Austin T. Wang

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2nd year Ph.D. student in computer science researching 3D vision and natural language under Dr. Angel X. Chang. My research interests include 3D scene understanding (visual grounding), scene generation, multimodal learning, and biological applications in vision and language. Previously, a senior machine learning engineer with professional experience in computer vision in healthcare, including developing and deploying models to solve ML problems in gastroenterology as well as leading technical projects.

Education

Simon Fraser University   **Burnaby, BC, Canada**

Doctor of Philosophy in Computing Science (Advisor: Angel X. Chang)   Sep 2023 - Present

Massachusetts Institute of Technology   **Cambridge, MA, US**

Bachelor of Science in Computer Science and Engineering   June 2020
Master of Engineering in Electrical Engineering and Computer Science   June 2020
- Thesis: "Real-time computer-aided polyp detection and localization for clinical applications." Advisors Dr. Dennis Freeman, Amit Ranade.

Relevant Work Experience

Iterative Health   **Cambridge, MA**

Senior Machine Learning Engineer   June 2021 - Present
Machine Learning Engineer   May 2019 - June 2021
- Led a project to build a model to provide a coarse localization of an endoscope in a colonoscopy video based on clinically relevant landmarks. Developed several of the constituent models to identify relevant features toward temporal video segmentation.
- Designed and trained models to identify IBD patients and score disease severity for the company's AI Recruitment pipeline, to flag patients who are eligible for IBD clinical trials. Models were able to reduce rate of manual review to less than 25% of videos.
- Developed a video-level model to predict the endoscopic disease severity (Mayo Endoscopic Score) of UC patients in clinical trial data, achieving an 89% accuracy rate for clinical trial qualification on a test set of UC patients.
- Designed and implemented classification and object detection networks for a product, SKOUT, to detect polyps during colonoscopies in real-time, statistically significantly improving physicians' detection of adenomas per colonoscopy during our clinical trial by 27%. SKOUT was approved by the FDA in a 510(k) submission in September 2022.
- Led a team of up to 4 ML engineers on projects for building models for AI Recruitment and landmark identification.
- Developed scalable cloud-agnostic ML training, inference, and evaluation pipelines to create and manage large datasets, train models with a variety of configurations, generate evaluation reports and visualization, and run models at scale in production

Medical Vision Lab, Computer Science and Artificial Intelligence Laboratory (CSAIL), MIT   **Cambridge, MA**

Undergraduate Researcher   Feb 2019 - May 2019
- Implemented a model and loss function to investigate performance differences from running on original x-ray images versus original images augmented with enhanced images, toward semi-supervised learning for quantifying pulmonary edema severity

Iterative Health   **Cambridge, MA**

Associate Software Engineer   Feb 2018 - Jan 2019
- Architected and implemented data services pipeline to process a large inflow of images and videos of colonoscopies into AWS.
- Designed schema for PostgreSQL database in AWS to store millions of image and video metadata records.
- Designed and implemented real-time video streaming infrastructure in C++ for colonoscopies from the edge (e.g. Raspberry Pi).

Publications/Presentations

Austin T. Wang, ZeMing Gong, Angel X. Chang. ViGiL3D: A Linguistically Diverse Dataset for 3D Visual Grounding. In *Proceedings of the Association of Computational Linguistics,* 2025. [**Link**]

ZeMing Gong, **Austin T. Wang**, Joakim Bruslund Haurum, Scott C. Lowe, Graham W. Taylor, Angel X. Chang. CLIBD: Bridging Vision and Genomics for Biodiversity Monitoring at Scale. *International Conference on Learning Representations*, 2025. [**Link**]

Hou In Ivan Tam, Hou In Derek Pun, **Austin T. Wang**, Angel X. Chang, Manolis Savva. SceneMotifCoder: Example-driven Visual Program Learning for Generating 3D Object Arrangements. *International Conference on 3D Vision*, 2025. [**Link**]

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Zahra Gharaee, Scott C. Lowe, ZeMing Gong, Pablo Millan Arias, Nicholas Pellegrino, **Austin T. Wang**, Joakim Bruslund Haurum, Iuliia Zarubiieva, Lila Kari, Dirk Steinke, Graham W. Taylor, Paul Fieguth, Angel X. Chang. BIOSCAN-5M: A Multimodal Dataset for Insect Biodiversity. *Advances in Neural Image Processing Systems,* 2024. [**Link**]

Pablo Millan Arias, Niousha Sadjadi, Monireh Safari, ZeMing Gong, **Austin T. Wang**, Scott C. Lowe, Joakim Bruslund Haurum, Iuliia Zarubiieva, Dirk Steinke, Lila Kari, Angel X. Chang, Graham W. Taylor. BarcodeBERT: Transformers for Biodiversity Analysis. *Proceedings of the NeurIPS Workshop on Self-Supervised Learning: Theory and Practice*, 2023. [**Link**]

Austin Wang, Amit Ranade, Dennis Freeman. "Real-time computer-aided polyp detection and localization for clinical applications." **MEng Thesis**. 2020.

Paul Robinette, Michael Novitzky, **Austin Wang**, Michael DeFilippo, Michael Sacarny, Michael R. Benjamin. "Talk-22: Obstacle Avoidance on the Remote Explorer 4." *MOOS Development and Applications Working Group.* 2019. [**Link**]

Patents

Jonathan Ng, Jean-Pierre Schott, Perikumar Mukundbhai Javia, **Austin Wang**, Neelima Chavali, Thomas Varner, Lavi Erisson, Sloane Allebes Phillips, Daniel Wang. "Systems and methods for analysis of medical images for scoring of inflammatory bowel disease." US 20220028547A1, United States Patent and Trademark Office, 1 Feb 2021. *Patent Pending.*

Jonathan Ng, Sloane Allebes Phillips, Amit Ranade, Daniel Wang, Perikumar Mukundbhai Javia, Avi Walden, **Austin Wang**, Evan Wlodkowski, Samriddhi Dhakal. "Systems and Methods for Detecting Potential Malignancies." US 20220028059A1, United States Patent and Trademark Office, 21 July 2020.

Other

- Extracurriculars include church, volleyball, robotics (volunteering for FIRST), machining, and music.