

THE MAKING OF A 3-D MATHEMATIC ADAPTIVE LEARNING SYSTEM

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Short description of the Thematic Afternoon: organizers, aims and underlying ideas

This session is organized by Professors Zhengguo Yuan, Aiming Zhou, Qiping Kong, and Chanjin Zheng from the Shanghai Institute of AI in Education at East China Normal University (ECNU). **Prof Zhengguo Yuan** is a professor of education from ECNU and Vice President of The Chinese Society of Education (CSE). **Prof Aiming Zhou** is currently a Professor, the vice dean with the Institute of AI Education, and the presiding vice dean with the School of Computer Science and Technology at ECNU. **Prof Qiping Kong** is a professor at ECNU, Deputy head of the Shanghai Key Research Centre of Mathematic Education and Instruction at ECNU, and Vice Chairman of the Mathematics Teaching in Primary School Professional Commission of CSE. **Prof Chanjin Zheng** is an associate professor of educational psychology from the Shanghai Institute of AI in Education and the Department of Educational Psychology. His expertise lies in the computerized adaptive testing and cognitive diagnostics modelling.

This session will present various aspects of a mathematic adaptive learning system developed by Shanghai Institute of AI in Education at East China Normal University. Prof Yuan, the direction of the Institute, will introduce the general blueprint of this system and give a demonstration of a beta version of this system. Then three presenters will further explain the three main elements of this system. Specifically, Prof Zhou from computer science will present the AI techniques including the algorithms for learning material recommendation, learning path planning, vision recognition etc. Prof Kong, an expert in math learning and teaching, will explicate the instructional design for this system in which the knowledge, cognitive and affective aspects of the math learning (the three dimensions) are considered. Lastly, Prof Zheng, a scholar on computerized adaptive testing and cognitive diagnostic assessment, will talk about the design, techniques and implementation of various assessments in the system.

Planned structure:

Planned timeline	Planned activity	Working format /Responsible person
14:00-14:30	The Math adaptive learning system demo	Speech/ Prof. Zhengguo Yuan
14:30-15:00	AI behind the math adaptive learning system	Speech/ Prof. Aiming Zhou
15:00-15:30	The instructional design for the 3-dimensional math adaptive learning system	Speech/ Prof. Qiping Kong
15:30-16:00	Adaptive assessments math adaptive learning system	Speech/ Prof. Chanjin Zheng
16:00-16:30	Questions/discussion	Discussion/all the presenters