## About the Contributors

**Slavomir Stankov** is a professor of computer science at the Faculty of Science University of Split, Croatia. Since 1996 he has been heading three scientific and one technological project. He has participated on some projects related to the information and communication technology applications in education, in particular the intelligent tutoring systems and authoring shells for their design, implementation and deployment. He has authored or co-authored more than seventy scientific and expert papers.

**Vlado Glavinić** is a professor of computer science and engineering at the Faculty of Electrical Engineering and Computing, University of Zagreb, Croatia. His main research interests are in the areas of computer networks, user interfaces and digital systems design, and particularly in modeling and development of intelligent distributed applications and services for the information infrastructure here including distributed educational systems. He has collaborated in and led a number of research and industrial R&D projects, and has authored or co-authored more than 100 research and professional papers in journals, conferences and books, along with several educational texts.

**Marko Rosić** is an associate professor of computer science at the Faculty of Science University of Split, Croatia. His scientific work is related to the information and communication technology applications in the distance learning systems. Researching possibilities of using agents and the semantic Web technologies for developing the distance learning systems based on the intelligent tutoring systems is in the centre of his interest. He participates in many scientific and technological projects related to the field of his scientific interest. He has authored or co-authored about twenty scientific papers.

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Xin Bai is an assistant professor of Educational Technology in Department of Teacher Education at York College, City University of New York (CUNY). She earned her doctorate in Instructional Technology & Media from Teachers College at Columbia University. Her study focuses on educational games, simulations, intelligent tutoring systems, self-paced e-learning, and ubiquitous learning through mobile devices. Her work is built on the research done on cognitive science, artificial intelligence, and educational technologies. Xin taught several graduate core courses at Teachers College at Columbia, including Cognition and Computers and Intelligent Computer-Assisted Instruction before joining CUNY. She was a Project Director of the REAL (REflective Agent Learning environment) Project at the Institute for Learning Technologies at Columbia University. She also worked as a Chief Learning Architect at a company in charge of facilitating adult e-learning and designing Learning Management Systems.

John B. Black is the Cleveland E. Dodge Professor at Teachers College, Columbia University in the Departments of Human Development, and Mathematics, Science, and Technology. He is Chair of the Department of Human Development, Coordinates the Program in Cognitive Studies and is the Director of the Institute for Learning Technologies. He has a BS in Math form MIT and a PhD in Cognitive Psychology from Stanford. He was an Assistant and Associate Professor in Psychology and Computer Science at Yale University. He is the author of over 100 journal articles and four books. His current research focuses on basic research in cognition, especially grounded/embodied approaches to cognition, and its application to improving learning, memory, understanding, problem solving and motivation. He is especially interested in using technologies like multi-user virtual environments, video games, TV/videos, intelligent tutoring systems and robots to improve learning, memory, understanding, problem solving and motivation.

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Julie Coultas is an evolutionary social psychologist. She obtained her first degree in applied psychology from University of Sussex and then went on to complete MSc in Knowledge Based Systems and DPhil in Cognitive Science, also at University of Sussex. She was the Eduserv research fellow (2004 – 2006) and produced a review of the effectiveness of e-learning in higher and medical education and work-based learning. She is currently writing a book for Cambridge University Press entitled 'Conformity: Social Psychology and Cultural Evolution'. She has published in psychology and education journals and presented many papers on evolutionary psychology at international conferences. Her research and teaching focus on: social learning (including conformity and cooperative behaviour), social development (including play), the emotions (developmental aspects), and gender differences. She is a visiting research fellow in the Department of Psychology at the University of Sussex. She is currently collaborating on an international project on social learning and cultural evolution with Swedish researchers. Previously she has worked on Department for Education and Skills (DfES) and Department for International Development (DfID) projects. She is also a freelance consultant who works for a toy company providing research and advice on the developmental benefits of educational toys. She has provided advice for a BBC television series and consultancy for many public relations and commercial companies.

