

Chenyang (Danny) Ma

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EDUCATION

University of Oxford <i>Ph.D. in Computer Science. Focus: Embodied Agents, VLM/VLA for Robots, 3D Vision</i>	Oct 2023 – July 2027 (Expected)
University of Cambridge <i>MPhil in Advanced Computer Science</i>	Oct 2022 – July 2023 Distinction
University of Michigan—Ann Arbor <i>B.S.E. in Computer Engineering, Minor in Mathematics</i>	Sept 2019 – May 2022 Cumulative GPA: 3.97

SELECTED PUBLICATIONS

EmbeWebAgent: Embedding Web Agents into Any Customized UI. *AAAI*, 2026 in submission.
Chenyang Ma, Clyde Fare, Matthew Wilson, Dave Braines

COOPERA: Continual Open-Ended Human-Robot Assistance. *NeurIPS*, 2025. Selected as Spotlight.
Chenyang Ma, Kai Lu, Ruta Desai, Xavier Puig*, Andrew Markham*, Niki Trigoni* (*= Equal Advising)*

SpatialPIN: Enhancing Spatial Reasoning Capabilities of Vision-Language Models through Prompting and Interacting 3D Priors. *NeurIPS*, 2024.
Chenyang Ma, Kai Lu, Ta-Ying Cheng, Niki Trigoni, Andrew Markham

Gradient-less Federated Gradient Boosting Tree with Learnable Learning Rates. *EuroMLSys Workshop*, 2023.
Chenyang Ma, Xinchu Qiu, Daniel Beutel, Nicholas Lane

Touch and Go: Learning from Human-Collected Vision and Touch. *NeurIPS*, 2022.
Fengyu Yang, Chenyang Ma*, Jiacheng Zhang, Jing Zhu, Wenzhen Yuan, Andrew Owens (*= Equal Contribution)*

Sparse and Complete Latent Organization for Geospatial Semantic Segmentation. *CVPR*, 2022.
Fengyu Yang, Chenyang Ma* (*= Equal Contribution)*

RESEARCH / INTERNSHIP EXPERIENCES

PhD Student at CPS, University of Oxford <i>Mentors: Andrew Markham & Niki Trigoni</i>	Oct 2023 – Present <i>Oxford, UK</i>
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- First Project: SpatialPIN — a modular plug-and-play framework that progressively enhances VLM’s 3D reasoning capabilities by prompting and interacting with 3D foundational models
- Second Project: COOPERA — a framework for continual and open-ended human-robot collaboration
- Third Project (ongoing): CycleVLA — adaptive VLA that self-corrects failures in dynamic environments

Research Scientist Intern at IBM Research <i>Mentor: Dave Braines</i>	June 2025 – Sept 2025 <i>Hursley, UK</i>
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- Developed EmbeWebAgent, a lightweight and stack-agnostic framework for embedding web agents into enterprise legacy UIs using minimal frontend hooks and a reusable backend workflow
- Enabled mixed-granularity actions, explicit nested navigation, and multi-agent orchestration with session-scoped memory for robust multi-step action execution in real-world enterprise environments
- Integrated the framework into IBM’s Safer Materials Advisor project; to be released in IBM MVP 4.0

Research Consultant at Mitsubishi Electric Research Laboratories <i>Mentors: Chiori Hori & Diego Romeres</i>	Apr 2025 – Sept 2025 <i>Remote / Boston, US</i>
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- Developed a zero-shot error-correction framework that generates robot plans from human instructional videos
- Introduced an iterative replanning loop using robot execution feedback to refine action sequences
- Enabled robust skill adaptation for long-horizon tasks across varied environments and embodiments

Research Collaborator at FAIR, Meta

June 2024 – Apr 2025

*Mentors: Xavier Puig & Ruta Desai**Remote / SF Bay Area, US*

- Proposed a new framework towards continual and open-ended human-robot collaboration
- Developed a method to simulate realistic humans within robot simulation software using LLMs and motion data
- Introduced a benchmark and an approach to personalize robot actions through multiple days of collaboration

Applied Scientist Intern at Roku

July 2024 – Oct 2024

*Mentor: Michael Sanders**Cambridge, UK*

- Investigated the problem of IoT camera package delivery detection under adversarial conditions
- Framed the problem within and addressed pain points in video-based human action recognition caused by the complexity of real-world data (e.g., high variety of camera angles, backgrounds, illumination, scales, etc.)
- Developed a cost-effective hierarchical ensemble pipeline with a meta-learner to amplify human action signals and learn causal relationships between models, achieving performance ready for real-world deployment

Research Scientist Intern at Flower Labs & CaMLSys, University of Cambridge

Oct 2022 – July 2023

*Mentors: Nicholas Lane & Daniel Beutel**Cambridge, UK*

- Developed the first privacy-preserving framework for federated XGBoost under horizontal federated learning setting that does not depend on the sharing of gradients and Hessians, which leads to serious privacy concerns
- Proposed a novel method to transform the tree ensembles built by local clients as inputs to neural networks to learn robust learning rate strategies
- Achieved state-of-the-art performances on benchmark classification and regression datasets

Research Assistant at Owens Lab, University of Michigan

July 2021 – Sept 2022

*Mentors: Anderw Owens & Wenzhen Yuan**Ann Arbor, US*

- Established Touch and Go — a human-collected visual-tactile dataset with 4000 different real-world objects, 14 hours of videos, and 13,900 touches which enables researchers to study diverse visual-tactile learning applications beyond the robotics-centric domains. Applied our dataset on multimodal learning tasks as follows
- Learned tactile features via self-supervised training to associate images with touch, significantly outperforming supervised ImageNet features on robotic manipulation and material recognition tasks
- Proposed and applied our dataset on the novel task of tactile-driven image stylization (i.e., making the visual appearance of an object more consistent with a given tactile signal)
- Studied multimodal models for future touch prediction by predicting future frames of a touch sensor's recording given both visual and tactile signals, showing that visual information improves predictions over touch alone

Student Researcher at University of Michigan

Jan 2021 – Feb 2022

- Conducted research on semantic segmentation for remote sensing images by alleviating large intra-class variance in both foreground and background classes
- Constructed a sparse and complete latent structure via prototypes to tackle the above issues by designing a prototypical contrastive learning strategy and modeling all foreground and hardest background objects
- Designed a novel patch shuffle augmentation to encourage the semantic information of an object to be correlated only to the limited context within the patch that is specific to its category

ACADEMIC SERVICES

- **Reviewer:** NeurIPS (2022 - 2025), CVPR (2023 - 2025)
- **Teaching Assistant:** Deep Learning in Healthcare (2024), Machine Learning (2023)

HONORS & AWARDS

- **Best Teaching Assistant Nomination**, Department of Computer Science, University of Oxford 2024
- **Summa Cum Laude**, College of Engineering, University of Michigan 2022
- **James B. Angell Scholar**, College of Engineering, University of Michigan 2021
- **Dean's List**, College of Engineering, University of Michigan 2019-2022
- **University Honors**, University of Michigan 2019-2022
- **Engineering Honors Program Alumni**, College of Engineering, University of Michigan