

Contents

Part I Learning Analytics

1	Analyzing Learner Characteristics and Courses Based on Cognitive Abilities, Learning Styles, and Context	3
	Moushir M. El-Bishouty, Ting-Wen Chang, Renan Lima, Mohamed B. Thaha, Kinshuk and Sabine Graf	
2	An Approach to Measure Coding Competency Evolution	27
	Vive Kumar, Kinshuk, Thamaraiselvi Somasundaram, Steve Harris, David Boulanger, Jeremie Seanosky, Geetha Paulmani and Karthikeyan Panneerselvam	
3	Semantic Similarity-Enhanced Topic Models for Document Analysis	45
	Yan Gao and Dunwei Wen	
4	Social Context Analysis for Topic-Specific Expert Finding in Online Learning Communities	57
	Yanyan Li, Shaoqian Ma and Ronghuai Huang	

Part II Ambient Design

5	Context-Aware Geography Field Trip with EagleEye: Teachers' First Experience	77
	Morris S.Y. Jong	
6	Note-Taking in Pupil's Textbook: Features and Influence Factors.	95
	Guang Chen, Chaohua Gong and Ronghuai Huang	

**7 Effects of Clicker and Peer Discussion on Learning Performance
in a Secondary Biology Course 111**
Yongbin Hu and Ronghuai Huang

Part III Smart Pedagogy

8 Smart Learner Support Through Semi-automatic Feedback 129
Paul Libbrecht, Wolfgang Müller and Sandra Rebholz

9 Interactive Physical Games: Improving Balance in Older Adults 159
Wei-Chieh Fang, Feng-Ru Sheu, Yu-Lun Lin, Yun-Lin Lee
and Nian-Shing Chen

10 Story-Based Virtual Experiment Environment 175
Ming-Xiang Fan, Rita Kuo, Maiga Chang and Jia-Sheng Heh

**11 Development of Handheld Augmented Reality X-Ray
for K-12 Settings 199**
Marc Ericson C. Santos, Mitsuaki Terawaki, Takafumi Taketomi,
Goshiro Yamamoto and Hirokazu Kato