

# Yang Zhongyu

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## EDUCATION BACKGROUND

**Lanzhou University (Project 985)** | Lanzhou, China

Sept. 2021 - Present

*B.S. in Mathematics and Applied Mathematics (Main major)*

- *Relevant courses:* Mathematical Analysis, Advanced Algebra, C++ Programming, Probability Theory, Ordinary Differential Equations, Numerical Analysis, Microeconomics, Differential Geometry, Functional Analysis, etc.

*B.A. in Administrative Management (Minor major)*

**The Chinese University of Hongkong, Shenzhen** | Shenzhen, China

Mar. 2024 - Present

*Research Assistant in Laboratory for Intelligent Autonomous Systems (LIAS) at School of Data Science*

- *Advisor:* **Zhang Ruimao**

## WORKING PAPER

**Reprogramming Acoustic Models For Channel-Attention-Based Anomaly Detection and Classification**

*Manuscript in Preparation / Expect to submit to ICASSP 2025*

**Zhongyu Yang\*** Xuanming Jiang, Baoyi An and Wei Su, et al.

**ReChar: Revitalising Characters with Decoupled Content and Style Injection**

*Under reviewing to AAAI 2025*

**Zhongyu Yang\*** Zuhao Yang and Yifang Yuan\*, et al.

## PUBLICATIONS

- Patent: **Zhongyu Yang**. A mathematics teaching system based on virtual reality. (CN116312091A)
- Software Copyright: **Zhongyu Yang**. Fully automatic spatial sound field environment perception system (2024SR0538446)
- Software Copyright: **Zhongyu Yang**. Green and Low-carbon Integrated Monitoring Software. (2023SR1355487)
- Mengying Su, **Zhongyu Yang\***, Shujaat Abbas, et al. Toward Enhancing Environment Quality in OECD Countries: Role of Municipal Waste, Renewable Energy, Environment Innovation and Environmental Policy[J]. Renewable energy. 2023, 211: 975-984. (SCI Q1 TOP)
- **Zhongyu Yang**, Ziyue Xue. Analysis and Forecast of GDP of Gansu Province based on ARIMA Model. Chinese Market. 2023. (Chinese Core Journal)
- Zhichao Yu, **Zhongyu Yang\***, et al. **Green Effect of Energy Transition Policy: A quasi-natural Experiment Based on New Energy Demonstration Cities**, Finance Research Letters. <https://doi.org/10.1016/j.frl.2024.105669>, (SSCI Q1 1/111)

(\* Means Corresponding author)

## RESEARCH EXPERIENCES

**UNet-Centric MambaMorph: A Comprehensive Visual Mamba Framework Enhanced with Cross-Scan and Semi-Supervised Learning for Medical Segmentation**

*Project Leader*

Jan. 2024 - Present

Supervisor: Prof. Zhang Wenting, Lanzhou University

*\*Fundamental Research Funds for Central Universities Research Capacity Improvement Project (Highland Barley Plan)*

- Integrated UNet and Mamba architectures to enhance the global context understanding of medical images and optimize segmentation accuracy through a novel Cross-Scan module;
- Introduced a semi-supervised learning strategy to address the challenge of limited labeled data;

## FPGA-Based AI Doctor: Deep Learning-Based Clinical Target Delineation for Cervical Cancer

Project Leader

Mar. 2024 - Present

Supervisor: Prof. Wang Xinghua, Lanzhou University

*\*National College Student Innovation and Entrepreneurship Training Program*

- Proposed a FPGA-based deep learning algorithm to enhance the speed and accuracy ;
- Integrated the attention mechanism and residual learning strategy into the model, elevating the overall capacity to identify subtle features in medical images.

## A Generative Model for Chinese Paintings Incorporating Textual Cues and Chinese Character Structures

Project Leader

May. 2023 - Present

Supervisor: Yifan Yuan, Heriot-Watt University, UK

- Proposed an innovative cross-modal art generation framework by leveraging Text-to-Image technology to directly map the aesthetic features of Chinese characters into visual elements;

## Global Urban Sustainable Development Strategies and Empirical Research

Main Researcher

May. 2022 - Present

Supervisor: Prof. Zhang Guoxing, Lanzhou University

*\*The Ministry of Science and Higher Education of the Russian Federation (Ural Federal University Program of Development within the Priority-2030 Program)*

- Utilized time series analysis and combined statistics with econometrics to accurately capture the long-term equilibrium relationship and short-term dynamic adjustment mechanism of urban green policies;
- Carried out pattern recognition and predictive analysis on the key influencing factors of urban green development using machine learning and data mining.

## Recommendation Algorithm Based on Knowledge Graph and Strong-Weak Connection Attention Mechanism

Main Researcher

Mar. 2023 - May. 2024

Supervisor: Prof. Su Wei, Lanzhou University

*\*Hui-Chun Chin and Tsung-Dao Lee Chinese Undergraduate Research Endowment, CURE*

- Improved existing knowledge graph-based recommendation algorithm by considering subtle user group similarities and fully utilizing attention mechanism-based graph convolutional networks to extract structural information and user group directional information from graph data;

## Internship Experiences

iFLYTEK Co., Ltd.

June 2023 - Aug. 2023

Product Operation Intern of Smart Home Department

- Built statistic models based on the previous website user data to perform data analysis, and come up with a solution; which increased the product activation rate from 9.9% to 68.2%
- Achieved the product revenue completion rate of over 120%.

## Awards and Scholarships

- International College Mathematical Modeling Competition **Meritorious Winner** (2023)(**Top 6%**)
- **Honorable Award** of the American Collegiate Mathematical Contest in Modeling(MCM) (2023)(**Top 25%**)
- Best hardware Winner, Best Target Molecule Nominees & Winner, Best Genome Evolutionary Outcomes Nominees & Winner in International Directed Evolution Competition (IDEC 2023) (2023)(**TOP 1%**)
- **National First Prize** in 2022 National College Student Data Analysis Competition (2022)(**Top 3%**)
- **National First Prize** in the National 2022 Second China University Big Data Challenge (2022)(**Top 8%**)

## Skills and Languages

**Languages:** Mandarin (native), Cantonese (native), English (fluent)

**Technical skills:** Python, R, Stata, Latex