

## EDUCATION BACKGROUND

Teachers College, Columbia University		09/2024 –
		Major: Learning Analytics
Zhejiang University		09/2022 – 06/2024
Degree: Master's Degree in Education	GPA: 3.96/4.0	Major: Science and Technology Education
Jiangnan University		09/2018 – 06/2022
Degree: Bachelor of Science	GPA: 3.7/4.0	Major: Educational Technology

## PUBLICATION

### Journal Publications(under review)

Lu Zhang, **Lu Fang**, Yuhan Huang, Junjie Shang. 'How CFL Learners with Varying Anxiety Levels Benefit from AI-Assisted DGBLL: A Comprehensive Analysis of Cognitive Gains, Emotional Benefits, Learning Experience, and Behavioral Patterns', submitted to The Modern Language Journal (SSCI Q1), 2025.

Lu Zhang, **Lu Fang**, Yuhan Huang, Junjie Shang. 'Integrating AI Tutor into Digital Game-Based Learning for Chinese as a Foreign Language: Impacts on Language Acquisition, Motivation, and Learning Behaviors', submitted to Education and Information Technologies(SSCI Q1), 2025.

Lu Zhang, Junjie Shang, **Lu Fang**, Yuhan Huang. 'An Investigation of Metacognitive Regulation of CFL Learners in Contextualized Digital Game-Based Learning: Analyzing Error Modification Behaviors Using Lag Sequential Analysis', submitted to System(SSCI Q1), 2025.

**Lu Fang**, Lu Zhang, Ge Tang. 'Helpful or Harmful? A Comparative Study of Perceived and Actual Effectiveness of LLM-Driven Tutors in Game-Based CFL Learning', submitted to Education Sciences (SSCI Q2), 2025.

### Journal Publications(under review)

Lu Zhang, **Lu Fang**, Junjie Shang. 'The Application of Gamified Virtual Environments in International Chinese Education: Perspectives on Discourse Cognition and Emotional Motivation', accepted by E-education Research(CSSCI), 2024.

**Lu Fang**, Junqing Zhai. 'Promoting the Spirit of Scientists in Science Museums: Challenges and Opportunities', accepted by Studies on Science Population, 2023.

### Conference Publications

Miao Feng, **Lu Fang**, Guofa Yang, Shuyi Wang, Ziyang Wei, Pinyan Shang, Lu Zhang. 'How does motivation affect gamified learning engagement in international Chinese Education? -- Empirical research based on lag sequential analysis', accepted by The 28th Global Chinese Conference on Computers in Education (GCCCE 2024), 2024.  
\*Best Chinese Paper Award

Yingxue Cheng, Lu Zhang, **Lu Fang**. 'A Study on the Design of Online Virtual Contexts for International Chinese Language Education by Integrating Large Models', accepted by the Learning Science Research Branch of Chinese Society of Higher Education Academic Conference, 2023.

**Lu Fang**, Yuqing Guo. 'Research Overview on Museum Mobile Learning Apps', accepted by the 18th Annual China Information Technology Education Conference, 2023.

## RESEARCH EXPERIENCE

### Research on the Design of Context-based Educational Game for International Chinese Education Based on the Large Language Model

Team Leader, Supervisor: Prof. Junjie Shang

Learning Science Laboratory

Peking University

- Led the team in developing the Unity3D game *Ethan's Life in Beijing*, based on embodied cognition theory and contextual learning theory. (Available for download on our website: <http://www.cnlearning.cn:32/>)
- Integrated the game with a MySQL cloud database and designed an in-game action data collection system to record learners' learning paths, behaviors, and time spent.
- Analyzed learning behavior patterns and in-game metacognitive strategies used by different types of learners, combining clustering and lag sequential analysis techniques on the data collected from the first round.
- Implemented an AI teaching assistant using *iFlytek Spark large language model*. The AI assistant provides

error analysis and concept explanations based on student inquiries or previous mistakes.

- Designed and conducted the second round of experiments, collecting behavioral data and recording learners' study processes. Currently conducting multidimensional data analysis of behaviors, facial expressions, and learning performance.

