XIMEI YU

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EDUCATION

Harbin Institute of Technology **Aug 2022 - Jun 2026(expected)**
B.Mgt. in Information System GPA: 88.2/100
Logic & Epistemology: Formal Logic (92.0), Introduction to Philosophy (95.5), Famous Western Philosophers (100.0).
Optimization & Probabilistic Modeling: Operations Research (92.0), Probability Theory and Mathematical Statistics (90.0), System Analysis and Design (87.4), Modeling and Optimization of Supply Chain Decision-Making (94.6).

University of California, Berkeley **Aug 2024 - Dec 2024**
Berkeley Global Access Program
COMPSCI 61A: The Structure and Interpretation of Computer Programs A-
COMPSCI 61B: Data Structures A-
INDENG 174: Simulation for Enterprise-Scale Systems A

RESEARCH and PROJECTS

Research **HIT, Harbin**
A Decoupled Neuro-Symbolic Architecture for Compositional Reasoning in High-Constraint Environments In Progress

- **Architected a neuro-symbolic framework** that decouples the semantic parsing capabilities of Small Language Models (System 1) from the strict constraint-solving logic of deterministic engines (System 2), fundamentally mitigating LLMs' topological reasoning failures.
- **Bypassed the inherent limits** of autoregressive generation in multi-step reasoning by designing a compositional API contract; the agent outputs discrete logical "building blocks" (e.g., temporal windows, pairwise exclusions, drop penalties) dynamically compiled into native Operations Research (OR-Tools) constraints.
- **Engineered an adaptive I/O routing engine** incorporating bucket optimization and Master-Index topological imputation, enabling the system to autonomously normalize highly heterogeneous real-world multi-dimensional graphs into rigid, solver-ready matrices.
- **Ongoing : Sparse-Activated Alignment:** Investigating the replacement of standard softmax with sparsemax in the LLM's final projection layer during alignment training. Aiming to enforce strict zero-probability cutoffs for logically invalid tokens, mathematically bridging the gap between dense neural probabilities and rigid symbolic constraints.

Project (INDENG 174) **Berkeley, CA**
Stochastic Discrete-Event Simulation: Evaluating ICN Smart Pass Dynamics Fall 2024

- **Spearheaded a 4-person research cohort**, conceptualizing the original research proposal on Incheon Airport's Smart Pass system and successfully driving the team's intellectual formulation of the problem.
- **Architected a stochastic discrete-event simulation model** to evaluate complex passenger flow and bottleneck dynamics under high-variance resource allocation scenarios.
- **Designed multi-variable scenario analyses** modeling varying technological adoption rates and strict physical gate closures, translating ambiguous real-world operations into rigorous data-driven OR resolutions.

Projects (CS61A/ 61B) **Berkeley, CA**
Symbolic Parsing & Graph Architecture Projects Fall 2024

- **Symbolic Interpreter Engine (Scheme):** Engineered a recursive Eval-Apply core from scratch to parse and execute symbolic logic, effectively modeling nested environment boundaries (Lexical Scoping, Closures) and lazy evaluation.
- **Semantic Graph Traversal (WordNet):** Architected a cross-model query engine integrating semantic graph structures (WordNet) with time-series statistics, leveraging BFS and transitive closure for high-efficiency data association.
- **Decoupled State Architecture (2D World):** Built a procedural generation engine employing a strict Model-View decoupling strategy; designed connectivity algorithms to guarantee 100% graph reachability while maintaining $\mathcal{O}(1)$ spatial access for collision detection.

INTERNSHIP and VOLUNTEERING

Intern (JIYUN Culture Chengdu) **Gazelle Digital Park, Chengdu**

Data Engineering Intern Summer 2025

- **Engineered a robust automated data pipeline** for large-scale competitor intelligence gathering, designing fault-tolerant scraping architectures to handle dynamic web structures and anti-scraping mechanisms.
- **Architected advanced indexing strategies** within a multi-table MySQL database, significantly reducing complex JOIN query latency and accelerating the throughput of downstream ETL processes.
- **Designed strict schema validation and anomaly detection protocols** at the data ingestion layer, ensuring high-fidelity data integrity for subsequent statistical modeling.
- **Formulated data-driven pricing strategies** by conducting multi-dimensional statistical analysis on heterogeneous competitor datasets, delivering actionable intelligence to the executive team.

Chengdu FISU World University Games **Financial City, Chengdu**

Executive Committee Volunteer Summer 2023

- Streamlined high-volume resource allocation processes by designing an efficient tracking workflow for VIP and sponsor ticketing, ensuring zero-defect distribution under strict time constraints.
- Optimized multi-stakeholder coordination across airline sponsors and executive committees, successfully resolving dynamic logistical bottlenecks during peak operational hours.

SKILLS

Programming & Symbolic Logic: Python, Scheme, Java, SQL
AI & Frameworks: PyTorch, Hugging Face, LangChain, FAISS
OR & Systems: Google OR-Tools, SimPy, Pandas, NumPy
Tools & Languages: Git, Linux/Unix Command Line; English (Fluent), Mandarin (Native)