

# Yang Zhongyu

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Shenzhen, China

## RESEARCH INTERESTS

**Fields:** Computer Vision, Computer Graphics, Image Analysis, Economics

**Topics:** 2D/3D AIGC, Generative AI, 3D Motion Modeling, Digital Human, Energy Economics

**Objective:** My long-term research goal is to develop intelligent machines that can actively perceive, analyze, and interpret human states, behaviors, and underlying motivations in dynamic scenes.

## EDUCATION

- **Lanzhou University (Project 985)** Sept. 2021 - June.2025 (Expected)  
B.S. in Mathematics(the Basic Theory Class)(Main major) and Administrative Management (Minor) Lanzhou, China
  - Relevant courses: Mathematical Analysis, Advanced Algebra, C++ Programming, Probability Theory, Ordinary Differential Equations, Numerical Analysis, Microeconomics, Differential Geometry, Functional Analysis, etc.
- **The Chinese University of Hongkong, Shenzhen** April. 2024 - Nov. 2024  
Research Assistant in Laboratory for Intelligent Autonomous Systems (LIAS) at School of Data Science Shenzhen, China
  - Advisor: [Zhang Ruimao](#)
- **King Abdullah University of Science and Technology (KAUST)** Dec. 2024 - Present  
Remote Research Intern in Vision-CAIR Group Saudi Arabia
  - Advisor: [Jun Chen](#) and [Mohamed Elhoseiny](#)

## PATENTS AND PUBLICATIONS

J=Journal, P=Patent, S=Software Copyright, R=Under Review

\* Indicates Corresponding Author

- [J.1] **Zhongyu Yang**, Ziyue Xue(2023) [Analysis and Forecast of GDP of Gansu Province based on ARIMA Model](#). *Chinese Market(Chinese Core)*, Vol.2023-06, March 2023, Pages 1-4
- [J.2] Mengying Su, **Zhongyu Yang\***, Shujaat Abbas, et al(2023) [Toward Enhancing Environment Quality in OECD Countries: Role of Municipal Waste, Renewable Energy, Environment Innovation and Environmental Policy](#). *Renewable energy(SCI Q1Top)*, Vol.211, July 2023, Pages 975-984
- [J.3] Zhichao Yu, **Zhongyu Yang\***, et al.(2024) [Green Effect of Energy Transition Policy: A quasi-natural Experiment Based on New Energy Demonstration Cities](#) *Finance Research Letters(SSCI Q1Top)*, Vol.66, Aug. 2024, 105669
- [P.1] **Zhongyu Yang**. A mathematics teaching system based on virtual reality. (CN116312091A)
- [S.1] **Zhongyu Yang**. Green and Low-carbon Integrated Monitoring Software.(2023SR1355487)
- [S.2] **Zhongyu Yang**. Fully automatic spatial sound field environment perception system. (2024SR0538446)
- [R.1] **Zhongyu Yang**, Zuhao Yang, Yifang Yuan, et al. (2024). [ReChar: Revitalising Characters with Structure-Preserved and User-Specified Aesthetic Enhancements](#). Manuscript was under reviewed for publication in CVPR 2025.

## PROJECTS

- **Multi-Character Story to Motion with Decoupled Content and Style Injection** June. 2024 - Present  
Supervisor: [Zhang Ruimao](#), CUHKSZ
  - **Purpose:** To generate controlled, long character actions and trajectories from long textual descriptions.
  - **Methods:** Leveraging CLIP to interpret textual descriptions, employing text-driven action retrieval to identify and sequence actions, and utilizing asymptotic mask transformer to generation of character trajectories.
- **A Generative Model for Revitalising Characters with Decoupled Content and Style Injection** May. 2023 - Present  
Supervisor: [Yifan Yuan](#), Heriot-Watt University, UK
  - **Purpose:** To innovate a framework inspired by pictogram Chinese characters for generating artworks that integrate customizable elements and styles into the characters.
  - **Methods:** Integrates user-defined styles and elements into Chinese characters, harnessing advanced computation for a harmonious synthesis of tradition and innovation in character art.
- **Global Urban Sustainable Development Strategies and Empirical Research** May. 2022 - June.2024  
Ural Federal University Program of Development within the Priority-2030 Program(Supervisor: Prof.Zhang Guoxing)
  - **Purpose:** To analyze factors of urban green development and their impact on policy mechanisms.
  - **Methods:** Applying machine learning and data mining for pattern recognition and predictive analysis to discern both the long-term equilibrium and short-term dynamics of urban green policies.

