

Preface

This volume contains the proceedings of the three satellite events of the 10th International Conference on Software Engineering and Formal Methods (SEFM 2012), which was held during October 1–5, 2012, in Thessaloniki, Greece:

InSuEdu 2012

First International Symposium on Innovation and Sustainability in Education, held on October 1, 2012;

MoKMaSD 2012

First International Symposium on Modelling and Knowledge Management for Sustainable Development, held on October 2, 2012;

OpenCert 2012

6th International Workshop on Foundations and Techniques for Open Source Software Certification, held on October 2, 2012;

The SEFM Conference and its three satellite events were hosted by the University of Sheffield International Faculty, CITY College, and the South East Research Centre (SEERC), under the auspices of the Macedonia Thrace Chapter of the Greek Computer Society.

The title of this volume, *Information Technology and Open Source: Applications for Education, Innovation, and Sustainability*, reflects the theme shared by the three events: the use of information and communication technology (ICT) and open source software (OSS) as tools to foster and support education, innovation, and sustainability.

The First International Symposium on Innovation and Sustainability in Education aimed to bring together educators, researchers, and policy-makers who are interested in investigating innovative and sustainable models, methodologies, and tools for any level of education. This proceedings volume includes a paper co-authored by the InSuEdu 2012 Program Co-chairs, which provides a *founding manifesto* for the symposium. Among the 16 papers submitted to the symposium, the InSuEdu 2012 Program Committee selected eight regular papers and two short papers, which were presented at the symposium and are included in this proceedings volume. All papers were reviewed by at least three Program Committee members. The program also included a keynote talk by Grainne Conole, University of Leicester, UK, titled “New Ecologies and Trajectories of Learning.” The keynote talk provided an overview of new technologies and how they can be used to promote different pedagogical approaches. It considered the implications of these for learning, teaching, and research. The talk argued that we are seeing the emergence of a new dynamic learning ecology, with learners and teachers interacting in increasingly sophisticated ways with technologies. It provided examples of new emergent patterns of user behavior and new business models, which blur the boundaries between formal and informal learning. Finally, it presented a new learning design methodology that aims to help practitioners make better design decisions that are pedagogically effective and harness the affordances of new technologies.

The First International Symposium on Modelling and Knowledge Management for Sustainable Development aimed to bring together practitioners and researchers from academia, industry, governmental and nongovernmental organizations to present research results and exchange experience, ideas, and solutions for modelling and analyzing complex systems and using knowledge management strategies, technology, and systems in various domain areas, including economy, governance, health, biology, ecology, climate and poverty reduction, that address problems of sustainable development. This proceedings volume includes a short paper co-authored by the MoK-MaSD 2012 Program Co-chairs, which provides a brief introduction to the motivations and aim of the symposium. Among the five papers submitted to the symposium, the MoKMaSD 2012 Program Committee selected one regular paper and three short papers, which were presented at the symposium and are included in this proceedings volume. All papers have been reviewed by at least three Program Committee members. The program also included a keynote talk by Corrado Priami, COSBI, Italy, titled “Algorithmic Systems Ecology”. In the keynote talk, a novel computing approach to model and simulate complex ecological systems was presented that can help unravel the fragility of food webs in natural ecosystems. New insights were given by adopting modelling technologies that take concurrent interactions (e.g., plant-pollinator; predator-prey; host-parasite) between species into account, using COSBI language for stochastic dynamics. The modelling and simulation framework were presented by relying on real case studies. This proceedings volume includes an invited paper titled “Algorithmic Systems Ecology: Experiments on Multiple Interaction Types and Patches”, co-authored by the keynote speaker and based on the content of the keynote talk.

The 6th International Workshop on Foundations and Techniques for Open Source Software Certification was the 2012 edition of a well-established event whose previous five editions since 2007 have been successfully held in Braga (Portugal), Milan (Italy), York (UK), Pisa (Italy), and Montevideo (Uruguay). This workshop provides a unique venue for advancing the state of the art in the analysis and assurance of open source software with an ultimate aim of achieving certification and standards. The dramatic growth in open source software over recent years has provided for a fertile ground for fundamental research and demonstrative case studies. Over the years, OpenCert has attracted papers from a range of domains including certification to security and safety analysis, in areas as diverse as railways, aviation, and the open source developers community. The current edition of the workshop equally attracted a diverse set of papers tackling themes ranging from migration of legacy Web applications to using open source software for electronic health records to certifying Android applications. A total of seven papers, five regular papers and two short papers, were submitted to the current edition of the workshop, all of which were found worthy of publication.

We are grateful to the International Institute for Software Technology of the United Nations University (UNU-IIST), Macau, SAR China, for sponsoring the two keynote speakers of InSuEdu 2012 and MoKMaSD 2012. We are also grateful to all members of the Program Committees of the three satellite events, to the Organizing and Steering Committees of SEFM, and to all referees for their timely hard work. Our special thanks go to George Eleftherakis, who worked very hard to coordinate the

conference and the satellite events, and to Stefan Gruner, who actively contributed to setting up the satellite events and their publication policy. Finally, we would like to thank all authors and all participants of the three satellite events.

August 2013

Antonio Cerone
Donatella Persico
Sara Fernandes
Alexeis Garcia-Perez
Panagiotis Katsaros
Siraj Ahmed Shaikh
Ioannis Stamelos

Information Technology and Open Source: Applications
for Education, Innovation, and Sustainability

SEFM 2012 Satellite Events, InSuEdu, MoKMaSD, and
OpenCert Thessaloniki, Greece, October 1–2, 2012

Revised Selected Papers

Cerone, A.; Persico, D.; Fernandes, S.; Garcia-Perez, A.;
Katsaros, P.; Shaikh, S.A.; Stamelos, I. (Eds.)

2014, XV, 305 p. 70 illus., Softcover

ISBN: 978-3-642-54337-1