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Editors

Internet of Things, Infrastructures and Mobile Applications

Proceedings of the 13th IMCL Conference

 Springer

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Preface

IMCL2019 was the 13th edition of the International Conference on Interactive Mobile Communication, Technologies and Learning.

This interdisciplinary conference is part of an international initiative to promote technology-enhanced learning and online engineering worldwide. The IMCL2019 covered all aspects of mobile learning as well as the emergence of mobile communication technologies, infrastructures and services and their implications for education, business, governments and society.

The IMCL conference series actually aims to promote the development of mobile learning to provide a forum for education and knowledge transfer, to expose students to latest ICT technologies and encourage the study and implementation of mobile applications in teaching and learning. The conference was also the platform for critical debates on theories, approaches, principles and applications of mobile learning among educators, developers, researchers, practitioners and policy-makers.

IMCL2019 has been organized by Aristotle University of Thessaloniki, Greece, from 31 October to 01 November 2019.

This year's theme of the conference was "Internet of Things, Infrastructures and Mobile Applications".

Again, outstanding scientists from around the world accepted the invitation for keynote speeches:

- Olga Viberg, KTH Royal Institute of Technology, Sweden: **Supporting Self-Regulated Learning with Mobile Learning Analytics.**
- Ralf Klamma, RWTH Aachen University, Germany: **The Future of Learning and Teaching Augmented Reality – A European Perspective.**
- In addition, two invited speeches have been given by
- Ioannis Kompatsiaris, Centre of Research and Technology Hellas—Information Technologies Institute (CERTH-ITI), Greece: **Integrating Sensors, Multimedia and Semantic Analysis for Health and Security IoT Applications.**
- Petros Nicosopolitidis, Aristotle University of Thessaloniki, Thessaloniki, Greece: **Security issues in Mobile Communications.**

Furthermore, one very interesting workshop and one tutorial have been organized:

- Tutorial titled “A Gameful Approach Towards Tutors’ Professional Development on Mobile Learning and Interactive Blended Learning” by Anna Mavroudi (Norwegian University of Science and Technology, Norway) & Olga Viberg (KTH Royal Institute of Technology, Sweden).
- Workshop titled “5G Networks: Technologies, Challenges, Deployments and Demo” by Thrasyvoulos Spyropoulos (EURECOM, France), Kostas Tsagkaris (Incelligent/Wings ICT Solutions, Greece), Markos Anastasopoulos (University of Bristol, UK) & Evangelos Pikasis (Eulambia Advanced Technologies Ltd, Greece).

Since its the beginning, this conference is devoted to new approaches in learning with a focus to mobile learning, mobile communication, mobile technologies and engineering education.

We are currently witnessing a significant transformation in the development of working and learning environments with a focus on mobile online communication.

Therefore, the following main topics have been discussed during the conference in detail:

- Mobile Learning Issues:
 - Dynamic learning experiences
 - Large-scale adoption of mobile learning
 - Performance support in the workplace
 - Ethical and legal issues
 - Assessment, evaluation and research methods in mobile learning
 - Mobile learning models, theory and pedagogy
 - Lifelong and informal learning using mobile devices
 - Open and distance mobile learning
 - Social implications of mobile learning
 - Design of adaptive mobile learning environments
 - Cost-effective management of mobile learning processes
 - Quality in mobile learning
 - Case studies in mobile learning
 - Interactive Communication Technologies and Infrastructures:
 - Wearables & Internet of Things (IoT)
 - Tangible, embedded and embodied interaction
 - Location-based integration
 - Cloud computing and future Internet research and experimentation (fire) environments
 - Emerging mobile technologies and standards

- Interactive and collaborative mobile learning environments
- Crowd sensing
- 5G network Infrastructure
- Mobile Applications:
 - Smart cities
 - Online laboratories
 - Game-based learning
 - Mobile health care and training
 - Learning analytics
 - Mobile learning in cultural institutions and open spaces
 - Mobile systems and services for opening up education
 - Social networking applications
 - Mobile Learning Management Systems (mLMS)

The following special sessions have been organized:

- Designing and Developing Mobile Serious Games for Augmenting Arts and STEM Competencies, Capabilities and Skills (DG-STEAM)
- University–Industry–Cooperation in Mobile Technologies (UIC-MT)
- Mixed Reality Applications for Industry and Education (MIRINDE)
- Digital Technology in Sports Program Committee (DiTeS)
- 5G Wireless and Optical Technologies for Mobile Communication Systems (5G Fi-Wi for MC)
- Social Networks and Mobile Applications for Health (SNMAH)
- Interactive Learning Interfaces for Music Education (iLIME’2019)

Also, the “3rd IMCL International Student Competition for Mobile Apps” has been organized in the context of IMCL2019. The winning team of the competition presented “Magic-Matt, An Interface To Transform Video Games To A Sports Experience” and were composed by Nikolaos Politopoulos, Agisilaos Chaldogeridis, Hippokratis Apostolidis, Panagiotis Stylianidis, Angeliki Mavropoulou by Aristotle University of Thessaloniki, Greece, presenting the

As submission types have been accepted:

- Full paper, short paper, distant/pre-recorded presentation
- Work in progress, poster
- Special sessions
- Round-table discussions, workshops, tutorials and students’ competition

All contributions were subject to a double-blind review. The review process was very competitive. We had to review about 250 submissions. A team of about 160 reviewers did this terrific job. Our special thanks go to all of them.

Due to the time and conference schedule restrictions, we could finally accept only the best 105 submissions for presentation.

Our conference had again more than 175 participants from 31 countries.

IMCL2021 will be held again at Aristotle University of Thessaloniki, Greece.

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3rd IMCL Student International Competition for Mobile Apps

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George Palaigeorgiou	University of Western Macedonia, Greece

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