Leonard Li

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Education

Nanjing University (NJU), School of Computer Science
B.Sc. in Information and Computing Science 09/2022 – 07/2026

- GPA: **4.60/5.00** (Rank: 3/25)
- Selected Courses: Machine Learning (95), Principles & Applications of LLMs (92), Knowledge Representation (96), Formal Languages & Automata (94), Operating Systems (91).
- TOEFL: 101 (R29 / L26 / S23 / W23)

Research Experience

Ludwig Maximilian University of Munich · *Research Intern* · Supervisor: Dr. Yao Zhang
11/2025 – Present

- Conducting research on **advanced reasoning-based WebAgents**, focusing on **fine-grained reinforcement learning** strategies.
- Designing **novel reward modeling mechanisms** to enhance training stability and efficiency in RL-based WebAgent systems.
- Exploring **image-grounded reasoning** and multimodal integration to improve WebAgent perception and decision-making.

KRistal Research Group, Nanjing University · *Research Intern* · Supervisor: Prof. YiZheng Zhao
10/2025 – Present

- Developing a **neuro-symbolic reasoning framework** that combines logical semantics with differentiable modules to enable **learnable and adaptive inference**.

  Exploring **meta-learning–based reasoning strategies** and building a **fuzzy reasoning engine** that balances logical faithfulness with computational efficiency.

Independent Research · *Research Intern* · Supervisor: Dr. Zhen Han
07/2025 – Present

- Researching **reasoning-enhanced reward models for LLMs**.
- Designed pipelines combining **reject sampling, SFT, and RL** for scalable preference alignment.
- Leading experiments on reasoning-guided reward modeling.
- *Manuscript in preparation.*

ScaleML Lab, University of Illinois Urbana-Champaign · *Research Intern* · Supervisor: Prof. Tong Zhang
04/2025 – 06/2025

- Built a prototype integrating **Lean4/mathlib with LLMs** for interactive theorem proving on **MiniF2F**.
- Designed an interactive workflow where the LLM proposes proof steps and Lean4

performs **state-based verification**, enabling closed-loop refinement.
- Implemented a **bidirectional communication** pipeline (LLM ↔ Lean4), including proof-state serialization/encoding and robust message handling.
- Conducted **failure-case analysis** of model-generated tactics (e.g., context violations, invalid step proposals), informing interface and prompting design.

Huawei Central Software Institute, 2012 Labs · *Research Intern* · Supervisor: JianFeng Gui
07/2025 – 09/2025

- Independently co-developed a benchmarking system from scratch to evaluate the reasoning and adaptability of HarmonyOS intelligent agents.
- Contributed to the IntelliOS-agent pipeline and participated in porting its Python dependency libraries to HarmonyOS.
- Integrated HDC debugging pipelines with LLM-based reasoning modules, enhancing system stability and cross-platform compatibility.
- System deployed in Huawei's internal **IntelliOS** project.

Quantum Engineering & Simulation Theory (QUEST) Lab, NC State University · *Research Intern* · Supervisor: Prof. Yuan Liu
07/2024 – 11/2024

- Explored **quantum memory architectures** for quantum machine learning.
- Proposed optimized **computational architecture** for ML workloads.
- *Co-first author manuscript submitted to ISCA 2025.*

COSEC Research Group, Nanjing University · *Research Assistant* · Supervisors: Prof. Yuan Zhang, Prof. Sheng Zhong
07/2023 – 12/2024

- Researched **adversarial backdoors in ML models**.
- Proposed a novel exploit mechanism; designed attack experiments on malicious training pipelines.
- Work contributed to group's broader research on **ML robustness & trustworthiness**.

Selected Projects

- **Mobile Robot Pose Estimation (AI and Robotics for Mobile Robot Manipulation - Boston Dynamics Project):** Built a pose-estimation module with multi-method point-cloud denoising, improving robustness for mobile manipulation tasks.
- **Gaussian SPH Fluid Simulation (Computer 3D Graphics and Deep Learning - NVIDIA Project):** Developed a 3D Gaussian–SPH fluid pipeline integrating DFSPH constraints with anisotropic Gaussian rendering.
- **Object Detection & Classification (AI in Visual Computing MIT Blended PBL):** Implemented YOLO/Faster R-CNN pipelines and explored transfer learning for high-accuracy detection under limited data.
- **Autograd & Neural Network in C++:** Reimplemented PyTorch's autograd and constructed a fully connected neural net from scratch to study optimization and computation graphs.
- **Operating System Development (NJUOS & MIT xv6 labs):** Implemented

scheduling, memory management, and file systems; built a teaching-oriented OS prototype.
- **Retrieval-Augmented Generation (RAG) System:** Built a full-stack Q&A/summarization system (fine-tuned LLaMA + vector DB + Vue/Spring Boot frontend).

Honors & Awards

- **National Scholarship**, *Ministry of Education of China* — Highest national honor recognizing top 0.2% of students for academic excellence (2025)
- **First Prize (National Champion)**, HITCTF 2025 (Antiy Cup) — Ranked 1st nationwide in cybersecurity competition (2025)
- **First Prize**, *Entropy Cup Cryptography Challenge (CACR)* (2025)
- **National Third Prize**, *China Graduate Information Security Innovation Competition* (2024)
- **Special Scholarship for Fundamental Subjects**, *First Prize (twice)* (2022–2024)
- **Outstanding Student Model**, *Nanjing University* (2023–2024)
- **Provincial Award**, *China College Student Computer Design Competition* (2023)

Teaching Experience

- **Teaching Assistant, Introduction to Information and Computing Science**, Nanjing University (Prof. Sheng Zhong) · *2023–2024*
- **Teaching Assistant, Discrete Mathematics**, Nanjing University (Prof. Sheng Zhong) · *2023–2024*
- **Teaching Assistant, Cryptography**, Nanjing University (Prof. Yuan Zhang) · *2024–2025*

Assisted in homework and exam grading, exam preparation, held weekly exercise classes, and provided student support.

Leadership & Service

- **President & Co-founder**, NJU Artificial Intelligence Association (2024–2025)
- **Captain**, Trinity CTF Team, NJU (2024–2025)
- **Chair**, NJU CS School Student Union (2024–2025)

Skills

- **Programming:** C++, Python (primary), Rust, Java, Lua; familiar with Lean4.
- **Frameworks & Tools:** PyTorch, HuggingFace, FSDP, DeepSpeed, Lean4/mathlib.
- **Systems:** Linux (Arch, Fedora); HPC cluster & distributed training environments.