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Summary

I am a Ph.D. candidate in Computer Science with hands-on industrial experience in **large-scale search and recommendation** systems at Tencent and Alibaba, and active research in **LLM reasoning and agent systems**. My work focuses on **representation learning**, **data-centric modeling**, and **system-level LLM techniques**, with an emphasis on efficiency, reliability, and deployability. I aim to pursue Applied Scientist / Research Scientist / Machine Learning Engineer roles where research ideas can be translated into production-grade AI systems.

Education

Ph.D., Computer Science, Arizona State University, 2023 - 2026
B.E., M.S., Computer Science, Sichuan University, 2012 - 2019

Research & Industry Experience

(1) Research: LLM Reasoning, Agents, and Representation Learning

(Peer-reviewed publications at TKDD, KDD, NeurIPS, AAAI, IJCAI)

LLM Reasoning

Focused on improving the **accuracy, stability, and controllability of multi-step reasoning** in large language models, with emphasis on post-training optimization and efficiency under constrained settings.

- *Developed latent-space reasoning and inference-time refinement methods to correct reasoning trajectories without modifying model parameters, enabling efficient post-training improvements.*
- *Investigated feedback- and memory-based mechanisms to reduce error accumulation and stabilize reasoning across long chains of inference.*
- *Evaluated methods on multiple multi-step reasoning benchmarks, demonstrating consistent accuracy and robustness gains under limited compute budgets.*

LLM Agent Systems

Studied **agent-based frameworks** for iterative reasoning and structured generation in LLMs, with emphasis on **feedback, interaction, and limited supervision.**

- *Designed multi-agent coordination mechanisms using feedback loops to support iterative refinement beyond single-pass generation.*
- *Explored in-context learning–driven agent behaviors to improve robustness, efficiency, and generalization across reasoning and structured transformation tasks.*
- *Analyzed trade-offs between agent interaction depth, performance gains, and inference cost.*

Representation Learning

Focused on using representation learning to turn discrete, combinatorial search problems into smooth, optimizable continuous spaces, enabling stable learning and efficient search under weak supervision.

- *Reformulated discrete feature selection and transformation problems as generative learning tasks, allowing gradient-based navigation over large and structured search spaces.*
- *Developed representation learning methods that explicitly shape the geometry of latent spaces (via probabilistic regularization, structural contrastive objectives, or generative dynamics) to improve stability and search efficiency under limited supervision.*

(2) Internship: LLM Agent, RAG, and Reliability

Internship, NEC Laboratories America - Research Intern, May 2025 - Aug 2025

- *Developed multi-agent LLM frameworks for structured knowledge extraction, producing procedural graph representations to support retrieval-augmented generation (RAG) pipelines.*
- *Designed structured representations that improve grounding and retrieval consistency, enabling more reliable downstream reasoning and generation.*
- *Explored mapping user-specific workflows into structured knowledge to support personalization in LLM-powered retrieval pipelines.*

Internship, A*STAR Singapore - Research Intern, Jun 2024 - Aug 2024

- *Studied reliability and trustworthiness of LLM-based systems in medical and high-stakes domains.*
- *Conducted systematic analysis of failure modes and jailbreak strategies, providing insights applicable to improving robustness and safety in production LLM and retrieval-augmented systems.*

(3) Industry: Large-Scale Search and Recommendation Systems

Full Time, Tencent - Machine Learning Engineer, Nov 2020 - Aug 2022

- **Time-Sensitive Query Understanding and Ranking Control.**
  - *Trained a semantic model to identify temporal intent from query and generate time-sensitivity signals.*
  - *Integrated signals into ranking strategies to dynamically balance relevance and freshness.*
  - *Enabled product-level content aggregation cards for strongly time-sensitive queries, improving user engagement and interaction.*
- **Event Aggregation and Burst Detection for News Search.**
  - *Developed title-level event extraction models to identify event semantics and burst signals.*
  - *Clustered news articles into event-level groups for event-aware retrieval and de-duplication.*
  - *Released a benchmark dataset for event extraction and evaluation (EMNLP).*
- **Retrieval System Integration and Reliability Improvement.**
  - *Integrated new content streams into the production retrieval pipeline and validated coverage and stability under real traffic.*

Full Time, Alibaba - Machine Learning Engineer, Jun 2019 - Oct 2020

- **Tagging System Implementation.**
  - *Built a recommendation-oriented hierarchical tagging system for short-form videos, addressing cold-start and retrieval coverage issues in recommendation pipelines.*
- **Online Impact & Validation for the Tagging System.**
  - *Integrated tags into retrieval pipelines via tag-based matching and embedding retrieval, validating system impact through improvements in CTR, watch time, and retention.*

Selected Publications

I have published papers in top-tier venues, including KDD, NeurIPS, EMNLP, AAAI, CIKM, IJCAI, and TKDD. A complete list of publications is available on my personal website.

1. **[TKDD]** Feature Selection as Deep Sequential Generative Learning.
   - *Formulates feature selection as a sequential generative process, enabling structured and controllable selection of informative features for downstream prediction tasks.*
2. **[KDD]** Unsupervised Generative Feature Transformation via Graph Contrastive Pre-training and Multi-objective Fine-tuning.

- *Transforms features into simpler and more discriminative representation spaces, enabling strong downstream performance with lightweight models.*

3. **[NeurIPS]** Sculpting Features from Noise: Reward-Guided Hierarchical Diffusion for Task-Optimal Feature Transformation
    - *Proposed a reward-guided latent diffusion framework that reformulates discrete feature transformation as a generative process, enabling stable global exploration and task-optimal feature construction beyond local continuous search.*
4. **[AAAI]** Efficient Post-Training Refinement of Latent Reasoning in Large Language Models.
    - *Proposed a training-free, post-training approach to improve the stability and accuracy of multi-step reasoning in large language models by refining latent reasoning trajectories.*
5. **[IJCAI]** Unsupervised Feature Transformation via In-context Generation, Generator-critic LLM Agents, and Duet-play Teaming.
    - *Introduced an agent-based, generative formulation for discrete search and feature transformation, enabling effective learning from unlabeled data through iterative feedback.*
6. **[CIKM]** Revolutionizing Biomarker Discovery: Leveraging Generative AI for Bio-Knowledge-Embedded Continuous Space Exploration.
    - *Applied generative feature selection to high-dimensional biological data to identify a compact set of informative features, improving disease prediction performance.*
7. **[EMNLP]** Title2Event: Benchmarking Open Event Extraction with a Large-scale Chinese Title Dataset.
    - *Event extraction from short news titles, enabling event-level representation, aggregation, and event-driven news search.*

Honors

- KDD 2024 Travel Award
- National Scholarship, Top 1%, 2019
- Postgraduate Scholarship in Sichuan University, 1st Prize, Top 1%, 2018, 2019

Professional Activities and Services

- Neural Information Processing Systems (**NeurIPS**) 2025
- International Conference on Machine Learning (**ICML**) 2025
- The International Conference on Learning Representations (**ICLR**) 2024, 2025, 2026
- The Conference on Knowledge Discovery and Data Mining (**KDD**) 2024, 2025
- The Association for the Advancement of Artificial Intelligence (**AAAI**) 2025
- The Conference on Information and Knowledge Management (**CIKM**) 2023, 2024
- The IEEE International Conference on Big Data (**BigData**) 2023, 2024,2025
- ACM Transactions on Knowledge Discovery from Data (**TKDD**)
- IEEE Transactions on Knowledge and Data Engineering (**TKDE**)
- IEEE Transactions on Cognitive and Developmental Systems (**TCDS**)
- IEEE Transactions on Big Data (**TBD**)