ICLR 2025** N. Dey, B. Billot, **H.E. Wong**, C.J. Wang, M. Ren, P.E. Grant, A.V. Dalca, P. Golland
“Learning General-purpose Biomedical Volume Representations using Randomized Synthesis”
International Conference on Learning Representations (32% acceptance rate)
- ECCV 2024** **H.E. Wong**, M. Rakic, J. Gutttag, A.V. Dalca
“ScribblePrompt: Fast and Flexible Interactive Segmentation for any Biomedical Image”
European Conference on Computer Vision (28% acceptance rate)
CVPR 2024 Data Curation & Augmentation in Medical Imaging Workshop (oral; top 12.5%)
“**Bench-to-Bedside**” (Clinical Impact) Award at **CVPR-DCAMI Workshop 2024**
- CVPR 2024** M. Rakic, **H.E. Wong**, J.J. Gonzalez Ortiz, B. Cimini, J. Gutttag, A.V. Dalca
“Tyche: Stochastic In-Context Learning for Medical Image Segmentation”
Computer Vision and Pattern Recognition (highlight; 2.8% acceptance rate)
- NeurIPS-W 2022** **H.E. Wong**, J. Gutttag, A.V. Dalca
“Probabilistic Interactive Segmentation for Medical Images”
Medical Imaging meets NeurIPS Workshop at NeurIPS 2022
- ACCV-W 2018** **H.E. Wong**, O. Akar, E.A. Cuevas, I. Tabian, D. Ravichandran, I. Fu, C. Carter
“Markerless Augmented Advertising for Sports Videos”
Advanced Machine Vision for Real-life and Industrially Relevant Applications Workshop at ACCV 2018
Best Poster Award

INVITED TALKS

- Universal AI Models for Medical Image Analysis.** MIT Medical Imaging Seminar Series (Apr 2026).
- Deep Learning for Efficient Annotation of New Biomedical Imaging Datasets.** Harvard Medical School, HST.18 guest lecture (Jan 2026).
- Efficient Segmentation of New Biomedical Imaging Datasets from Scratch.** Cornell Tech AI4MI (Apr 2026); MIT Medical Imaging Symposium, flash talk (Jan 2026); PathAI (Nov 2025); Cohere Labs (Nov 2025).
- Interactive Models for Universal Medical Image Segmentation.** Boston Medical Image Analysis Workshop (2024).
- ScribblePrompt: Fast and Flexible Interactive Segmentation for any Medical Image.** Harvard LCN–Buckner Lab Symposium (Jun 2024); MIT NoBrainer Group (Jan 2024); Cornell Tech Sabuncu Lab (Oct 2023).

HONORS & AWARDS

- Awards:** MIT Research Computing Seed Fund Grant (2025, 2026), CVPR Outstanding Reviewer (top 5%; 2025, 2026)
- Fellowships:** MIT Next-Generation Imaging Fellowship (2025), Jae S. Lim Graduate Fellowship (MIT EECS, 2020), Clare Boothe Luce Undergraduate Research Fellowship (2016–2018)

SERVICE & LEADERSHIP

- Research Mentor**, Etienne Chollet (Research Engineer, MGH), Gianna Torpey (MEng, MIT) May 2025 – Present
- Organizer**, Boston Medical Image Analysis Workshop 2025
- President**, MIT Graduate Women in Course 6 (EECS) 2020 – 2021
- Reviewer:** NeurIPS (’26), TPAMI (’26), CVPR (’25, ’26), ICCV (’25), Medical Image Analysis (’25), ML4H (’22, ’23)