Zirui Song

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RESEARCH INTERESTS

1, AI for Science 2, Multimodal 3,Embodied AI

EDUCATION

University of Technology Sydney, Australia — Graduated in 07/2025
Bachelor of Engineering (Honours) - Major in Software Engineering — WAM: 87.65/100
Ranked #88 in QS World University Rankings 2025. — WES: 3.90/4.00
Mohamed bin Zayed University of Artificial Intelligence, United Arab Emirates (UAE)
Visiting Student In NLP Department - Supervised by Prof. Xiuying Chen. — From 09/2024 - 07/2025(Expected)
The world's first specialized research-based AI university

PUBLICATIONS

Conference paper

- **ECCV 2024** BenchLMM: Benchmarking Cross-style Visual Capability of Large Multimodal Models.
  Rizhao Cai[*], **Zirui Song** [*], Dayan Guan, Zhenhao Chen, Xing Luo, Chenyu Yi, & Alex Kot.
  The code is available at https://github.com/AIFEG/BenchLMM
  [*] Equal contribution
- **NAACL 2025** Hazards in Daily Life? Enabling Robots to Proactively Detect and Resolve Anomalies
  Zirui Song [*], Guangxian Ouyang [*], Meng Fang, Hongbin Na, Zijing Shi, Zhenhao Chen, Yujie Fu, Zeyu Zhang, Shiyu Jiang, Miao Fang, Ling Chen, Xiuying Chen[†] [*] Equal contribution, [†] Corresponding author
- **EMNLP 2024** MedINST: Meta Dataset of Biomedical Instructions
  Wenhan Han, Meng Fang, Zihan Zhang, Yu Yin, **Zirui Song**,Ling Chen, Mykola Pechenizkiy & Qingyu Chen
- **ICME 2025 Under Review** MMAC-Copilot: Multi-modal Agent Collaboration Operating Copilot
  Zirui Song [*], Yaohang Li[*], Meng Fang, Zhenhao Chen, Zecheng Shi, Yuan Huang, Xiuying Chen,& Ling Chen
  [*] Equal contribution
- **WWW 2025 Under Review** From a Tiny Slip to a Giant Leap: An LLM-Based Simulation for Fake News Evolution
  Yuhan Liu , **Zirui Song** , Xiaoqing Zhang , Xiuying Chen, Rui Yan
- **CVPR 2025 Under Review** Motion Anything: One Prompt for Multimodal Motion and Avatar Generation
  Zeyu Zhang, Yiran Wang, Wei Mao, Danning Li, Rui Zhao, Biao Wu, **Zirui Song**, Bohan Zhuang, Ian Reid, Richard Hartley
- **NAACL 2025 Under Review** Foundations and Recent Trends in Multimodal Mobile Agents: A Survey
  Biao Wu [*], Yanda Li [*], Zhiwei Zhang, **Zirui Song**, Yunchao Wei, Meng Fang, Ling Chen
  [*] Equal contribution
- **ICIC 2024** Efficient Reinforcement Learning via Decoupling Exploration and Utilization
  Jingpu Yang, Qirui Zhao, Helin Wang, Yuxiao Huang, **Zirui Song**, & Miao Fang.
  The code is available at https://github.com/yydsok/OPARL

Journal paper

- **Communication Chemistry** Unveiling the Power of Language Models in Chemical Research Question Answering
  Xiuying Chen, Tairan Wang, Taicheng Guo, Kehan Guo, Juexiao Zhou, Haoyang Li, **Zirui Song**, Mingchen Zhuge, Jürgen Schmidhuber, Xin Gao, & Xiangliang Zhang
- **Nature Computation Science Under Review** Evaluating and Mitigating Bias in AI-Driven Medical Text Generation
  Xiuying Chen, Tairan Wang, Juexiao Zhou, **Zirui Song**, Xin Gao, Xiangliang Zhang

ACADEMIC EXPERIENCE

Rapid-Rich Object Search Lab (Nanyang Technological University)   **Prof. Dayan Guan, Prof. Alex Kot**
Undergraduate Research Assistant (Remote)   04/2023 — 2024/02

- Co-authored a research project titled **"BenchLMM: Benchmarking Cross-style Visual Capability of Large Multimodal Models"** as a joint first author. Accepted by ECCV 2024.
- Conducting preliminary primary research on Chain of thought, hallucinations and misleading issues in Vision-Language Models (VLM).

Australian Artificial Intelligence Institute   **Prof. Meng Fang, Prof. Ling Chen**
Undergraduate Research Assistant   02/2024 — Present

- Lead a paper titled **"MMAC-Copilot: Multi-modal Agent Collaboration Operating Copilot"** as the first author, introducing a multi-agent collaboration chain that improved performance by 6.8% in the general AI assistants benchmark.
- Collaborate on **"MedINST: Meta Dataset of Biomedical Instructions"** which includes 133 biomedical NLP tasks and over 7 million training samples, making it the most comprehensive biomedical instructional dataset to date.
- Co-author the survey **"Foundations and Recent Trends in Multimodal Mobile Agents: A Survey"**

Trustworthy Text Lab (MBZUAI)   **Prof. Xiuying Chen**
Visiting Student   02/2024 — Present

- Lead a paper titled **"Hazards in Daily Life? Enabling Robots to Proactively Detect and Resolve Anomalies"** as the first author, we introduce AnomalyGen, an unsupervised generative framework that enables household robots to autonomously detect and address anomalies without explicit instructions.
- Collaborated on **"From a Tiny Slip to a Giant Leap: An LLM-Based Simulation for Fake News Evolution"** as second author. We propose FUSE, an LLM-based simulation framework to investigate how true news gradually evolves into fake news, considering the roles of different types of agents and various social network structures observed in real-world.

SELECTED COURSES

Foundation Courses

- Introduction to Data Analytics   97/100
- Engineering Communication   90/100
- Secure Programming and Penetration Testing 98/100
- Software Architecture   97/100
- Design Innovation & Entrepreneurship Fundamentals 90/100

Programming Courses

- Fundamentals of C++ Programming   99/100
- Java Programming Fundamentals   97/100
- Programming 2   92/100
- Software Engineering Studio   89/100

SKILLS

- **Programming:** Python, PyTorch, Paddle, Shell, Java, C++,
- **Software:** MATLAB, Visual Studio Code, Git, Github
- **Soft Skills:** Problem-solving, Teamwork, Effective Communication, Time Management, Data Analysis, Critical Thinking, Attention to Detail

REFERENCES

Prof. Meng Fang
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