

# QIWEI MA

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Homepage: <https://github.com/qiwei-ma>

Shenzhen, China

## EDUCATION

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### Shenzhen University (SZU)

M.S. in Artificial Intelligence

GPA: 3.5/4.0

May 2026 (expected)

### Ningxia University (NXU)

B.E. in Materials

GPA: 3.0/4.0

June 2022

## INTERESTS

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- Large Language Models and AI Agents.
- AI in Education.
- Security and Privacy in Educational AI.

## RESEARCH EXPERIENCE

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### Differential Privacy Image Generation

Mar 2024 - Apr 2025

Supervisor: Dr. Zhang

SZU

- Proposed a differential privacy framework for image generation to eliminate gradient clipping bias and improve training stability.
- Introduced reconstruction loss and noise injection during generator upsampling stages to enhance data utility and image diversity.
- Designed multi-component training pipeline integrating generator, discriminators, classifier, and encoder with gradient sanitization mechanisms.
- Achieved SOTA performance on MNIST and Fashion-MNIST, surpassing baseline methods in Inception Score, Frechet Inception Distance, and downstream classification accuracy.

### Multi-Agent Conversational AI for EFL Speaking Practice [1]

Jan 2025 - Oct 2025

Supervisor: Dr. Zhang

SZU

- Proposed a multi-agent system (MAS) for EFL speaking practice.
- Completed development of seven specialized agents (preprocessing, response generation, dialogue supervision).
- Explored mechanisms of MAS superiority, confirming synergistic effects of integrated features.
- Found MAS outperforms single-agent system (SAS) in oral proficiency gains ( $p=0.049$ ) and grammatical accuracy ( $p=0.016$ ) via a 4-week controlled experiment with 32 university EFL learners.
- Explored mechanisms of MAS superiority, confirming synergistic effects of integrated features: 26% more practice sessions, 15% longer utterances, and 70% reduction in repeated grammatical errors.

### Intelligent Annotation and Feedback System for English Writing

Apr 2025 - Present

Supervisor: Dr. Zhang

SZU

- Developed LLM-IAF (LLM-based Intelligent Annotation & Feedback System), a mobile application for automated English writing evaluation targeting junior high school students.
- Implemented dual-engine AI workflow combining semantic evaluation and visual grounding to provide visualized feedback with error localization on handwritten essays.

- Conducted experimental study with students, comparing experimental group using LLM-IAF versus control group with traditional instruction over four weekly writing tasks.
- Achieved significant improvement in writing performance for experimental group compared to control group, with substantial gains in learning engagement and writing self-efficacy.
- Demonstrated strong AI-teacher score correlation and good agreement; students reported high satisfaction with system's usefulness and ease of use.

## OTHERS

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### Reasoning for Table Manipulation

Mar 2025 - Present

*Supervisors: Prof. Yang, Dr. Tan* Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences

- Proposed an end-to-end LLM to manipulate tabular structures via structured reasoning.
- Constructed a benchmark covering 5 core tasks: table splitting/merging, wide-to-long conversion, semi-structured field parsing, and row/column generation.
- Completed two-stage training (SFT on reasoning traces + GRPO optimization), achieving SOTA performance among 7B-scale table-specific models.
- Explored structural integrity challenges in table manipulation, identifying that column-level accuracy outperforms row-level accuracy across models due to sensitivity to missing fields.

## PUBLICATIONS

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[1] Jun Zhang, **Qiwei Ma**, Yu Zhang, and Xiaoming Cao. *Multi-Agent vs. Single-Agent AI for EFL Speaking Practice: A Controlled Experiment with Hybrid Input, Contextual Dialogue, and Proficiency-Adaptive Feedback*. *Educational Technology & Society (ET&S)*. 2025, (Accepted).

## INTERNSHIPS

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- 2025.05 - Present, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China.

## SKILLS

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- Languages:** Chinese (Native), English (Proficient), French (Basic)
- Programming Languages:** Python, Java