Gloria Millaray Curilem obtained her Professional Degree in Computer Engineering in the Polytechnic Superior Institute "José Antonio Echeverría" of La Havana, Cuba in 1992. She obtained the Doctor degree in the Federal University of Santa Catarina, Florianópolis, Brazil in 2002. She developed a Postdoctoral position in the Universidad de Santiago, USACH, Chile during 2007. She is presently working as an Assistant Professor of the Electrical Engineering department at Universidad de La Frontera, in Temuco, Chile. Her research areas involve the application of artificial intelligence techniques to intelligent learning environments and more recently to digital signal processing.

Tonći Dadić was born August 7th 1957 in Split, Croatia. He graduated 1981 at Faculty of Electrical Engineering, University of Split, and has got master degree 1991 at Faculty of Electrical Engineering, University of Zagreb. His master work titled "Proposal of graphical programming language for microcontrollers" dealt with an approach of visual programming. In period 1984 – 1990 he was with «KONCAR – ETAS» company, where implemented visual programming tool that significantly improved application of microcontrollers to industrial processes. From 1990 to 1998, he worked for Croatian Chamber of Economy, with duties of system and database administration. Since April 1st 1998, Tonci is employee of Faculty of Natural Science and Mathematics, University of Split, lecturing Operation Systems and Databases. Since 1998, he is a consultant of AutoScout24 Gmbh, Munich - Germany, helping set up the biggest European internet market of new and used cars. He developed Delta Replication system that collects, transforms and integrates data from heterogeneous data sources, finding minimal set of transactions in order to keep central database up-to-date. Besides his age, on February 2006, Tonci started doctorial study at Faculty of Electrical Engineering and Computer Science, University of Zagreb. Currently he designs an intelligent tutoring system for learning programming in procedural languages. The system is aimed to help students to understand the features of target programming language, as well as develop their program design, testing and general problem solving skills. Tonci is collaborative member of Project grant 177-0361994-1996 «Design and evaluation of intelligent e-learning systems», funded by the Ministry of Science and Technology of the Republic of Croatia, conducted by professor Slavomir Stankov.

**Funda Dağ** received the MSc degree in 2003 and the PhD degree in 2008, in the Kocaeli University. She is an Assistant Professor in Computer Education and Instructional Technology Department of Education Faculty in Kocaeli University. She is the vice director of the Distance Education Center of the Kocaeli University. She has been working in the area of adaptive e-learning systems and e-learning since 2000. Her research interests are e-learning standards, metadata, learning objects, and educational technology based on personalization. She teaches computer based education and programming languages courses.

Benedict du Boulay is Professor of Artificial Intelligence in the School of Informatics at the University of Sussex. Following a Bachelors degree in Physics at Imperial College London, he spent time both in industry and as a secondary school teacher before returning to university to complete his PhD at the University of Edinburgh in 1978 working on Logo. After a post-doc position at Edinburgh, a lectureship at the University of Aberdeen and a Sloan Fellowship at the University of California San Deigo, he joined Sussex as a lecturer in 1983. He has been at Sussex since then, taking many roles of responsibility including Dean of Cognitive and Computing Sciences (COGS) as well as more recently Dean of Science and Technology. He has two main research areas. The first is the Psychology of Programming where his main work has been in the area of novices learning programming and the development

of tools to assist that process. The second is the application of Artificial Intelligence in Education. Here he is particularly interested in issues around modelling and developing students' metacognition and motivation. He is a former editor of the International Journal of Artificial Intelligence in Education, is on the Editorial Board of the International Journal of Technology, Instruction, Cognition and Learning and has edited/written 8 books and written some 150 papers in the areas indicated above.

**Kadir Erkan** is a professor Phd. in the Technical Education Faculty of Kocaeli University. Moreover, he is head of Distance Education Center of Kocaeli University. His main research interests are soft computing technologies and programming languages. Dr. Erkan teaches programming, problem solving and design courses.

**Mingyu Feng** is a Research Scientist at Center for Technology in Learning of SRI International. She holds a Ph.D. degree in Computer Science from Worcester Polytechnic Institute. She received his B.S. in Computer Science from Tianjin University in 1999, and her M.S. degree in the same field from Tianjin University in 2002. Her primary interests lie in the areas of intelligent tutoring systems, particularly, student modeling and educational data mining. Ms. Feng has also worked in the area of cognitive modeling, and psychometrics as well. Her paper summarizes part of her dissertation work on adaptive assessing in the ASSISTment project on which she has been working since 2004.

