

# Jiawei ZHANG

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## EDUCATION

### University of Chicago

Ph.D. in Computer Science, 4.0/4.0

Advisor: *Prof. Bo Li*

Sept. 2024 – 2026/2027

### University of Illinois Urbana-Champaign

Ph.D. in Computer Science, 4.0/4.0

Advisor: *Prof. Bo Li*

Aug. 2023 – May. 2024

M.S. in Computer Science

May. 2023

### Zhejiang University

Bachelor of Engineering

Hangzhou, China

Sept. 2017 – Jun. 2021

## RESEARCH INTEREST:

I study **Safe AGI**, especially how to **make LLMs and LLM agents reliable at scale**, and **explore World Models to improve downstream safe policy learning**. My research runs as a closed loop: (i) **scalable red-teaming** that elicits realistic, long-horizon failures—I attended internal red-teaming evaluations of **OpenAI o1**, **Google DeepMind**, and **ElevenLabs TTS** with **Virtue AI**; (ii) **theoretical guarantees via certified robustness** that turn safety into provable design constraints; (iii) **scalable, interpretability-guided alignments** that translate circuit-level insights into generalizable mitigations; and (iv) **better safety-aware reasoning for autonomous driving** by leveraging additional knowledge from the world model with RL.

Together, my goal is to **enhance LLMs with stronger reasoning capabilities with world models and improved safety awareness while ensuring scalability**.

## SELECTED PUBLICATION (\* DENOTES CO-FIRST AUTHORSHIP)

- **Jiawei Zhang**, Andrew Estornell, David D. Baek, Bo Li, Xiaojun Xu. Any-Depth Alignment: Unlocking Innate Safety Alignment of LLMs to Any-Depth. [arXiv]
- Zhaorun Chen\*, Xun Liu\*, Mintong Kang, **Jiawei Zhang**, Minzhou Pan, Shuang Yang, Bo Li. ARMs: Adaptive Red-Teaming Agent against Multimodal Models with Plug-and-Play Attacks. [arXiv]
- **Jiawei Zhang**, Yang Yang, Kaushik Rangadurai, Tao Liu, Minhui Huang, Yiping Han, Bo Li, Shuang Yang. GraphQ-LM: Scalable Graph Representation for Large Language Models via Residual Vector Quantization. [arXiv]
- Mintong Kang\*, Zhaorun Chen\*, Chejian Xu\*, **Jiawei Zhang\***, Chengquan Guo\*, Minzhou Pan, Ivan Revilla, Yu Sun, Bo Li. GuardSet-X: Massive Multi-Domain Safety Policy-Grounded Guardrail Dataset. *NeurIPS 2025*. [arXiv]
- **Jiawei Zhang**, Shuang Yang, Bo Li. UDora: A Unified Red Teaming Framework Against LLM Agents by Dynamically Leveraging Their Own Reasoning. *International Conference on Machine Learning (ICML) 2025*. [arXiv]
- **Jiawei Zhang**, Xuan Yang, Taiqi Wang, Yu Yao, Aleksandr Petiushko, Bo Li. SafeAuto: Knowledge-Enhanced Safe Autonomous Driving with Multimodal Foundation Models. *International Conference on Machine Learning (ICML) 2025*. [arXiv]
- Chejian Xu\*, **Jiawei Zhang\***, Zhaorun Chen\*, Chulin Xie\*, Mintong Kang\*, Zhuowen Yuan\*, Chenhui Zhang, Lingzhi Yuan, Yi Zeng, Peiyang Xu, Chengquan Guo, Andy Zhou, ..., Zidi Xiong, Zinan Lin, Dan Hendrycks, Dawn Song, Bo Li. MMDT: Decoding the Trustworthiness and Safety of Multimodal Foundation Models. *International Conference on Learning Representations (ICLR) 2025*. [arXiv]
- **Jiawei Zhang**, Chejian Xu, Yu Gai, Freddy Lecue, Dawn Song, Bo Li. KnowHalu: Hallucination Detection via Multi-Form Knowledge Based Factual Checking. *ICLR 2025 Workshop on Foundation Models in the Wild*. [arXiv]
- Bowen Jin, Chulin Xie, **Jiawei Zhang**, Kashob Kumar Roy, Yu Zhang, Zheng Li, Ruirui Li, Xianfeng Tang, Suhang Wang, Yu Meng, Jiawei Han. Graph Chain-of-Thought: Augmenting Large Language Models by Reasoning on Graphs. *Findings of the Association for Computational Linguistics (ACL) 2024*. [arXiv]
- **Jiawei Zhang**, Chejian Xu, Bo Li. ChatScene: Knowledge-Enabled Safety-Critical Scenario Generation for Autonomous Vehicles. *Conference on Computer Vision and Pattern Recognition (CVPR) 2024*. [arXiv]

