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Hamido Fujita
Jun Sasaki

Recent Advances in Modern Educational Technologies

Proceedings of the 12th International Conference on Education and Educational Technology (EDU '13)

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Scientific Sponsor

Iwate Prefectural University

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Morioka City, Iwate, Japan, April 23-25, 2013

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Educational Technologies Series | 6

ISSN: 2227-4618
ISBN: 978-1-61804-180-7

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Published by WSEAS Press
www.wseas.org

All papers of the present volume were peer reviewed by no less that two independent reviewers. Acceptance was granted when both reviewers' recommendations were positive.
See also: http://www.worldses.org/review/index.html

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Preface

This year the 12th International Conference on Education and Educational Technology (EDU '13) was held in Morioka City, Iwate, Japan, April 23-25, 2013. The conference provided a platform to discuss educational software and development, distance learning and distance teaching, web-based education, virtual school, globalization in education, educational technologies for people with special needs, management of educational institutes etc with participants from all over the world, both from academia and from industry.

Its success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of this conference are published in this Book that will be sent to international indexes. They will be also available in the E-Library of the WSEAS. Extended versions of the best papers will be promoted to many Journals for further evaluation.

Conference such as this can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors

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Plenary Lecture 1

Knowledge Discovery from Databases of Online Courses

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Abstract: The web mining is a very effective data mining approach in the internet-based segments of the business world. In fact, it is applying data mining for sophisticated traffic analysis of websites based on the "logfiles" continuously being created on the server machine of the content provider. Its aim is to increase the efficiency of the given websites. These files have to be filtered, transformed, and processed so that valuable pieces of information characterizing the visitors' behavior and motivation should be gained from it.
Our research group has been composed aiming at revealing advantageous practical application possibilities of web mining for the usage of online courses based on IBM SPSS Clementine and Google Analytics tools. The "user-centered" philosophy of these tools is in perfect harmony with the concepts of modern marketing, ergonomics and pedagogy. This new approach, as opposed to the traditional "page-centered" philosophy, puts the students' goals and intentions to the center, and designs the services of the system accordingly, as a matter of fact, as we experienced, quite successfully.
Our approach is radically different from the traditional ones, as it is not based upon some "representative sampling" concerning the interaction of the learners and the material, but of the contrary, all interactions of all students can be analyzed at the fine resolution of single keystrokes and mouse clicks.
In our plenary lecture we are going to present the results exposed by quality testing in connection with the students' learning and collaborative activities, the structure of the syllabus as well as the navigational opportunities.

Brief Biography of the Speaker: Dr. Imre J. Rudas graduated from Bánki Donát Polytechnic, Budapest in 1971 and received the Master Degree in Mathematics from the Eötvös Loránd University, Budapest while the Ph.D. in Robotics from the Hungarian Academy of Sciences in 1987. He is active as the President of Obuda University and as a professor of John von Neumann Faculty of Informatics.
Prof. Rudas is a Fellow of IEEE, Administrative Committee member of the Industrial Electronics Society, member of the International Board of the Robotics & Automation Society, Chairman of the joint Hungarian Chapter of these Societies, and RAS and IES Chapter Coordinator of Region 8. He is also a registered expert of the United Nations Industrial Development Organization and the EU.
He is the President of the Hungarian Fuzzy Association and Steering Committee Member of the Hungarian Robotics Association and the John von Neumann Computer Society.
Prof. Rudas serves as an associate editor of IEEE Transactions on Industrial Electronics, member of editorial board of Journal of Advanced Computational Intelligence and Control Engineering Practice, member of various national and international scientific committees. He is the founder of the IEEE International Conference Series on Intelligent Engineering Systems Prof. Rudas was the General Co-chair of ICAR2001, and also serves as General Chairman and Program Chairman of numerous scientific international conferences.
His present areas of research activity are: Robot Control, Soft Computing, Computed Aided Process Planning, Fuzzy Control and Fuzzy Sets. Prof. Rudas has published more than 290 papers in various journals and international conference proceedings.
Dr. habil. Peter Toth is a professor of Trefort Agoston Centre for Engineering Education at Obuda University, Hungary where he is participating in technical initial teacher training and in-service training courses. Currently he is a principle director of the Centre.
He earned his MSc in Engineering Education at the Budapest University of Technology and Economics, and Peter Toth has Ph.D and habil. degree in Educational Research from Eotvos Lorand University.
He plays leading role in planning, development and managing traditional and virtual engineering programs. Dr. Toth is doing research on pedagogy of virtual learning environment, improvement of problem-solving thinking and analyzing of spatial abilities in engineering education. His actual research area is analysis of students' activities and behavior in virtual learning environment by web mining methods.

He has been contributing in some European researches and projects on pedagogical aspects of e-learning and development of creativity and abilities of future engineers and teachers as well. He is member of Committee for Teacher Training of Hungarian Rectors' Conference and secretary of Informatics Section of Pedagogical Committee of Hungarian Academy of Sciences. Dr. habil. Toth has issued about 75 papers in several journals and conference proceedings.

Plenary Lecture 2

Applying Complexity Theory to Make Sense of The Curriculum of Emerging Technology

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Abstract: Complexity theory provides a way of examining and making sense of complex natural and social systems. Complexity refers to the condition of the universe which is integrated and yet too rich and varied for us to understand in a simple mechanistic ways. Complexity deals with emergence, innovation, learning and adaptation. Learning in the context of an emerging technology is rich and complex. This paper would be presented with examples of applying systems thinking developed from complexity theory to teaching and learning situations in emerging technology under High-Scope Project. The conceptual framework developed by Ralph Stacey and colleagues would be use to show how certain types of curricula might engage with learning in the unstable and unpredictable zone of complexity which lies somewhere between the world of rational planning and management and chaos. Emerging technology can be devised within the mindsets and behaviours of the zone of stability or the zone of complexity but they are fundamentally different in their conception. As an oversimplification, in the zone of stability people are told what they need to know and be able to do in the context of a particular technology education. This contrasts with the approach used in the zone of complexity where people are encouraged to identify for themselves what they need to know and what they need to be able to do to achieve an objective and they create or adapt the processes to do so. Curricula can be created in a way that enables both approaches to learning to be utilised.

Brief Biography of the Speaker: Dr. Lung-Hsing Kuo is the Director of the Research Center for Teacher Career Professional Development in National Kaohsiung Normal University. He received his Master in Education (1990~1993) and Ph. D. in Education (1993~1997) from National Kaohsiung Normal University. He specialized in Educational database, Education issues, Information and Society, Humanities and Technologies. And, he is also the COO of Nationwide Teacher In-service Education Information Web, Taiwan, R.O.C. ' http://inservice.edu.tw ' , Chief editor of Yearbook of Teacher Education Statistics Republic of China (2005-2010) and Chief editor of Yearbook of In-service Teacher Education Statistics Republic of China (2008-2010). He is the author of about 90 papers published in international journals and conference proceedings, and invited book chapters.