Lecture Notes in Computer Science 5685

Commenced Publication in 1973
Founding and Former Series Editors:
Gerhard Goos, Juris Hartmanis, and Jan van Leeuwen

Editorial Board

David Hutchison
   Lancaster University, UK
Takeo Kanade
   Carnegie Mellon University, Pittsburgh, PA, USA
Josef Kittler
   University of Surrey, Guildford, UK
Jon M. Kleinberg
   Cornell University, Ithaca, NY, USA
Alfred Kobsa
   University of California, Irvine, CA, USA
Friedemann Mattern
   ETH Zurich, Switzerland
John C. Mitchell
   Stanford University, CA, USA
Moni Naor
   Weizmann Institute of Science, Rehovot, Israel
Oscar Nierstrasz
   University of Bern, Switzerland
C. Pandu Rangan
   Indian Institute of Technology, Madras, India
Bernhard Steffen
   University of Dortmund, Germany
Madhu Sudan
   Microsoft Research, Cambridge, MA, USA
Demetri Terzopoulos
   University of California, Los Angeles, CA, USA
Doug Tygar
   University of California, Berkeley, CA, USA
Gerhard Weikum
   Max-Planck Institute of Computer Science, Saarbruecken, Germany
Preface

The Second International Conference on Hybrid Learning was organized by the School of Continuing and Professional Studies of The Chinese University of Hong Kong and University of Macau in August 2009. ICHL 2009 was an inventive experience for the Hong Kong and Macau tertiary higher education. The conference aims to provide a good platform for knowledge exchange on hybrid learning by focusing on student centered education. The technique is to supplement traditional classroom learning with eLearning. The slogan is “Education leads eLearning,” not vice versa. The methodology is that at least 30% of learning activities are done by eLearning. The outcome is for students to learn at any time at any place. eLearning can increase students’ learning productivity and reduce teachers’ administration workload alike. It is a new culture for students, teachers and school administrators to adopt in the twenty-first century. The conference obtained sponsorship from Pei Hua Education Foundation Limited, City University of Hong Kong, ACM Hong Kong Section, and Hong Kong Computer Society.

Hybrid learning originated from North America in 2000, and is an ongoing trend. It is not merely a simple combination of direct teaching and eLearning. It encompasses different learning strategies and important elements for teaching and learning. It emphasizes outcome-based teaching and learning, and provides an environment for knowledge learning. Students are given more opportunities to be active learners and practice practical skills such as communication, collaboration, critical thinking, creativity, self-management, self-study, problem solving, analysis and numeracy.

It was our pleasure to have a keynote speaker for the conference, namely, Timothy Shih from the National Taipei University of Education, whose talk was “Repository and Search Based on Distance Learning Standards.”

We are thankful for the effort of all the organizing committee members for arranging the conference, and also the Program Committee members for reviewing the papers. Special thanks must go to Wen-Jing Shan for the support of University of Macau in holding the conference. The conference attracted about 149 submissions, and only 38 papers were accepted for publication in the Lecture Notes in Computer Science series by Springer.

On behalf of the conference Steering Committee members Reggie Kwan from Caritas Francis Hsu College, Philips Fu Lee Wang from the City University of Hong Kong, Victor Lee from The Chinese University of Hong Kong and Joseph Fong from the City University of Hong Kong, we trust you will enjoy these conference proceedings.

