Tianyi Xiong

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EDUCATION

- **University of Maryland, College Park, USA** — Aug 2023 - Present
  Ph.D. in Computer Science
  - Research Interests: multimodal foundation models, reward models and critics, multimodal alignment and reasoning

- **Tsinghua University, China** — Aug 2019 - Jun 2023
  B.Eng. in Computer Science and Technology (with honor, minor in Statistics)

SELECTED PUBLICATIONS

For a complete list, please visit my Google Scholar profile.

1. **Tianyi Xiong**, Shihao Wang, Guilin Liu, Yi Dong, Ming Li, Heng Huang, Jan Kautz, Zhiding Yu. "PhyCritic: Multimodal Critic Models for Physical AI". [in submission]

2. **Tianyi Xiong**, Yi Ge, Ming Li, Zuolong Zhang, Pranav Kulkarni, Kaishen Wang, Qi He, Zeying Zhu, Chenxi Liu, Ruibo Chen, Tong Zheng, Yanshuo Chen, Xiyao Wang, Renrui Zhang, Wenhu Chen, Heng Huang. "Multi-Crit: Benchmarking Multimodal Judges on Pluralistic Criteria-Following". [arxiv'25] [project]

3. Xiyao Wang, Chunyuan Li, Jianwei Yang, Kai Zhang, Bo Liu, **Tianyi Xiong**, Furong Huang. "LLaVA-Critic-R1: Your Critic Model is Secretly a Strong Policy Model". [arxiv'25]

4. Chenxi Liu, **Tianyi Xiong**, Yanshuo Chen, Ruibo Chen, Yihan Wu, Junfeng Guo, Tianyi Zhou, Heng Huang. "Modality-Balancing Preference Optimization of Large Multimodal Models by Adversarial Negative Mining". [arxiv'25]

5. **Tianyi Xiong**, Xiyao Wang, Dong Guo, Qinghao Ye, Haoqi Fan, Quanquan Gu, Heng Huang, Chunyuan Li. "LLaVA-Critic: Learning to Evaluate Multimodal Models". In *Proceedings of the Computer Vision and Pattern Recognition Conference*, 2025. (CVPR' 25) [paper] [project]

6. **Tianyi Xiong***, Jiayi Wu*, Botao He, Cornelia Fermuller, Yiannis Aloimonos, Heng Huang, Christopher A. Metzler. "Event3DGS: Event-Based 3D Gaussian Splatting for High-Speed Robot Egomotion" In *8th Annual Conference on Robot Learning*, 2024. (CoRL'24) [paper] [project]

7. **Tianyi Xiong***, Xin Xu*, Zheng Ding, Zhuowen Tu. "MasQCLIP for Open-Vocabulary Universal Image Segmentation." In *Proceedings of the IEEE/CVF International Conference on Computer Vision*, 2023. (ICCV'23) [paper] [project]

EXPERIENCE

- *Research Intern* | **NVIDIA** — Feb 2025 - Aug 2025
  Mentor: Zhiding Yu, Yi Dong, Guilin Liu — *Santa Clara, CA*
  - Developed a **VLM-based critic for physical-AI applications** using a two-stage RL pipeline and introduced **self-referential critic finetuning**—a solve-then-judge approach that grounds evaluations in the model's internally generated predictions and reasoning, yielding stronger judgment consistency and improved physical reasoning within a single model (first-author paper in submission).
  - Contributed to the **NVIDIA Eagle team**, helping develop next-generation foundation VLMs.

- *Research Intern* | **ByteDance** — Jun 2024 - Nov 2024
  Mentor: Chunyuan Li — *Bellevue, WA*
  - Introduced the **first open-source large multimodal model as a generalist evaluator** to assess model performance across diverse multimodal tasks. Demonstrated its effectiveness in: (i) Judging model responses with image-grounded reasons; (ii) Providing reward signals for preference alignment. [LLaVA-Critic, CVPR'25]

- *Research Intern* | **Microsoft Research Asia** — Jan 2023 - Apr 2023
  Mentor: Zhirong Wu and Steve Lin — *Beijing, China*
  - Utilized **self-supervised ViTs** for generating **instance-level mask proposals** for images and videos, improved existing graph-based segmentation algorithms.

- *Research Intern* | **University of California, San Diego** — Jul 2022 - Nov 2022
  Advisor: Prof. Zhuowen Tu — *Remote*
  - **Unified open-vocabulary image segmentation** into a two-stage pipeline comprising a class-agnostic mask generator and a CLIP-based mask classifier. Proposed **progressive training** for generating unseen masks, developed an effective and efficient strategy of **fine-tuning CLIP** for adaptation. [MasQCLIP, ICCV'23]

Services

- Reviewer of MM'24, ICLR'25'26, CVPR'25, NeurIPS'25, TMLR

Selected Awards

- Dean's Fellowship, Unversity of Maryland, 2023-2024
- China National Scholarship, Sep 2020
- 35th Chinese Physics Olympiad (Final), Second Award, Oct 2018

Skills

- **Programming Languages**: C/C++, Python, Java, R, HTML/CSS, SQL, Assembly, C#
- **Sports**: soccer school team, Champion of the 2020 Beijing University Soccer League; track and field school team
- **Volunteer**: 600+ hours; Docent, Soong Ching Ling Residence (2016-19); Doping Control Team, Beijing 2022 Olympics