**Promoting the Spirit of Scientists in Science Museums: Challenges and Opportunities**

**06/2023-10/2023**

*Independent researcher, Supervisor: Prof. Junqing Zhai*

**Zhejiang University**

- Developed the framework for the components of scientific spirit by deconstructing its key elements based on existing literature.
- Conducted field research at the Shanghai Science and Technology Museum and the British Natural History Museum, collecting data for a case study analysis. Compared exhibition styles, guided tours, and educational activities offered by the two museums.
- Provided recommendations for enhancing the promotion of scientific spirit in Chinese science museums, focusing on exhibition methods, guided activities, and educational programs.

**Study on the Automatic Evaluation of Computational Thinking Using Machine Learning**

**09/2021-04/2022**

*Independent researcher, Supervisor: Prof. Yizhou Qian*

**Jiangnan University**

- Utilized Python's Pandas library tool to examine the correlation between the scale scores and the sub-concept scores, producing a moderate to strong correlation between the sub-concept scores and the test scores
- Leveraged the random forest regression model to convergent Computational Concepts Overall Score, achieved a 77.69% fitting ratio
- Utilized the K-means method from the scikit-learn library tool in Python to construct the clustering model to explore the correlations among Computational Concepts, Computational Practice, and learners' characteristics, deriving learners' three levels of Computational Thinking development and characteristics

## PROFESSIONAL EXPERIENCE

**Zhejiang Science and Technology Museum** | Intern at Exhibition and Education Department

**06/2023-09/2023**

- Organized popular science activities for the public, designed and developed the science animation posted by the official account on TikTok
- Developed and delivered five public science courses independently for more than 200 visitors

**Beijing Century Future Education Technology Co.** | Intern

**03/2021-09/2021**

- Collaborated with teachers in the children's online programming teaching design and development, producing teaching materials, designing test questions, and planning programming activities
- Developed popular science animation programs by **Scratch**, produced five episodes, and independently launched them on the company's official website (<https://code.xueersi.com/space/59407?to=work>)

**Wuxi First Middle School** | Information Technology Trainee of High School

**09/2020-03/2021**

- Designed teaching materials for the Information and Technology course, taught the course for two classes with 90 students in total
- Conducted daily classroom management and activities, stimulating students' interests in science and technology

**Wuxi Xinqihang Education Technology Co.** | Co-founder

**12/2018-06/2022**

- Responsible for teacher recruitment and management, curriculum design and development
- Developed 36 lessons independently for foreign instructors and teaching assistants to deliver classes for primary school students, instructed teachers on how to conduct lessons with six rounds successfully
- Managed a team of more than 20 teachers, serving more than 1,000 students

## EXTRACURRICULAR ACTIVITY

**Research on Development and Application of C-STEM Curriculum for Elementary School Students Based on Scratch-Declassified Educational Game Development – Viruscape**

**06/2020-07/2020**

- Led the planning and development of the game Viruscape(Preview through this link: <https://www.youtube.com/watch?v=kWZprYS1PSU&t=59s>), and designed the core gameplay elements.
- Scheduled the project, and developed the game by using ActionScript and Construct3 Engine.

**National Innovation and Entrepreneurship Program for College Students**

**05/2020-06/2021**

- Designed the curriculum planning table with 'programming + subject content' as the system, and compiled two textbooks with 40 sections of C-STEM course materials
- Volunteered to teach more than 30 public welfare programming lessons by using the designed textbooks for children from a remote rural school
- Reported by Wuxi Daily newspaper for the popular public programming lessons in December 2020

## AWARD AND HONOR

- Third Prize in Skills Contest for Normal University Students of Jiangsu Province in 2021 (1%)
- National Third Prize in 12th User Experience Design Award in 2020 (1%)
- Third Prize in the Tenth E-commerce 'Innovation, Creativity and Entrepreneurship' Challenge Competition for National College Students in Jiangsu Province in 2020 (1%)
- The National Scholarship for Undergraduate in 2019 (0.1%)

## PROFESSIONAL SKILL

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**Programming:** Python, C#, JavaScript, MySQL, SPSS

**Software:** Unity, Scratch

**Language:** Chinese (Native), English (Fluent), Japanese (Intermediate)