August 2009

Joseph Fong

Wen-Jing Shan
# Organization

## Organizing Committee

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Honorary Chairs</strong></td>
<td>Timonthy K. Shih (National Taipei University of Education)</td>
</tr>
<tr>
<td></td>
<td>Victor S.K. Lee (The Chinese University of Hong Kong)</td>
</tr>
<tr>
<td><strong>Conference Chairs</strong></td>
<td>Joseph Fong (City University of Hong Kong)</td>
</tr>
<tr>
<td></td>
<td>Wen-Jing Shan (University of Macau)</td>
</tr>
<tr>
<td><strong>Program Chair</strong></td>
<td>Philips Fu Lee Wang (City University of Hong Kong)</td>
</tr>
<tr>
<td></td>
<td>Reggie C.Kwan (Caritas Francis Hsu College)</td>
</tr>
<tr>
<td><strong>Organization Chairs</strong></td>
<td>Liming Zhang (University of Macau)</td>
</tr>
<tr>
<td><strong>Local Arrangements Chairs</strong></td>
<td>Siu Cheung Kong (The Hong Kong Institute of Education)</td>
</tr>
<tr>
<td><strong>Registration Chair</strong></td>
<td>Janice Fung (The Chinese University of Hong Kong)</td>
</tr>
<tr>
<td><strong>Financial Chair</strong></td>
<td>Jonathan Diu (The Chinese University of Hong Kong)</td>
</tr>
<tr>
<td></td>
<td>Silvia Choi (The Chinese University of Hong Kong)</td>
</tr>
<tr>
<td><strong>Publication Chair</strong></td>
<td>Titus Lo (Caritas Francis Hsu College)</td>
</tr>
<tr>
<td><strong>Publicity Chair</strong></td>
<td>Louis Ma (City University of Hong Kong)</td>
</tr>
<tr>
<td><strong>Academic Liaison Chair</strong></td>
<td>Wai Yin Mok (University of Alabama in Huntsville)</td>
</tr>
<tr>
<td><strong>Sponsorship Chair</strong></td>
<td>Will W.K. Ma (Hong Kong Shue Yan University)</td>
</tr>
<tr>
<td><strong>Activities Chair</strong></td>
<td>Oliver Au (Loughborough University)</td>
</tr>
<tr>
<td></td>
<td>Simon Cheung (The University of Hong Kong)</td>
</tr>
</tbody>
</table>

## Steering Committee

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Joseph Fong (City University of Hong Kong)</td>
</tr>
<tr>
<td>Members</td>
<td>Reggie C. Kwan (Caritas Francis Hsu College)</td>
</tr>
<tr>
<td></td>
<td>Victor S.K. Lee (The Chinese University of Hong Kong)</td>
</tr>
<tr>
<td></td>
<td>Fu Lee Wang (City University of Hong Kong)</td>
</tr>
</tbody>
</table>

## International Program Committee

<table>
<thead>
<tr>
<th>Name</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oliver Au</td>
<td>Loughborough University, UK</td>
</tr>
<tr>
<td>Robert P. Biuk-Aghai</td>
<td>University of Macau, Macau</td>
</tr>
<tr>
<td>Fun Ting Chan</td>
<td>The University of Hong Kong, Hong Kong</td>
</tr>
<tr>
<td>Kan Kan Chan</td>
<td>University of Macau, Macau</td>
</tr>
<tr>
<td>Keith C.C. Chan</td>
<td>The Hong Kong Polytechnic University, Hong Kong</td>
</tr>
<tr>
<td>Giuliana Dettori</td>
<td>Istituto per le Tecnologie Didattiche, Italy</td>
</tr>
<tr>
<td>Jonathan Diu</td>
<td>The Chinese University of Hong Kong, Hong Kong</td>
</tr>
</tbody>
</table>
Peter Duffy  The Hong Kong Polytechnic University, Hong Kong
Joseph Fong  City University of Hong Kong, Hong Kong
Bob Fox  The Chinese University of Hong Kong, Hong Kong
Michael Gardner  University of Essex, UK
Raquel Hijón-Neira  Universidad Rey Juan Carlos, Spain
Reggie C. Kwan  Caritas Francis Hsu College, Hong Kong
Mark J.W. Lee  Charles Stuart University, Australia
Victor S.K. Lee  The Chinese University of Hong Kong, Hong Kong
John Lee  The Hong Kong Polytechnic University, Hong Kong
Yan Li  Zhejiang University, China
Will W.K. Ma  Hong Kong Shue Yan University, Hong Kong
Wai Yin Mok  University of Alabama in Huntsville, USA
Sabine Moëbs  Dublin City University, Ireland
Barbara O’Byrne  Marshall University, USA
Diana Perez-Marin  Universidad Autonoma de Madrid, Spain
Timonthy K. Shih  National Taipei University of Education, Taiwan
Stefanie Sieber  University of Bamberg, Germany
Wei Sun  Beihang University, China
Stefan Trausan-Matu  Politehnica University of Bucharest, Romania
Fu Lee Wang  City University of Hong Kong, Hong Kong
W.L. Yeung  Lingnan University, Hong Kong
Liming Zhang  University of Macau, Macau
Organizers