Fred Garnett is currently a Visiting Research Assistant at the London Knowledge Lab and part of the Learner-Generated Contexts Research Group. He was a Strategic Policy Advisor for Post-16 e-Learning at Becta, working on a range of issues concerning policy development, including the national e-strategy Harnessing Technology, from a social and digital inclusion perspective. He also lead on interactivity design strategies for policy consultation for the DfES and helped link the research and policy communities as a Visiting Research Fellow at Sussex University. From these activities he developed the concept of Policy 2.0. Formerly he managed the Community Programmes Team at Becta, which built government websites such as Help is at Hand for UK online centres, and advised various government departments on the £250m Community Access to Lifelong Learning initiative. For DCMS he was a Culture on-line Visioneer, advised on the future of libraries, and I helped set up the Participatory Media Literacy Working Group at OFCOM. He is also a specialist in Community Grids for Learning and Digital Inclusion. Previous work included lecturing on Political Science at the University of Colorado and Computer Science at Lewisham College. From 1984 he lectured on the social impact of IT, writing the first Internet Unit for Greenwich University in 1995 and creating e-learning resources from 1997. He worked with the London Borough of Lewisham on their Citizen Connects projects and set up the TaLENT Consortium, establishing the Lewisham Community Grid for Learning. He also worked as Accessibility and Usability consultant on their EU-IST GALA project. He helped set up the Creekside Environmental Education Centre in Deptford Creek as a Trustee with a focus on Urban Ecology. He is a Fellow of the Royal Society of Arts, and blog on music and learning as well as architectures of participation.

**Jeroen Geuze** was born in Zaandam in 1981. He received a Masters' degree in Artificial Intelligence (AI) in 2005 at the Vrije Universiteit in Amsterdam, specializing in Intelligent Internet Applications and Knowledge Management and Knowledge Technology. He received a second Masters' degree in Cognitive Neuroscience at the Radboud University in Nijmegen specializing in Psycholinguistics and

Brain Computer Interfaces. He will obtain a Ph.D. in 2012 on the topic of communication with Brain Computer Interfaces. His research interests are Brain Computer Interfaces, games and Artificial Intelligence, intelligent internet applications, and psycholinguistics.

Ani Grubišić was born in 1978 in Split. She graduated under supervision of prof. PhD Slavomir Stankov in 2001 on the Faculty of Science, University of Split, and gained a BS for mathematics and computer science teacher. The theme of her graduate thesis was "Model tracing – a diagnostic technique of intelligent tutoring systems". Since 2002 she has been employed as a scientific novice at the same faculty, and in the period 2002 – 2006 she has been collaborating on a scientific and research project "Computational and didactical aspects of intelligent authoring tools in education." She enrolled postgraduate study at the Faculty of Electrical Engineering and Computing, University of Zagreb, in 2002. She was collaborating on a technological project "Web-oriented intelligent authoring shell" from 2003 to 2005. Since 2007 she has been collaborating on scientific and research project "Design and evaluation of intelligent e-learning systems." She got her MS degree in 2007 on the Faculty of Electrical Engineering and Computing, University of Zagreb. The theme of her master's thesis was "Evaluating educational influence of intelligent e-learning systems," and it was done under supervision of prof. PhD Slavomir Stankov. The board of Faculty of Electrical Engineering and Computing gave her a silver plaque "Josip Lončar" for outstanding master's thesis. She enrolled postgraduate doctoral study at the Faculty of Electrical Engineering and Computing, University of Zagreb, in 2007. The editors of Marquis "Who's Who" (USA) have selected her biographical profile for inclusion in the 10th Edition of "Who's Who in Science and Engineering, 2008-2009". Ani Grubišić is oriented on evaluating educational influence of the e-learning systems. Her scientific interest includes e-learning systems effectiveness evaluation in general, and as well, calculation of the effectiveness of different categories of e-learning systems, especially intelligent tutoring systems, using meta-analysis. Recently, she has been involved in researching different approaches to intelligent courseware generation.

