Chenyang (Danny) Ma

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EDUCATION

University of Oxford Oct 2023 – July 2027 (Expected)
Ph.D. in Computer Science. ***Focus: Embodied AI, VLM/VLA for Robots, Agents***

University of Cambridge Oct 2022 – July 2023
MPhil in Advanced Computer Science Distinction

University of Michigan—Ann Arbor Sept 2019 – May 2022
B.S.E. in Computer Engineering, Minor in Mathematics Cumulative GPA: 3.97

SELECTED PUBLICATIONS

CycleVLA: Proactive Self-Correcting Vision-Language-Action Models via Subtask Backtracking and Minimum Bayes Risk Decoding. ***Preprint, 2026.***
Chenyang Ma*, Guangyu Yang, Kai Lu, Shitong Xu, Bill Byrne, Niki Trigoni, Andrew Markham*

EmbeWebAgent: Embedding Web Agents into Any Customized UI. ***Preprint, 2026.***
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*, Xinchi 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** Oct 2023 – Present
Mentors: Andrew Markham & Niki Trigoni *Oxford, UK*

- 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: CycleVLA — a proactive self-correcting VLA that predicts and recovers from failures

Research Scientist Intern at **IBM Research** June 2025 – Sept 2025
Mentor: Dave Braines *Hursley, UK*

- 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** Apr 2025 – Sept 2025
Mentors: Chiori Hori & Diego Romeres *Remote / Cambridge, US*

- 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 framework which enables the first study of 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

Research Assistant at **Owens Lab, University of Michigan** July 2021 – Sept 2022

Mentors: Andrew 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 including self-supervised tactile-visual representation learning, tactile-driven image stylization, and multimodal future touch prediction

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 - 2026)
- **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