University of Macau

The School of Continuing and Professional Studies, The Chinese University of Hong Kong

Sponsors

City University of Hong Kong

Caritas Francis Hsu College

Hong Kong Computer Society

ACM, Hong Kong Chapter

Hong Kong Pei Hua Education Foundation
# Table of Contents

## Keynote

Repository and Search Based on Distance Learning Standards .......... 1  
*Neil Y. Yen, Timothy K. Shih, and Louis R. Chao*

## Interactive Hybrid Learning Systems

Context Aware Multimodal Interaction Model in Standard Natural Classroom ................................................................. 13  
*Quanfeng Luo, Jiaji Zhou, Fei Wang, and Liping Shen*

Attentiveness Detection Using Continuous Restricted Boltzmann Machine in E-Learning Environment .............................. 24  
*Jiaji Zhou, Heng Luo, Quanfeng Luo, and Liping Shen*

EGameDesign: Guidelines for Enjoyment and Knowledge Enhancement ............................................................................. 35  
*Sheng-Chin Yu, Fong-Ling Fu, and Chiu Hung Su*

Hybrid Learning Experiences with a Collaborative Open Source Environment ................................................................. 45  
*Francesco Di Cerbo, Gabriella Dodero, Paola Forcheri, Vittoria Gianuzzi, and Maria Grazia Ierardi*

## Effective Content Development

Development of *VisuaLexs* for Hybrid Language Learning ............. 55  
*Yoshihiro Hirata and Yoko Hirata*

A Combined Virtual and Remote Laboratory for Microcontroller .......... 66  
*Kwansun Choi, Saeron Han, Sunghwan Kim, Dongsik Kim, Jongsik Lim, Dal Ahn, and Changwan Jeon*

A Web-Based Virtual Laboratory System for Electronic and Digital Circuits Experiments ................................................. 77  
*Dongsik Kim, Kwansun Choi, Changwan Jeon, Jongsik Lim, Sunghwan Kim, Samjoon Seo, and Jiyoung Yoo*

## Pedagogical and Psychological Issues

An Ontological Approach to Infer Student’s Emotions ................. 89  
*Makis Leontidis, Constantin Halatsis, and Maria Grogoriadou*
Design an e-Broadcasting System for Students’ Online Learning

Pao-Ta Yu, Ming-Hsiang Su, Yen-Shou Lai, and Hsiao-Hui Su

Characteristics Affecting Learner Participation in Large Hybrid Classrooms

Minjuan Wang, Daniel Novak, and Joe Pacino

Outcome Based Teaching and Learning

An Empirical Study on Blended Learning in the Introduction to Educational Technology Course

Ronghuai Huang and Lanqin Zheng

Experience on Outcome-Based Teaching and Learning

Oliver Au and Reggie Kwan

Design and Implementation of the Framework for Adaptive e-Learning System

Hua Yu and Jianbo Fan

Student Prospects

Engaging Students with Online Discussion in a Blended Learning Context: Issues and Implications

Allan H.K. Yuen, Liping Deng, Robert Fox, and Nicole Judith Tavares

Using Web-Analytics to Optimize Education Website

Jingxuan Wu, Yi Cheng, Yanyan Liu, and Xue Liu

Research into the Status Quo of Learning Strategies of College Students and Blended Learning Strategy

Ding Ma and Lanqin Zheng

Improved Flexibility of Learning Process

Students’ Evaluation of Websites in Hybrid Language Learning

Yoko Hirata and Yoshihiro Hirata

eLearning for Online Lecture, Chat Room, Forum and XML-Based Excises and Reporting

Yin Fei Yeung, Joseph Fong, and Frances Fong

A Review of e-Learning Platforms in the Age of e-Learning 2.0

J. Yau, J. Lam, and K.S. Cheung

Integrating Constructive Feedback in Personalised E-Learning

Jude T. Lubega and Shirley Williams
Computer Supported Collaborative Learning

A Peer-to-Peer eLearning Supporting System for Computer Programming Debugging System ........................................ 230
Joseph Fong, Dawn Leung, and Donny Lai

