

Baiyan Li

Computer Science

BSc Computer Science (Joint Programme)

Beijing Jiaotong University & Lancaster University (Year 2)

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Research Interests

I am broadly interested in generative models for interactive visual media, especially games and animation. I aim to develop and adapt GAN-, VAE-, and diffusion-based architectures for controllable content creation and real-time interaction in complex 3D environments.

Education

Beijing Jiaotong University & Lancaster University

BSc in Computer Science (Joint Programme)

2024.09 – Present

GPA: 3.71 / 4.0

Research Experience

Concept-Based Dictionary Learning for Inference-Time Safety in VLA Models (Beijing) 2025.01

– Present

Core Experimental Contributor

Core Experimental Contributor (CVPR under review)

Architected and implemented a modular framework for concept-dictionary-based inference-time safety defenses in Vision–Language–Action (VLA) models.

Implemented reusable components for (i) concept extraction/representation, (ii) intervention hooks at inference time, and (iii) end-to-end evaluation scripts with standardized logging.

Curated and constructed evaluation datasets/prompts to stress-test safety and generalization, including adversarial and out-of-distribution (OOD) scenarios.

Led systematic ablation studies to isolate the impact of dictionary size, concept selection strategies, and intervention strength on robustness and task performance.

Executed large-scale experiments across simulated and real-world-like settings, ensuring reproducibility via configuration management and checkpointed runs.

Consolidated results into tables/figures and contributed to the core empirical evidence supporting the manuscript's claims.

Projects

AI-Powered Real-Time Lighting Control (AI-FOR-LIGHT)

2025

PyTorch, Unreal Engine (C++ / Blueprints)

Research prototype in real-time 3D environments

Explore the project on GitHub: AI-FOR-LIGHT Repository.

Reframed real-time lighting control as a learning-and-evaluation problem: define objectives (visual plausibility vs. cost), baselines, and measurable criteria.

Built a reproducible pipeline connecting model inference to an interactive 3D runtime for controlled experiments and rapid iteration.

Ran structured comparisons across settings (scenes/conditions) to understand generalization and failure cases, guiding future research directions.

Paper Hub – Local-First Research Workspace

2025

Python, SQLite, AI APIs

Intelligent research library management tool

Explore the project on GitHub: Paper Hub Repository.

Developed a local-first application for managing research papers, featuring PDF import, metadata extraction, and an in-app reader.

Integrated AI capabilities for automatic summarization, keyword extraction, and generating digests to streamline literature review.

Implemented a knowledge map visualization to discover connections between papers and topics within the library.

Experience

Kaggle – RSNA Intracranial Aneurysm Detection (Remote)

2025

Developer & Competitor (Top 15% among 1000+ teams)

Developed CNN-based models for 3D medical imaging (DICOM) focused on intracranial aneurysm detection.

Implemented preprocessing and training strategies (augmentation, ensembling, post-processing) to reach a top-15% leaderboard ranking.

ICPC-Style Programming Contests (University contests)

2024 – Present

Team Member

Regularly participate in ICPC-style contests, solving algorithmic problems in C++ under tight time constraints.

Practice spans graph algorithms, dynamic programming, greedy methods, data structures, and basic computational geometry; earned a Bronze Medal in the Weihai Municipal University Students Programming Contest.