- **Jiawei Zhang**, Tianyu Pang, Chao Du, Yi Ren, Bo Li, Min Lin. MMCBench: Benchmarking Large Multimodal Models against Common Corruptions. [arXiv]
- **Jiawei Zhang**, Zhongzhu Chen, Huan Zhang, Chaowei Xiao, Bo Li. DiffSmooth: Certifiably Robust Learning via Diffusion Models and Local Smoothing. *32th USENIX Security Symposium 2023*. [arXiv]
- **Jiawei Zhang**, Linyi Li, Ce Zhang, Bo Li. CARE: Certifiably Robust Learning with Reasoning via Variational Inference. *IEEE Conference on Secure and Trustworthy Machine Learning (SatML) 2023*. [arXiv]
- Zhuolin Yang\*, Zhikuan Zhao\*, Boxin Wang, **Jiawei Zhang**, Linyi Li, Hengzhi Pei, Bojan Karlas, Ji Liu, Heng Guo, Ce Zhang, Bo Li. Improving Certified Robustness via Statistical Learning with Logical Reasoning. *Advances in Neural Information Processing Systems (NeurIPS) 2022*. [arXiv]
- Linyi Li, **Jiawei Zhang**, Tao Xie, Bo Li. Double Sampling Randomized Smoothing. *International Conference on Machine Learning (ICML) 2022*. [arXiv]
- **Jiawei Zhang\***, Linyi Li\*, Huichen Li, Xiaolu Zhang, Shuang Yang, Bo Li. Progressive-Scale Boundary Blackbox Attack via Projective Gradient Estimation. *International Conference on Machine Learning (ICML) 2021*. [arXiv]

## INDUSTRY RESEARCH EXPERIENCE

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### NVIDIA

Oct 2025 – Present

ML Research Intern, Santa Clara

Advised by Dr. Boris Ivanovic and Prof. Marco Pavone

- Exploring improved reinforcement learning methods for reasoning to reduce minADE.
- Developing enhanced reasoning capabilities for autonomous driving by leveraging world models.

### ByteDance Seed Research

June 2025 – Sept 2025

Responsible AI Research Intern, San Jose

Advised by Dr. Xiaojun Xu and Dr. Hang Li

- Developed a scalable, model-agnostic defense for LLMs based on safety-signature tokens, effective against deep prefix attacks with context lengths exceeding 3,000 tokens.
- Demonstrated robustness to in-the-wild jailbreaks (AutoDAN, PAIR) while maintaining 0% false positive rate on standard benchmarks (MMLU, MATH, BBH, AlphaEval).

### Meta AI

Sept 2024 – June 2025

GenAI Research Collaborator (External)

Advised by Dr. Shuang Yang

- Built an RVQ-based graph tokenization module that converts continuous node features into compact discrete tokens aligned with LLM embeddings, enabling scale-free tokenization on 100k+ node graphs.
- Matched or exceeded leading baselines on ogbn-arxiv, Cora, and PubMed while cutting storage from gigabytes to megabytes; released reproducible code and ablations.

### Nuro AI

May 2024 – Aug 2024

Machine Learning Research Intern (Pathfinder), Mountain View

Advised by Dr. Aleksandr Petiushko

- Fine-tuned a multimodal LLM for video-conditioned autonomous driving to output high-level action plans and low-level control signals, unifying perception, reasoning, and control.
- Developed a multimodal retrieval-augmented training pipeline and a Markov Logic Network that encodes first-order traffic rules to verify and improve the safety of LLM-proposed actions.
- Proposed a position-dependent cross-entropy loss (PDCE) to stabilize and improve numeric control predictions when represented as text.

### Sea AI Lab

May 2023 – Aug 2023

Machine Learning Research Intern, Singapore

Advised by Dr. Tianyu Pang & Dr. Chao Du

- Conducted evaluations on cross-modal models (e.g., Stable Diffusion, Whisper) to assess their consistency under a range of common data corruptions.
- Developed a rigorous benchmark for assessing the self-consistency of these models. The benchmark was designed to provide a comprehensive understanding of model behavior, incorporating a wide range of scenarios and inputs to measure their resilience and accuracy.

## WORKSHOPS AND COMPETITIONS

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- **CLAS 2024: The Competition for LLM and Agent Safety, NeurIPS 2024**
- **Secure and Safe Autonomous Driving (SSAD) Workshop and Challenge, CVPR 2023**

## TEACHING

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### **CS 307 - Modeling and Learning in Data Science (Spring 2022)**

- Teaching Assistant with *Prof.* Bo Li and *Prof.* David Forsyth

## SELECTED HONOR & AWARDS

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<b>Anthropic Fellow for AI Safety Research</b>	<i>Jan. 2026</i>
<b>Graduate Conference Travel Award</b>	<i>March. 2023</i>
<b>Accumulative Research Innovation &amp; Entrepreneurship Index: 1st Department-wide</b>	<i>June. 2021</i>
<b>Meritorious Winner, MCM COMAP's Mathematical Contest in Modeling</b>	<i>Apr. 2020</i>
<b>First Prize, China Harbour Scholarship</b>	<i>Jan. 2020</i>
<b>First Prize, The Chinese Mathematics Competitions, Zhejiang Province</b>	<i>Nov. 2018</i>

## PROFESSIONAL SERVICE

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**Session Chair** — ICLR 2025

**Top Reviewer** — NeurIPS 2025

**Program Committee**— ICML, NeurIPS, ICLR, CVPR, ECCV, AISTATS, AAAI, COLM, ACL, JIMR, etc.