Learning Knowledge Management Concepts via the Use of a Scenario Building Tool on an E-Learning Platform ........................................ 240
Teresa B.Y. Liew, Eric Tsui, Patrick S.W. Fong, and Adela Lau

A Descriptive Method for Simulating a Group Knowledge Building Process .......................................................... 249
Jianhua Zhao and Yinjian Jiang

Use of Micro-teaching Videos in Teacher Education: Computer-Supported Collaborative Learning ......................... 260
Wing-Mui Winnie So

Hybrid Learning Experiences

Using a Narrative Blog to Support Reflection in a Blended Course ..... 272
Giuliana Dettori and Valentina Lupi

Lectures from My Living Room: A Pilot Study of Hybrid Learning from the Students’ Perspective ........................................ 284
Nicola McGovern and Katie Barnes

A Study of Using Blended Learning in Teaching and Learning Modern Educational Technology ........................................ 299
Weidong Chen

Practices Borderless Education

A Multimedia Instructional Environment for English Learning .......... 309
Fang-O Kuo, Yen-Shou Lai, and Pao-Ta Yu

Long Distance Learning for Under-Developing Countries Using Replicated XML Database System ................................. 320
Herbert Shiu and Joseph Fong

Digital Library and Content Management

A Modern Tool for Viewing the Learning Resources ...................... 331
Mihai Gabriel, Liana Stanescu, Burdescu Dan Dumitru, Marius Brezovan, Eugen Ganea, and Cosmin Stoica Spahiu

Building a Semantic Resource Space for Online Learning Community ................................. 342
Yanyan Li and Mingkai Dong
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-document Summarization for E-Learning</td>
<td>353</td>
</tr>
<tr>
<td>Fu Lee Wang, Reggie Kwan, and Sheung Lun Hung</td>
<td></td>
</tr>
<tr>
<td>Organizational Framework and Institutional Policy</td>
<td></td>
</tr>
<tr>
<td>From an Online Training Course to a “Virtual” Teacher Training</td>
<td>365</td>
</tr>
<tr>
<td>Academy—Design and Implementation of Peking University</td>
<td></td>
</tr>
<tr>
<td>Asynchronous Online Teacher Training Program</td>
<td></td>
</tr>
<tr>
<td>Wenge Guo</td>
<td></td>
</tr>
<tr>
<td>The “E”-Vangelist’s Plan of Action – Exemplars of the UK Universities’ Strategies for Blended Learning</td>
<td>378</td>
</tr>
<tr>
<td>Esyin Chew and Norah Jones</td>
<td></td>
</tr>
<tr>
<td>An Assessment of the 5i Design Framework for Hybrid Learning</td>
<td>390</td>
</tr>
<tr>
<td>Anthony Tik Tsuen Wong</td>
<td></td>
</tr>
<tr>
<td>Learning Theory</td>
<td></td>
</tr>
<tr>
<td>A Study of Applying Field Knowledge and Perception on Personnel</td>
<td>402</td>
</tr>
<tr>
<td>Learning Recommendation Map</td>
<td></td>
</tr>
<tr>
<td>Fong-Ling Fu and Chiu Hung Su</td>
<td></td>
</tr>
<tr>
<td>The Research and Discussion of Web-Based Adaptive Learning Model</td>
<td>412</td>
</tr>
<tr>
<td>and Strategy</td>
<td></td>
</tr>
<tr>
<td>Youtian Qu, Chaonan Wang, and Lili Zhong</td>
<td></td>
</tr>
<tr>
<td>Relationships between Students’ Demographic Background, Subject</td>
<td>421</td>
</tr>
<tr>
<td>Areas, and Learning Patterns in Post-secondary Education of</td>
<td></td>
</tr>
<tr>
<td>Hong Kong</td>
<td></td>
</tr>
<tr>
<td>Dennis C.S. Law and Jan H.F. Meyer</td>
<td></td>
</tr>
<tr>
<td>Author Index</td>
<td>433</td>
</tr>
</tbody>
</table>