Andreas Harrer is associate professor for Informatics (Computer Science) at Catholic University Eichstätt-Inglostadt since winter 2007. He has received his PhD in Computer Science from the Technical University of Munich with a PhD thesis in the area of CSCL (intelligent support of collaborative learning interactions). He worked in the Collide group at University Duisburg-Essen from 2002 to 2007 with a research line of analysis and intelligent support of group learning as well as software engineering principles for educational systems. He was speaker of the special interest group "Artificial Intelligence and Education", the European Research Team "Computer-based Analysis and Visualization of Collaborative Learning Activities", and member of the steering group of the European Research Team "Computer-Supported Scripting of Interaction in Collaborative Learning Environments" in the "Kaleidoscope" Network of Excellence (FP6, ended 2007). He was technical coordinator within the FP6 STREP Argunaut and responsible for the design of the system architecture and the integration of the system components. His current research interests are in the field of learning process modeling, analysis of collaboration and social networks, and the application of software engineering methods to development of educational systems.

**Neil Heffernan** is Associate Professor of Computer Science at Worcester Polytechnic Institute, and creator of WPI's new Learning Sciences & Technology Ph.D. program. Dr. Neil Heffernan graduated summa cum laude from Amherst College in History and Computer Science, and completed his Ph.D. in

2001 at Carnegie Mellon University. For his dissertation, Neil built the first intelligent tutoring system that incorporated a model of tutorial dialog, as well as being one of the first intelligent tutoring systems on the web. He does multi-disciplinary research in Intelligent Tutoring Systems, Artificial Intelligence, Psychometrics, and Cognitive Science. Dr. Heffernan has over 30 peer-reviewed publications and has received over \$9 million in funding on over a dozen different grants.

**Daniel Huenteman** obtained his Professional degree in Computer Engineering at the Universidad de la Frontera, Temuco, Chile in 2006. During his student years he served as assistant professor of the Computer Graphics Discipline at the Universidad de La Frontera. He also worked as a research assistant of the research project: "Intelligent Tutoring Systems for the non-violent conflict resolution" financed by Research Direction of the Universidad de La Frontera. Between 2007 and 2008 he started his professional activity developing several computational systems to support the management systems of many local companies. Currently he is working as Executive-Sales and Commercial Finance Manager at Topiary Ltd. Company in the city of Temuco, Chile.

Ali Keles is a lecturer at the Computer Sciences Application Unit, Ataturk University. Now, he works at Department of Computer Education and Instructional Technology, Faculty of Education. He received her MS from Istanbul University - Institute of Business Administration-Economy and MS in Computer Sciences from Ataturk University, and Ph.D. on computer sciences at Atatürk University in Turkey. His current research interests are in the fields of software, medical diagnosis with methods artificial intelligence and intelligent tutoring systems, expert system, image processing.

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**Divna Krpan** was born in 1977 in Imotski, Croatia. She graduated under supervision of prof. dr. Slavomir Stankov in 2004 on the Faculty of Science, University of Split, and gained a BS for mathematics and computer science teacher, where she now works as an teaching assistant. The theme of her graduate thesis was "Knowledge evaluation in e-learning systems". She teaches two courses in programming (Object Pascal and BASIC) and a course Introduction to computing. In 2007 she began her doctoral studies in Computer Science at the Faculty of Electrical Engineering and Computing, University of Zagreb. Her main research interests includes student modeling and group modeling in intelligent tutoring systems,

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Chee-Kit Looi is an Associate Professor and the Head of Centre of Excellence in Learning Innovation (CELLI), NIE, NTU. He has over two decades of experience with educational technology research in research institutes and universities. His research interests are Artificial Intelligence in Education, intelligent agents for learning, mobile learning, and Computer-Supported Collaborative Learning. He is an editorial member of the International Journal on Artificial Intelligence in Education and the International Journal on Computer-Supported Collaborative Learning.

