A Workshop Proposal for the 29th Global Chinese Conference on Computers in Education (2025)

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1. Workshop topic: Embracing Future Challenges: Computational Thinking and Programming Education for Children

2. Language medium(s): Bilingual

3. Workshop abstract / A draft of the Call for Workshop Papers:

In the artificial intelligence (AI) era, fostering computational thinking in children has significant implications (Bers et al., 2019; Zhang et al., 2024). As one of the key 21st-century skills, computational thinking equips children with the cognitive tools to solve problems systematically and is expected to reshape their learning and daily lives (Wing, 2006; Zhang et al., 2024). Furthermore, computational thinking is closely related to children's problem-solving skills, creativity, executive functions, logical thinking, career competitiveness and so on (Li et al., 2023a; Su et al., 2021; Zhang et al., 2025). Currently, many countries have incorporated computational thinking into K-12 curricula. The development of computational thinking has become an educational priority (Bers et al., 2022).

Programming education is a pivotal means for developing children's computational thinking (Bers et al., 2022; Hsu et al., 2018). The development of various programming tools, including screen-based programming, robotics programming, and unplugged programming, has offered tremendous opportunities for fostering computational thinking for K-12 children (Chen et al., 2024; Rich et al., 2022; Zhao et al., 2022; Zhang et al., 2023). In recent years, global researchers have initiated the research on children's computational thinking and programming education (e.g., Li et al., 2023b; Zhao et al., 2023).

This workshop cordially invite scholars and teachers to submit papers and encourage active participation to discuss the latest educational concepts, resources, teaching methods, and practical cases in K-12 children's computational thinking and programming education. The workshop will provide an interactive platform for educators and researchers from different countries and regions to exchange experiences, share knowledge, and promote innovations in the practice of computational thinking and programming education for children in this AI era.

Potential topics for submission include, but are not limited to:
- Review of research on children's computational thinking and programming education
- Application and challenges of children's computational thinking or programming education
- Development and evaluation of children's programming tools and resources
- Psychological and cognitive development of children's computational thinking and programming learning
- Curriculum development for children's computational thinking and programming education
- Innovative teaching strategies and methods in children's computational thinking and programming education
- Development of assessment tools for children's computational thinking and programming education

- Interdisciplinary computational thinking and programming education for children
- Professional development for teachers of K-12 children's computational thinking or programming education
- Gender and diversity issues in children's computational thinking and programming education

4. Names, affiliations, emails, and short biographies of the workshop chair and co-chairs:

Chair of the workshop: Xinli Zhang (zhxl@wzu.edu.cn) is a professor at the College of Education, Wenzhou University, and Deputy Director of the Research Center of STEM Education at Wenzhou University, China. Her research expertise includes children's computational thinking and programming education, STEM education, artificial intelligence education, and media literacy education. She has led and participated in five provincial and ministerial research projects, and undertaken nearly ten commissioned horizontal projects. She is a consulting expert on STEM education, children's programming education, and artificial intelligence education for several kindergartens and primary schools. She has served as the chief editor and contributor to multiple textbooks. She has published over ten high-level papers in CSSCI/SCI/SSCI/EI journals, including *E-education Research, Computers & Education*, and *International Journal of STEM Education*. She also serves as a peer reviewer for several SCI/SSCI journals.

Co-chair of the workshop: Li Zhao (li.zhao@njnu.edu.cn) is an associate professor at the School of Education Science, Nanjing Normal University in China. She is also the director of the Visual Culture Research Institute at the Nanjing Normal University. She is a "Young Leading Talent" under the university's program for cultivating young scholars. Her main research interests include online education, informationized education, and learning analytics. She has led and completed five national and provincial-level research projects. Dr. Zhao has published three books and co-edited a textbook. She has published over 90 academic papers in both Chinese and English in journals such as *the Journal of East China Normal University (Educational Sciences), E-education Research, Computers & Education, and Distance Education*. Additionally, she serves on the editorial boards of several SSCI journals and is a peer reviewer for multiple CSSCI/SSCI/SCI journals.

Co-chair of the workshop: Biyun Huang (byhuang@cityu.edu.mo) is an an assistant professor at the School of Education in the City University of Macao. Dr. Huang obtained her doctor's degree in Information and Technology Studies from the University of Hong Kong. She had also worked as a post-doctoral fellow at the Chinese University of Hong Kong. Her research interests are in

transdisciplinary STEAM curriculum design, AI in education, computational thinking and programming education, creative talent development, and gamification. She has been a core member or co-investigator of several large-scale research projects, such as Jockey Club Community Care and STEM in Action, and Toward Effective Use of Gamification in Higher Education Blended Courses: Evaluating a Theory-driven GAFCC Framework using Design-based Research. She has more than 40 publications in SSCI journals or international conferences. In addition, she received the Most Innovative Poster award at the 2022 WERA focal meeting, and the Best Oral Presentation award at the 2017 ICEIT conference. Her research findings are published in SSCI-indexed educational journals, such as Computers & Education, Interactive Learning Environments, Educational Technology & Society, Distance Education, and Educational Research Review.

5. Workshop committee:

Judy C. R. Tseng	Chung Hua University	Taiwan
Yuchen Chen	The University of Sydney	Australia
Dongpin Hu	The Education University of Hong Kong	Hong Kong
Lailin Hu	Wenzhou University	Mainland China
Guoshuai Lan	Henan University	Mainland China
Wei Li	Wenzhou University	Mainland China
Xiangyong Liu	Jiangnan University	Mainland China
Min-Chi Chiu	National Taichung University of Science and Technology	Taiwan
Shu-Hao Wu	National Taiwan Normal University	Taiwan
Guangtao Xu	Hangzhou Normal University	Mainland China
Hanbing Yan	East China Normal University	Mainland China
Baichang Zhong	South China Normal University	Mainland China
Yonghai Zhu	Capital Normal University	Mainland China

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