Runnel Zhang

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Education

Nanjing University

Nanjing, Jiangsu, CN
2025-09-01 to 2029-06-30
Undergraduate Student (Jianxiong Academy)

Awards & Honors

National High School Mathematics Olympiad (Preliminary Round)

2024 | National Second Prize

National High School Mathematics League

2024 | Provincial First Prize

National High School Biology League

2024 | Provincial First Prize

CCF Certified Software Professional (Senior Level)

2023 | National Second Prize

Academic Programs

Peking University 2024 Summer School for Outstanding High School Students, Yuanpei College

2024-07 | Selected participant

Peking University 2025 Winter School for Outstanding High School Students

2025-01 | Selected participant

Academic & Professional Engagement

NJU AIA (Nanjing University Artificial Intelligence Association)

Core Member & Teaching Assistant | 2025-09 - Present

- Serve as a core member in organizing academic activities and technical sharing sessions for the association, focusing on AI basic theory and practical application popularization.
- Provide one-on-one Q&A guidance for undergraduate members on Python programming, machine learning fundamentals, and assist in organizing hands-on experimental courses.
- Scheduled to host a teaching session on Variational Autoencoder (VAE) for the association in the next semester, designing practical cases to help members understand model principles and application scenarios.

NJU NOVA (Nanjing University Intelligent Data Decision Studio)

Core Member | 2025-09 - Present

- Deliver two lectures on full-stack development for studio members, covering front-end and back-end technology integration, project engineering practices, and problem-solving in actual development.
- Participate in the studio's interdisciplinary data decision-making projects, responsible for technical scheme design and core module development, collaborating with team members to promote project progress.

Works

Navigating the Full-Stack Ecosystem: Implementation Strategies and Knowledge Graphs for Information Aggregation

2025-12-06 | lecture-speech | Zenodo
DOI: 10.5281/ZENODO.17852269

Architectural Paradigms in Collaborative Software Engineering: A Comprehensive Analysis of the Nova Project

2025-11-29 | lecture-speech | Zenodo
DOI: 10.5281/ZENODO.17765724

Gravitational Fields of Non-Spherical Mass Distributions: Analysis and Orbital Dynamics

2023-02-01 | blog-post
DOI: 10.6084/M9.FIGSHARE.22268917

On the Factorization of Cyclotomic-Type Polynomials $\sum_{i=0}^{k} x^{in}$ and Their Divisibility Properties

2023-01-27 | preprint
DOI: 10.6084/M9.FIGSHARE.22268908

Rethinking Set Theory - Chinese Translation

2022-01-31 | translation
DOI: 10.6084/M9.FIGSHARE.20310039

A Chaotic Preview Note on Hopf Fiberation

2021-08-06 | blog-post
DOI: 10.6084/M9.FIGSHARE.20310042

A Friendly Introduction to Boolean Algebra

2021-08-04 | blog-post
DOI: 10.6084/M9.FIGSHARE.20310033

Ongoing Projects

Robust Semantic Reconstruction for Tangut Script Translation

- **Evolution:** Initial focus was on **rule-based dictionary mapping** and **hardcoded idiomatic phrase** handling to basic **LLM sequence correction** for translation refinement. This proved limited by data sparsity inherent to the Tangut language.
- **Current Focus:** Shifting from purely sequence-based translation to **structural feature extraction**. Utilizing advanced **Transformer Attention Mechanisms** (potentially incorporating pre-trained multilingual models) to build a robust **Character-Level Embedding Space**, specifically combating low-resource data issues.

PREVIOUS REPOSITORY: https://github.com/ChouYuanjue/Tangut_Chinese_Translator

Controllable Symbolic Synthesis via Hierarchical Representation Learning

- **Evolution:** Iterative self-driven exploration using standard generative models. The path progressed from **U-Net** (basic feature extraction) $\rightarrow$ **U-Net with SE Attention** (incorporating channel awareness) $\rightarrow$ **LoRA + Diffusion Models** (achieving fine-grained style control).
- **Current Focus:** Transitioning beyond raster/pixel-based diffusion to **Vector Graphics Representation**. Implementing **DeepSVG Architectures** to learn the intrinsic structural composition of symbols.

PREVIOUS REPOSITORY: https://github.com/ChouYuanjue/AI_Emoji_Kitchen_Lab