

CHEN, DANCHUN

B.S. Graduate in Cybersecurity

Fudan University, Shanghai, China

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EDUCATION

Fudan University

B.S. in Cybersecurity

College of Computer Science and Artificial Intelligence

Shanghai, China

Sept. 2020 - June. 2025

PUBLICATIONS

- Towards a Mechanistic Understanding of Propositional Logical Reasoning in Large Language Models
Danchun Chen, Qiyao Yan, Liangming Pan
arXiv preprint 2026. Under Review @ EMNLP 2026. [Paper (earlier version)] [Code]
- Empowering Self-Verification of Small Language Models through Step-wise Reasoning and Verification
Danchun Chen, Yixin Cao, Liangming Pan
XLLM Workshop @ ACL 2025. 2nd Place in LLMsR. [Paper] [Code]

RESEARCH EXPERIENCE

Singapore Management University

Research Engineer, Full-time

Singapore

Apr. 2026 - Present

- Honored to be supervised by [Prof. Qianru Sun](#) and [Prof. Antoine Ledent](#).
- Building Efficient and Trustworthy Specialist Agents for Structured Data
 - Conducted failure analysis of frontier LLM agents on Spider 2.0-Snow (547 enterprise text-to-SQL tasks on Snowflake); found ~50% of failures concentrate in under-exploration and premature assumptions, and uncovered ~50% annotation noise (including ~30% question ambiguity) in the benchmark itself.
 - Designing more reliable benchmarks for evaluating LLM agents on relational data, toward training small specialist agents with constrained action spaces, learned decomposition, and dense intermediate rewards.

MOE Key Lab of Computational Linguistics, Peking University

Remote Intern (Mechanistic Interpretability)

Remote

Sept. 2025 - Mar. 2026

- Honored to be supervised by [Prof. Liangming Pan](#).
- Mechanistic Interpretability in Propositional Logic Reasoning (**EMNLP 2026, Under Review**)
 - Conducted mechanistic analysis on four models (Qwen3-8B/14B, Llama-3.1-8B-Instruct, Mistral-7B-Instruct) using *PropLogic-MI*, a controlled benchmark spanning 11 propositional logic rule categories across one- and two-hop reasoning.
 - Uncovered four interlocking mechanisms: Staged Computation, Information Transmission, Fact Retrospection, and Specialized Attention Heads, generalizable across models, rule categories, and reasoning hops.
 - Performed prompt-order control analysis confirming the staged organization is model-internal rather than input-layout-induced.

The Fudan University Natural Language Processing Group

Research Intern (LLM Reasoning)

Shanghai, China

Mar. 2025 - Jul. 2025

- Honored to be supervised by [Prof. Yixin Cao](#) and [Prof. Liangming Pan](#) (University of Arizona).
- Step-Wise Reasoning and Verification (SWRV) Framework (**XLLM @ ACL 2025, 2nd Place**)
 - Proposed SWRV, a two-stage Parser-Verifier framework for step-wise self-verification in small LMs (e.g., Llama-3-8B-Instruct) using minimal data.
 - Integrated deterministic symbolic solver Z3 by translating problems and reasoning steps into symbolic formulas for formal inference.

- Undergraduate Thesis: LLMs on LSAT Logic Games
 - Conducted systematic comparison of Long CoT and neuro-symbolic hybrid reasoning paradigms for LLMs on LSAT analytical reasoning; evaluated accuracy-efficiency trade-offs and performed data contamination detection.

Institute of Big Data, Fudan University

Research Engineer

Shanghai, China

Oct. 2022 – Mar. 2023, Sept. 2024 – Jun. 2025

- Honored to be supervised by [Prof. Yang Zhou](#).
- The Effect of Climate Change on Public Health (Sep. 2024 - Jun. 2025)
 - Merged high-resolution meteorological data with hospital visit records from 125 hospitals; employed fixed-effects models, CNNs and FASTNN to analyze temperature's influence on public health.
- How Much Can Machines Learn Finance from Chinese Text Data? (Oct. 2022 - Jun. 2023)
 - Implemented *Textual Factor Model* on Chinese stock market data. [\[Paper\]](#)

PROFESSIONAL EXPERIENCE

SAP Commerce Cloud

AI Agent and Full Stack Developer, **Full-time**

Shanghai, China

Nov. 2024 - Mar. 2026

- Implemented Kubernetes-based multi-tenant SaaS platform for e-commerce configuration management with dynamic domain generation and tenant isolation.
- Led development of full-stack LLM proxy platform (internal) offering unified model access across multiple providers.
- Built agent workflows automating software release processes and internal operations using Dify and Claude Code (Skill/Plugin/Harness).

Poizon International Technology Department

Backend Software Engineer, **Intern**

Shanghai, China

Sept. 2023 - Feb. 2024

- Facilitated integration of European buy-and-sell platforms onto Dewu App; implemented product synchronization, attribute mapping, and expired product handling.
- Developed Feishu Robot for order query and SQL scripts for automated data consistency checks.

HONORS AND AWARDS

- **Certificate of 2nd Place**, ACL 2025 Workshop XLLM Shared Task: LLMSR 2025
- **National Third Prize**, National College Student Information Security Competition (Top 15% out of 774 teams) 2023
- **National Bronze Award**, China International College Students Innovation Competition (Top 0.4% out of 42,100,000 teams) 2023
- **Third Prize**, Shanghai College Students Mathematics Competition 2024
- **Undergraduate Excellence Scholarship**, Fudan University 2021

SKILLS AND HOBBIES

- **Programming:** Python, Java, C++, C, TypeScript, SQL
- **ML:** PyTorch, HuggingFace Transformers, TransformerLens, Z3 (SMT solver), Git, Linux, $\text{\LaTeX}$
- **Spoken Languages:** Chinese (Native), English (Fluent), Japanese (Elementary)
- **Sports:** Marathon, Hiking, Cycling
- **Travel:** Solo-traveled to half of mainland China and 10+ countries