


Violet Xiang

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 [Google Scholar](#)

Research Experience

Stanford University

Sep 2020 - Present

Contextualized Social Reasoning Evaluations (*In Prep*)

- Discovered current AI social intelligence tests give misleading results without context
- Built LLM-based framework to identify test items requiring context, improving evaluation accuracy
- Augmented static datasets with interactive contexts to improve LLM social reasoning evaluations

LLM-based Simulation for Political Cross-Sectional Surveys (*In Prep*)

- Proposed a novel LLM-based method for political survey simulations with pretest-level performance
- Developed a silicon sampling platform using LLMs for large-scale, reliable political survey simulations

The BabyView dataset: High-resolution egocentric videos of children's everyday experiences

- Collected 493 hours of high-resolution egocentric video data from children aged 6 months to 5 years
- Built evaluation pipeline for speech, vision, and language models, demonstrating performance gaps between human and AI learning from naturalistic data

Hypothetical Minds: Scaffolding Theory of Mind (ToM) for Multi-Agent Tasks with LLMs

- Built LLM-based agent for complex multi-agent tasks that outperforms LLM and deep RL baselines
- ToM module infers other agent's latent states with a natural language approximation of Bayesian inference

From Centralized to Self-Supervised: Pursuing Realistic Multi-Agent Reinforcement Learning

- Built a pipeline for asynchronous, decentralized and centralized multi-agent reinforcement learning
- Trained and evaluated performances of different MARL algorithms in a uniform setting

Model Human Real-time and Life-long Learning with Self-Supervised Vision Algorithms

- Developed novel benchmarks for real-time and life-long visual learning using natural human data streams, quantifying human-AI learning gaps
- Analyzed performance of SOTA self-supervised vision models (2022), identifying critical role of memory mechanisms in handling low-diversity visual inputs

Education

Stanford University, PhD in Cognitive Psychology

2020 - Present

Indiana University, MS in Computer Science

2018 - 2020

Indiana University, BS in Informatics and BA in Mathematics

2011 - 2016

Skills

- ✓ **Programming:** Python, C++, C, C#, JAVA MATLAB, Unity3D Engine
- ✓ **Machine Learning:** PyTorch, Tensorflow, sklearn, Ray, RLlib, DSPY, TextGrad, LangChain, Hugging-Face
- ✓ **Interdisciplinary Research Skills:** Human behavior study design, Online behavioral platforms (Amazon MTurk, Prolific)

Selected Publications

* indicates equal contribution

B Long*, V Xiang*, S Stojanov*, R Sparks, Z Yin, G Keene, A Tan, S Feng, C Zhuang, V Marchman, D Yamins, & M Frank (2024). The BabyView dataset: High-resolution egocentric videos of infants' and young children's everyday experiences. preprint arXiv:2406.10447

L Cross, V Xiang, N Haber, & D Yamins (2024). Hypothetical Minds: Scaffolding Theory of Mind for Multi-Agent Tasks with Large Language Models. arXiv preprint arXiv:2407.07086

L Cross, V Xiang, N Haber, & D Yamins (2024). Animate Agent World Modeling Benchmark. In *Proceedings of the Annual Meeting of the Cognitive Science Society*

V Xiang, L Cross, JP Fränken, & N Haber (2023). From Centralized to Self-Supervised: Pursuing Realistic Multi-Agent Reinforcement Learning. *NeurIPS Agent Learning in Open-Endedness Workshop*

C Zhuang*, V Xiang*, Y Bai, X Jia, N Turk-Browne, K Norman, J DiCarlo, & D Yamins (2022). How well do unsupervised learning algorithms model human real-time and life-long learning? *NeurIPS Track on Datasets and Benchmarks*