Rosemary Luckin is Professor of Learner Centred Design at the London Knowledge Lab (LKL), a visiting Professor in Informatics at the University of Sussex and an EPSRC Advanced Research Fellow. She holds a first class degree in Computing and Artificial Intelligence and a DPhil in Cognitive Science from the University of Sussex. Her research explores how to most effectively scaffold learning across multiple technologies, locations, subjects and times. At the LKL she is part of a group of researchers who share an interest in applying participatory methods to the development and evaluation of technology enhanced learning experiences. This work is interdisciplinary and encompasses education, psychology, artificial intelligence and HCI. It investigates the relationship between people, the concepts they are trying to learn and teach, the contexts within which they operate and the resources at their disposal. Prof. Luckin has been a principal or co-investigator on 12 Nationally funded research grants, is a member of several journal editorial boards, has numerous peer-reviewed publications, was appointed by the Minister for Schools for England and Wales as a non-executive director of Becta (the government agency leading ICT and learning strategy) and is a member of the Advisory Board of the UK Technology Enhanced Learning Research Programme.

Alke Martens is Professor at the Department of Computer Science at the University of Rostock, Germany since winter 2007. She is leader of the research group "eLearning and Cognitive Systems". She has received her PhD in Computer Science from the University of Rostock in the research field of Artificial Intelligence in the context of Intelligent Tutoring Systems. Her current research interests are formal methods, software engineering, modeling and simulation, artificial intelligence, teaching and training systems, and a combination thereof, e.g. in game-based learning and in the development of inclusive eLearning systems. Current application domains of her research and her projects are system-biology, medicine and education of computer scientists.

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Scott Overmyer started his career in the software field with TRW, Inc. as a user interface designer and requirements engineer on the Space Defense Operations Center project in Colorado's Cheyenne Mountain NORAD Complex. After completing several government projects with TRW, he was appointed manager of TRW's Research and Technology Center in Virginia. He earned a Ph.D. in Information Technology (Information and Software Systems Engineering), while appointed as Research Instructor in George Mason University's Center of Excellence in Command, Control, Communications and Intelligence. He has nearly 10 years of industrial experience, followed by over 12 years of academic experience. He has been awarded 2 summer faculty fellowships at NASA's Johnson Space Center. While an Associate Professor at Drexel University, he was also the Founding Director of the Pennsylvania Governor's School for Information Technology, a 5-week summer residential program for talented high school students. He served at Subject Coordinator for both Software Engineering and Information Systems while at Massey University in NZ. He is currently Professor and Director of the MSIS Program at Baker College. His research interests include: meta-languages for software requirements elicitation and modelling, as well as requirements management; creating virtual worlds for teaching students how to be "systems thinkers"; affective computing; and human-computer interface design.

Ana Maria Poo obtained her Professional degree in Psychology from the University of La Frontera in 1992 and her master degree in University Pedagogy in 2002 from Universidad Metropolitana de la Ciencias de La Educación. She is presently an Assistant Professor of Psychology at Universidad de La Frontera, in Temuco, Chile. She has done teaching to undergraduate as graduate students in the areas of general psychology, gender psychology and domestic violence. During the last fifteen years she has developed research on topics of sexual and reproductive health, domestic violence and child abuse. She also has developed multidisciplinary projects related to prevention of school violence through implementation of mediation programs at school.

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Suzana Tomaš was born on 1975 in Split. She finished elementary and Gymnasium in Split and graduated on the Faculty of Natural Sciences, Mathematics and Education University of Split. She volunteered from October 1998 until October 1999, in elementary school Gripe, Split and deposited 1999th professional examination. She worked on replacing the elementary school Gripe since 2000 to 2002. Since 2003, today for an indefinite period the employment in Dance club Sedmi vjetar in Split. She was associated since 2003 till 2005, at the Technological project MZOS "Web oriented intelligent authoring shell" (TP-02/0177-01). She is involved since 2003. in the implementation of instruction in courses: Application of computers in teaching, Intelligent tutoring systems, Systems for e-learning, Man-machine interaction and Systems for teaching at a distance the teacher study the Faculty of Philosophy as a subcontractor. She got her Masters degree in 2007th Faculty of Philosophy, University of Zagreb, in the scientific field of social sciences, scientific field of Science Education, a branch of Teaching. The theme of her master's thesis was *Learning and teaching in primary education using tutoring systems*. She enrolled postgraduate doctoral study at the Faculty of Philosophy, University of Zagreb, in October 2009. From 1.studenog 2009th is a lecturer at the Faculty of Philosophy, University of Split (Department of the teachers).

