Xinyue Jiao

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Research interests: AR in education, learning science and technology, game-based learning

AI education, STEM education, Collaborative argumentation

Education

Beijing Normal University, Beijing, China   Sept. 2020 – Jun. 2023

   M.S. in Educational Technology | Advisor: Associate prof. Su Cai

   GPA: 3.90/4.00   92.10/100

   Academic focus: Augmented Reality in education, Computer-supported collaborative learning, Online learning, Scientific argumentation.

Central China Normal University, Wuhan, China   Sept. 2016 –Jun. 2020

   B.S. in Educational Technology | Advisor: Prof. Jiumin Yang

   GPA: 88.73/100   Ranked 2/48

   Academic focus: Computational thinking, STEM education, Scientific argumentation

Research Experience

Beijing Normal University, Beijing, China

   Principle Investigator   Nov. 2021 – Now

- **Jiao, X.** (2021-2022) Student Research Fund Project of Beijing Normal University. Research on the Mechanism of the collaborative scripts on the effects of collaborative inquiry among middle school students in an AR environment. (Project No. BNU2112130) ￥3,000.
- Responsibilities: Planning programs, designing AR apps, designing experiments, and writing papers.

Central China Normal University, Wuhan, China

   Principle Investigator   May 2019 – Jun. 2020

- **Jiao, X.** (2019-2020) The National-level Project for Student Innovation and Entrepreneurship Training. Research on the influence of integrated STEM courses on students' computational thinking and interdisciplinary attitudes. (Project No. CCNU201810511043) ￥10,000.
- Responsibilities: Planned projects, designed STEM+C courses (programming courses), and wrote papers.

Central China Normal University, Wuhan, China

   Principle Investigator   May 2018 –Jun. 2019

- **Jiao, X.** (2018-2019) The National-level Project for Student Innovation and Entrepreneurship Training. Research on the integrated STEM curriculum's influence on primary school students' problem-solving ability. (Project No. CCNU201910511077) ￥10,000.
- Responsibilities: Planned projects, designed STEM courses (mbot), analyzed data, and wrote papers.

Joint Research Project among Columbia Univ, Beijing Normal Univ, and East China Normal Univ, New York, USA, Beijing, China, and Shanghai, China

   Co-investigator   Feb. 2021 – Now

- Li, S., **Jiao., X.** (2021-2022) Research on using Augmented Reality to enhance students' representational fluency and self-efficacy.
- Responsibilities: Designing and developing AR applications, coding interview data, and writing papers.

Beijing Normal University, Beijing, China

   Co-investigator   Oct. 2019 – Now

- Cai., S., **Jiao., X.** (2019-2023) The National Natural Science Foundation of China. Research on multi-

channel information fusion computation and evaluation in intelligent Augmented Reality learning environment (Project No. 61977007) ￥500,000.
- Responsibilities: Designing and developing AR applications, collecting and analyzing data, and conducting qualitative and quantitative research.

Beijing Normal University, Beijing, China
Co-investigator   Nov. 2021 – Now
- Yong, X., **Jiao, X.** (2021-2022) Student Research Fund Project of Beijing Normal University. Research on the role path of metacognitive skills of pre-service science teachers in collaborative argumentation. (Project No. BNU2112131) ￥3,000.
- Responsibilities: Planning, literature review, and designing experiments.

Central China Normal University, Wuhan, China
Co-investigator   Sept. 2018 – Oct. 2019
- Lin., Y., **Jiao., X.** (2018-2019) The Youth Foundation for Humanities and Social Science Research of the Ministry of Education in China. Brainwave exploration of scientific argumentation for learning (Project No.18YJC880050) ￥20,000.
- Responsibilities: Conducted qualitative research, analyzed data, and wrote papers.

Work Experience

Teaching Assistant	***Faculty of Education, Beijing Normal Univ.***	Sept. 2020–Aug. 2022

- Lectured on AR design (Unity 3D) and instructional design
- Designed course plan

Research Assistant	***VR/AR + Education Lab, Beijing Normal Univ.***	Sept. 2020– Now

- Designed experiments, collected and analyzed data, and wrote three journal articles about AR+ education
- Developed nine AR applications ranging from science to language learning (Image-based)
- Designed location-based AR scene with HUAWEI

Research Assistant	***School of Educational Information Tech, CCNU***	May 2018 –Aug. 2019

- Analyzed qualitative data about STEM courses and computational thinking

Science Teacher	***Qingdao No.5 Middle School, Qingdao, China***	Sep. 2021 – Nov. 2021

- Taught science using AR software
- Design AR-based science courses

Programming Teacher	***Robot Culture and Technology Company, Hubei, China***	Jul. 2017 – Aug. 2018

- Design programming and STEM + robot courses
- Taught programming courses through plugged activities to elementary school students

Publications

Thesis

Master's Thesis: A study on the Influence and Mechanisms of Role Assignment and Collaborative Scripts on the Effects of Collaborative Inquiry among Secondary School Students in the AR Environment, 2022

Bachelor's thesis: The Influence of Augmented Reality Embedding Scaffolds on Elementary Students' Learning Science: Take the three primary colors of light as an example, 2020 **[Excellent Bachelor Thesis Paper]**

Journal Articles

Jiao, X., Cai, S., Li, J., Zhou, H. (2023). The influence of context-based Augmented Reality application on

elementary students' English language learning. Submitted to *Journal of Computer Assisted Learning* (IF=3.761, Rank= 57/270, Q1) (SSCI) **[Under Review]**

Cai, S., **Jiao, X.**, Li, J., Jin, P., Zhou, H., & Wang, T. (2022). Conceptions of learning science among elementary school students in AR learning environment: A case study of "The Magic Sound." *Sustainability (Switzerland)*, 14(11). doi:10.3390/su14116783 (IF= 3.889, Rank= 133/279, Q2) (SSCI)

