EMILY JIN

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RESEARCH INTERESTS

My research interests lie in machine learning and computer vision, with an emphasis on visual reasoning. Inspired by human cognition, I aim to develop machines with human-like visual intelligence—systems capable of learning and leveraging the structure of the visual world to reason about it as flexibly as humans.

EDUCATION

Stanford University **Stanford, CA**
M.S. Computer Science. *2024 - Present*
B.S. Mathematics. *GPA: 4.035/4.000* *2020 - 2024*

Relevant Coursework

- **Computer Science:** Machine Learning, Deep Learning for Computer Vision, Interactive & Embodied Learning, Computer Graphics in the Era of AI, Computer Graphics & Imaging, Natural Language Processing, Natural Language Understanding, Computer Organization and Systems, Design and Analysis of Algorithms.
- **Mathematics:** Real Analysis, Linear Algebra, Discrete Probabilistic Methods, Probability Theory.

RESEARCH EXPERIENCE

Stanford Vision and Learning Lab (SVL) *2023 - Present*
Research Assistant with Prof. Jiajun Wu
Research on computer vision and visual reasoning.

Stanford Causality in Cognition Lab (CiCL) *2023 - 2024*
Research Assistant with Prof. Tobias Gerstenberg
Research on cognition-inspired inference and multimodal reasoning.

Stanford Vision and Learning Lab (SVL) *2021 - 2023*
Research Assistant with Prof. Fei-Fei Li
Research on complex video understanding and high-level decision-making.

PROJECTS & PUBLICATIONS

FactoredScenes: Real-World Scene Generation via Library Learning of Room Structure and Object Pose Prediction
Joy Hsu, Emily Jin, Jiajun Wu, Niloy Mitra.
Submitted at CVPR, 2025.

Predicate Hierarchies Improve Few-Shot State Classification
Emily Jin*, Joy Hsu*, Jiajun Wu.
Under review at ICLR, 2025.

MARPLE: A Benchmark for Long-Horizon Inference
Emily Jin*, Zhuoyi Huang*, Jan-Philipp Fränken, Weiyu Liu, Hannah Cha, Erik Brockbank, Sarah Wu, Ruohan Zhang, Jiajun Wu, and Tobias Gerstenberg.
NeurIPS Datasets and Benchmarks Track, 2024.

Whodunnit? Inferring What Happened from Multimodal Evidence
Sarah A. Wu*, Erik Brockbank*, Hannah Cha, Jan-Philipp Fränken, Emily Jin, Zhuoyi Huang, Weiyu Liu, Ruohan Zhang, Jiajun Wu, and Tobias Gerstenberg.
CogSci, 2024.

Mini-BEHAVIOR: A Procedurally Generated Benchmark for Long-Horizon Decision-Making in Embodied AI
Emily Jin*, Jiaheng Hu*, Zhuoyi Huang, Ruohan Zhang, Jiajun Wu, Li Fei-Fei, and Roberto Martín-Martín.
NeurIPS Generalization in Planning (GenPlan) Workshop, 2023.
NeurIPS Agent Learning in Open-Endedness (ALOE) Workshop, 2023.

Modeling Dynamic Environments with Scene Graph Memory
Andrey Kurenkov, Michael Lingelbach, Tanmay Agarwal, Emily Jin, Chengshu Li, Ruohan Zhang, Li Fei-Fei, Jiajun Wu, Silvio Savarese, and Roberto Martín-Martín.
ICML, 2023.

MOMA-LRG: Language-Refined Graphs for Multi-Object Multi-Actor Activity Parsing
Zelun Luo, Zane Durante*, Linden Li*, Wanze Xie, Ruochen Liu, Emily Jin, Zhuoyi Huang, Lun Yu Li, Jiajun Wu, Juan Carlos Niebles, Ehsan Adeli, Li Fei-Fei
NeurIPS Datasets and Benchmarks Track, 2022.

TEACHING & SERVICE

Stanford AI4ALL – *Program Manager* *2021 - Present*
Lead annual summer program with director, Prof. Juan Carlos Niebles, to provide hands-on AI education to high school students from underrepresented backgrounds.

Stanford CS 157 Introduction to Logic – *Course Assistant* *Fall 2024*
Developed course materials and quiz questions, held office hours, and led class-wide review sessions.

Stanford TreeHacks – *Organizer* *2021 - 2024*
Collaborated with a 30-person team and coordinated logistics to host over 1000 participants for an annual hackathon.

INDUSTRY EXPERIENCE

Virtu Financial – *Quantitative Trading Intern* *Summer 2023*
Analyzed historical market data to identify trends, formulated a data-driven trading strategy, and developed a machine learning model to optimize and execute the strategy.

SKILLS

Computer Programming: Python, C/C++, JavaScript, Git, LaTeX
Tools: PyTorch, PyTorch Lightning, WandB, HuggingFace