- **FPGA-Based AI Doctor: Deep Learning-Based Clinical Target Delineation for Cervical Cancer** Mar. 2024 - Present  
National College Student Innovation and Entrepreneurship Training Program(Supervisor: Prof.Wang XingHua)
  - **Purpose:** To enhance the capability of identifying subtle features in medical images.
  - **Methods:** Accomplished by refining the traditional U-Net architecture and exploiting the parallel processing capabilities of FPGA, resulting in significant improvements in feature detection.
- **UNet-Centric MambaMorph: A Comprehensive Visual Mamba Framework Enhanced with Cross-Scan and Semi-Supervised Learning for Medical Segmentation** Jan. 2024 - Present  
Fundamental Research Funds for Central Universities Research Capacity Improvement Project(Supervisor: Prof.Zhang Wenting)
  - **Purpose:** To improve medical image segmentation by enhancing global context understanding.
  - **Methods:** The integration of UNet and Mamba architectures is employed, complemented by a novel Cross-Scan module, to optimize segmentation accuracy.
- **Tropical Linear Representation of Involutive Chinese Monoids** Mar. 2023 - May. 2024  
National College Student Innovation and Entrepreneurship Training Program(Supervisor: Prof.Zhang Wenting)
  - **Purpose:** To introduce and define the tropical linear representation within Chinese monoids of involution.
  - **Methods:** The approach encompasses the theoretical establishment of free monoids and rewriting systems, followed by the definition of their tropical linear representations for involution in Chinese monoids.

## HONORS AND AWARDS

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- Best Wiki Nominees & Winners in International Directed Evolution Competition (IDEC) (2024) **(Top 5%)**
- Silver Medal in International Genetically Engineered Machine Competition (IGEM) (2024) **(Top 15%)**
- International College Mathematical Modeling Competition Meritorious Winner (2023) **(Top 6%)**
- Honorable Award of the American Collegiate Mathematical Contest in Modeling (MCM) (2023) **(Top 25%)**
- Provincial-level Gold Medal in China College Students' 'Internet+' Innovation and Entrepreneurship Competition (2023) **(Top 1%)**
- 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%)**
- Second-level Scholarship of Lanzhou University(2022,2024) **(Top 15%)**
- Outstanding Student Pacesetter of Lanzhou University(2022) **(Top 15%)**

## EXPERIENCE

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- **Xi'an Jiyun Technology Co., Ltd.** Jan. 2024 - Present  
Co-founder Xi'an, China
  - Research on computer science implement the latest research results into products, and complete conference and journal papers.
- **King Abdullah University of Science and Technology (KAUST)** Dec. 2024 - Present  
Remote Research Intern in Vision-CAIR Group Saudi Arabia
  - Research on developing and optimizing web-scale Retrieval-Augmented Generation (RAG) systems tailored for understanding up-to-date vision knowledge, and complete conference and journal paper.
- **The Chinese University of Hongkong, Shenzhen** April. 2024 - Nov. 2024  
Research Assistant in Laboratory for Intelligent Autonomous Systems (LIAS) at School of Data Science Shenzhen, China
  - Research on Image Detection and Human Motion Generation Model, implement the latest research results into products, and complete conference and journal papers.
- **Heriot-Watt University,UK** March. 2024 - Sep. 2024  
Remote Research Intern in School of Mathematical and Computer Sciences London, UK
  - Research on Multimodal Image Generation Models, Revitalizing Characters with Decoupled Content and Style Injection, and complete conference and journal paper.
- **iFLYTEK Co., Ltd.** June 2023 - Aug. 2023  
Data Analysis Assistant in Intern of Smart Home Department Lanzhou, China
  - Leveraging historical user behavior data to construct precise user profiles and predictive models, analysing to optimize marketing strategies and deliver personalized recommendations.

## SKILLS AND SERVICES

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- **Programming Languages:** Python, R, C, C++, Stata, Latex
- **Languages:** Mandarin(Native), Cantonese(Native), English(Fluent)
- **Operation System:** Windows (advanced), Linux(advanced)
- **Journal Reviewer:** EMFT(Q1), ESPR(Q1), IJER(Q2), EEMJ(Q3), AEL(Q3)