Li, S., Shen, Y., **Jiao, X.**, & Cai, S. (2022). Using Augmented Reality to enhance students' representational fluency: the case of linear functions. *Mathematics*, 10(10). doi:10.3390/math10101718 (IF= 2.592, Rank= 21/333, Q1) (SSCI)

Yang, Y., Cai, S., Wen, Y., Li, J., & **Jiao, X.** (2021). AR learning environment integrated with EIA inquiry model: enhancing scientific literacy and reducing the cognitive load of students. *Sustainability (Switzerland)*, 13(22). doi:10.3390/su132212787 (IF=3.889, Rank= 133/279, Q2) (SSCI)

Cai, S., **Jiao, X.**, Song, B. (2022) Opening another door of Education: Application, Challenge, and Prospect of Educational Metaverse. *Modern Educational Technology,* (1): 16-26. [In Chinese] (IF= 3.887) (CSSCI)

Cai, S., **Jiao, X.**, Yang, Y., Jiang, L., Yu, S. (2021) Multi-modal smart classroom practice in 5G environment. *Modern Distance Education Research*, 33(05):103-112. [In Chinese] (IF= 5.382) (CSSCI)

Jiao, X., Ouyang, C., Fan, S., Wang, P. & Gao, L. (2019). STEM+C curriculum design and application based on computational thinking teaching. *Educational Information Technology*. 2019(05), 43-46. [In Chinese] (IF= 0.335)

Conference Proceedings

Jiao, X., Liu, Z., Zhou, H., & Cai, S. (2022). The Effect of Role Assignment on Students' Collaborative Inquiry-based Learning in Augmented Reality Environment. *Proceedings of the 22nd International Conference on Advanced Learning Technologies*, ICALT 2022, July 1, 2022 - July 4, 2022, Bucharest, Romania. (EI)

Jiao, X., Liu, Z., & Cai, S. (2020). The influence of augmented reality embedding cognitive scaffolds on elementary students' scientific learning. *Proceedings of the 28th International Conference on Computers in Education*, ICCE 2020, November 23, 2020 - November 27, 2020, Virtual, Online. (EI) **[Nominated for the Best Overall Paper Award**

Jiao, X., Wang, R., & Cai, S. (2022). Exploring the Argumentation Characteristics in SSI Video Discussion Area of Online Video Learning Website. *Proceedings of the 10th International Conference on Information and Education Technology*, ICIET 2022, April 9, 2022 -April 11, 2022, Matsue, Japan. (EI)

Feng, Z., Gong, C., **Jiao, X.**, Liu, Z., & Cai, S. (2022). The Effects of AR Learning Environment on Preschool Children's Numerical Cognition. *Proceedings of the 22nd International Conference on Advanced Learning Technologies, ICALT 2022*, July 1, 2022 - July 4, 2022, Bucharest, Romania. (EI)

Jiao, X., Yi, C., Liu, C., Xie, Y., & Ma, N. (2021). How Different Cognitive Style Groups Affect Learners' Knowledge Construction in Collaborative Argumentation. *Proceedings of the 13th International Conference on Education Technology and Computers*, ICETC 2021, May 24, 2021- June 2, 2021, Virtual, Online. (EI)

Liu, Z., **Jiao, X.**, & Cai, S. (2021). Effects of Augmented Reality on students' online physics learning. *Proceedings of the American Educational Research Association*, AERA 2021, April 8, 2021 - April 12, 2021, Virtual, Online.

Jiao, X., & Lin, Y. R. (2019). The influence of argumentation strategy on students' web-based argumentation in different scientific concepts. *Proceedings of the 2019 International Symposium on Educational Technology*, ISET 2019, July 2, 2019 - July 4, 2019, Hradec Kralove, Czech Republic. (EI)

Skills

AR Design and Development

- AR Software Design and Development(Unity3D),3D Modeling(3D max), Graphic Design(Photoshop),
- Developed nine AR applications (image/location-based) about science, languages, and mathematics (https://youtu.be/AFe8amnUDw0 and https://xinyue-jiao.github.io/)

Instructional Design & Development

- Instructional design, E-Learning (Storyline), Motion Graphic Animation Production (Animiz), Learning Management Systems (Moodle LMS, CCNU-StarMooc)
- Designed four STEM/programming courses aiming to enhance students' computational thinking (based on Scratch and mbot)
- Designed five AR courses

Data Analysis

- Quantitative Data Analysis Tools (SPSS)
- Qualitative Data Analysis Tools (NVivo 11)
- Structural Equation Modeling (AMOS/SmartPLS)
- Lag Sequential Analysis (GSEQ)

Programming

- Unity, Vuforia, C Language, C#/C++, Java, HTML, ActionScript 3.0

Languages:

- Chinese (native) , English (fluent), TOEFL(100/R28,L25, S22,W25), GRE(324/V155,Q169,AW3.5)

Honors & Awards

National Scholarship of Beijing Normal University	Oct. 2022
First-class Scholarship of Beijing Normal University	Oct. 2021
Best Paper Award Nomination, International Conference on Computers in Education (ICCE), 2020	Nov. 2020
Outstanding undergraduate graduate of Central China Normal University	Jun. 2020
National Scholarship of Central China Normal University	Oct. 2019
Merit Student of Central Normal University	Oct. 2019
First Prize of National College Student Computer Design Competition	Sept. 2019
Second Prize of National Iteach Digital Education Application Innovation Competition	Nov. 2017

Service

Volunteer Teacher of programming in an underdevelopment area of China.
Responsibilities include: Teaching Scratch programming to the 4th-grade students