**Egon L. van den Broek** obtained his MSc (2001) in Artificial Intelligence (AI) and PhD (2005) in Content-Based Image Retrieval and will obtain a PhD (2010) in Affective Signal Processing. Currently, he is assistant professor (University of Twente, NL), assistant professor/research coordinator (University Medical Center Nijmegen, NL), as well as consultant with Human-Centered Computing Consultancy. In the latter function, he works for various companies, among which Philips Research. Within the fields of AI and man-machine interaction, his primary research interests are cognitive computer vision and affective computing. He has published 100+ articles, guided 45+ students, holds various awards, is reviewer and program committee member of 50+ conferences and journals, and holds 3 patent applications. Additionally, he is editor-in-chief of the Pan Stanford Series in Artificial Intelligence, which will be launched in 2011/2012.

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Roko Vladušić was born 1971 in Split, Croatia. After secondary school he studied at University of Split on the Faculty of Natural sciences, mathematics and education where he graduated and became a teacher of biology and chemistry. He has worked in several primary schools teaching biology, chemistry, nature and informatics. His primary interest is teaching chemistry so he has specialized in that area through activities on his job and studying at the Split University Master's postgraduate program "Didactics of natural sciences" – chemistry area. He was the author and the leader of some educational projects, mentor of many pupils on the different levels of competitions in chemistry, leader of regional Council of chemistry teachers. He wrote some papers and educational books of chemistry. Now, he is working at the Faculty of natural sciences in Split where he teaches chemistry and methods of teaching chemistry.

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Marija Zelić was born in 1979 in Knin, Croatia. She graduated in 2002 at the Faculty of Science, University of Split, under supervision of Ph.D. Professor Marko Rosić and Ph.D. Professor Slavomir Stankov. Since 2005 she has been working as an assistant at the Faculty. She teaches two courses in object oriented programming, namely C# and Object Pascal programming languages. In 2006 she began her doctoral studies in Computer Science at the Faculty of Electrical Engineering and Computing, University of Zagreb. Her main research interests include intelligent tutoring systems, intelligent agents and mobile learning, particularly modeling and development of agent-based m-learning systems. She has collaborated in the technological project TP-02/0177-01 "Web oriented intelligent hypermedia authoring shell" as well as the research and development project 036-0361994-1995 "Universal Middleware Platform for e-Learning Systems". She has authored or co-authored several research papers in journals and conferences. Her previous work experience includes working as a software developer from 2002 till 2005. During this period she gained a Microsoft certificate MCP in developing and implementing Web applications with Microsoft Visual C# .NET and Microsoft Visual Studio .NET. She speaks fluent English and Italian (FCE certificate, University of Cambridge, and DILI diploma, Accademia Italiana di Lingua).

## About the Contributors

Branko Žitko graduated (2001) under supervision of prof. PhD Slavomir Stankov at Faculty of Science, University of Split. Since then he was employ of the same faculty and postgraduate student of Faculty of Electrical Engineerin and Computing, where he reached his MsC (2005) also under supervision of prof. PhD Slavomir Stankov. The theme of his master's thesis was "Knowledge Evaluation Model in Intelligent e-Learning Systems". In past four years he is working on his PhD thesis named "Model of Intelligent Tutoring System based on Controlled Language over Ontology". As an employ, he was collaborating on two scientific and research projects: "Computational and didactical aspects of intelligent authoring tools in education" (2002-2006) and "Design and evaluation of intelligent e-learning systems" since 2007. He was one of developer and architect involved in technological project "Web-oriented intelligent authoring shell" (2003-2005). Branko Žitko's interests in general are intelligent tutoring systems and authoring shells for such systems. His specific interests are knowledge representation, ontologies, automated reasoning and natural language processing in intelligent tutoring systems.