Tangible Toolkits for Cultivating Children's Skills on Creativity and Problem Solving

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Abstract:

In this talk, I will introduce two of my research on cultivating creativity and problem solving skills for children. Firstly, I will talk about AutoGami, a toolkit for designing automated movable paper craft using the technology of selective inductive power transmission. AutoGami has hardware and software components that allow users to design and implement automated movable paper craft without any prerequisite knowledge of electronics; it also supports rapid prototyping. AutoGami made consistently strong showings in design workshops, confirming its viability in supporting engagement and creativity as well as its usability in storytelling through paper craft. Additional highlights include rapid prototyping of product design as well as interaction design such as human-robot interactions.

In the second part of the talk, I will talk about the results of four children’s coding workshops to compare different combinations of input and output methods of coding environment. Results suggested that the combination of graphical input and tangible output (GITO) can better retain kids’ engagement and attention, and better facilitate various steps towards problem solving.

About the Speaker:

Kening Zhu is an assistant professor in the School of Creative Media, City University of Hong Kong. He received his PhD degree from National University of Singapore, and Bachelor of Science from Huazhong University of Science and Technology. Kening’s research interests cover various topics on human-computer interaction (HCI), including interaction design for children, paper computing, and rapid prototyping. He has published in various intentional conferences and journals, including SIGGRAPH, SIGCHI, HCI Intertional, Interacting with Computers, etc. He has served as Jury for Neo Ubimedia MindTrek Awards, reviewers for SIGGRAPH, SIGCHI, etc.