Special session on

UMI4STEM2017
Mobile Computing and the Internet of Things (UMI) for STEM education

Within [IEEE EDUCON 2017 Conference](#)

Organizers
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This special session aims at sharing experiences and challenges connected with the use of Ubiquitous Computing, Mobile Computing and the Internet of Things (to which we will collectively refer to as UMI technologies) in promoting STEM education.

UMI technologies open a new space of possibilities for STEM education, as witnessed by e.g. various positive experiences with FabLabs and graduate courses. The potential is to design learning activities that are more engaging and inclusive, leading to the development of STEM competencies, as well as more general 21st Century (transversal) skills. However, there is not enough knowledge about how to turn this potential into a reality, due to a lack of clear understanding of how to design meaningful learning activities and courses, that are sustainable and can lead to long term effect, for example motivating more students, both at secondary and tertiary education, to pursue STEM careers. Knowledge in this area is scattered and needs to be recorded, systematized and shared.

Moreover, many of the UMI-enabled learning activities have until now happened outside the school curricula, often as a result of volunteer work. Generally, they are not connected in any way with the (admittedly few) higher education study programmes that contain UMI subjects. Therefore, there is a need to understand how to foster continuity and improve the impact and sustainability of these activities. It is also time we understand how these informal learning experiences can be integrated into national education curricula of all levels.

The main objective with this session is to start building an international Community of Practice around these challenges. In particular, the special session aims to develop a critical discussion about well-established as well as innovative practices using UMI for the acquisition of 21st Century learning competences and for promoting STEM education. With this special session we

want to promote sharing of experiences and lessons learned among all the involved partners. We therefore welcome papers from the research communities, but also more practice-oriented papers reporting experiences from educators, makers, and industry. Papers will be chosen to provide a broad perspective on the topics of interest and promote exchange among different communities.

Topics of interest include, but are not limited to:
- The role of the maker movement in learning, including Hackerspaces, Makerspaces, TechShops, FabLabs
- Learning theories applied to / affected by UMI technology
- Engagement and creativity
- Training the UMI educators
- Sustainability of UMI practices
- Relation between informal and formal learning practices
- Assessment of UMI learning
- Communities of practice around STEM education
- Integration of UMI in school and higher education curricula
- Reciprocal interaction between school and higher education regarding UMI learning
- Methodologies and tools for promoting UMI learning
- Promoting STEM / UMI career paths
- Gender balance

The special session is supported by the EU project UMI-Sci-ed: .http://umi-sci-ed.eu/

Important Dates
28 Nov 2016   Complete paper submission
21 Dec 2016   Notification of Acceptance
06 Feb 2017   Camera- ready submission, Author registration and payment

Submission
Contributions to the special session might be in the following formats:

- Full papers: 8 pages in IEEE A4 format
- Short papers: 4 pages

Paper must be submitted through the main conference submission system at
https://www.conftool.com/educon/index.php?page=index
Please remember to indicate the name of the special session.

For more information, you can refer to the EDUCON2017 submission page
http://www.educon-conference.org/educon2017/paper_preparation.php

All submissions will be reviewed by the international program committee of the special session and the accepted papers will be included in the EDUCON2017 proceedings submitted to IEEE Xplore®, provided at least one author pays the registration fee before February 6th, 2017.

For further questions, please contact one of the session organizers, Monica Divitini [divitini@idi.ntnu.no], Olga Fragkou [fragou@cti.gr], Michalis Giannakos [michailg@idi.ntnu.no], Achilles Kameas ,[kameas@eap.gr], Anna Mavroudi, [anna.mavroudi@idi.ntnu.no].(Subject: EDUCON 2017 Special Session Submission).

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