Journal of Universal Computer Science, vol. 25, no. 5 (2019), 444-445
submitted: 16/5/19, accepted: 20/5/19, appeared: 28/5/19 © J.UCS

Immersive Learning Technologies: Research and Future Directions

J.UCS Special Issue

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At the time of this writing (second quarter, 2019), we, the community of scholars at the intersection of learning, technology and pedagogy find ourselves at the center of a full-fledged revolution in immersive learning. Against a backdrop of continuing shifts of modality and experimentation in educational institutions, the Immersive Learning Research Network (iLRN) focuses on applications of technology for creation of riveting educational experiences, to be employed in a variety of formal and informal learning situations.

We are proud to present this special issue of the Journal of Universal Computer Science (J.UCS) on the subject of Immersive Learning Technologies. While both editors are members of the iLRN community, and we did solicit contributions from the authors who published their work in the annual iLRN conference, we did not restrict submissions to this community. Our call for papers was disseminated wide and was open to any scholar. J.UCS is an open-access journal.

In total, we received seventeen journal submissions, sixteen of which were deemed appropriate for refereeing. Eventually five were accepted after several rounds of reviews, yielding an acceptance rate of 31.25%. They are described below.

We are indebted to our wonderful reviewers who graciously volunteered their time for this important scholarly activity. Furthermore, we thank the J.UCS consortium, the iLRN community leadership including Professors Leonel Morgado and Christian Gütl. Lastly, we thank J.UCS staff, particularly Ms. Dana Kaiser for her support and excellent work in producing this issue.

The paper "An Educational Glance into the Future: Holodeck as a Future Enacted Narrative Learning Technology" is by Tiina Kymäläinen of VTT Technical Research Centre of Finland Ltd. It is a wonderful exploration of the science-fiction concept of "Holodeck" and how it can be seen as a future immersive learning technology, as well as a new medium for future enacted, narrative experiences. The concept has been studied before in various forms, and Kymäläinen does an excellent historical literature review before delving into its utility in immersive learning.

In “Efficient Peer-to-peer Content Sharing for Learning in Virtual Worlds”, the authors Daniel Shen and Jingzhi Guo (University of Macau) propose a content sharing scheme for persistent virtual worlds and discuss designs for feasible and high performance operations using the proposed framework.

The paper “Developing and Assessing Augmented Reality Applications for Mathematics with Trainee Instructional Media Designers: An exploratory study on user experience” is the contribution of Ioannis Kazanidis (Eastern Macedonia and Thrace Institute of Technology) and Nikolaos Pellas (University of the Aegean). The authors focus on teaching and learning Mathematics by taking advantage of AR technology to visualize several problems and let users interact with its contents.

In “Students' Perception of a Blended Learning Approach in an African Higher Institution”, the authors Ahmad Ibrahim Safana and Muesser Nat (both from Cyprus International University), examined the students’ perception of a blended learning pedagogy in an African higher institution. The research was aimed at introducing a better and a qualitative teaching and learning approach which can accommodate the overpopulated classes in African institutions.

Lastly, the paper, “A Learning Ecosystem for Linemen Training based on Big Data Components and Learning Analytics”, is by Guillermo Santamaría-Bonfil, Guillermo Escobedo, Miguel Perez and Gustavo Arroyo-Figueroa of the Instituto Nacional de Electricidad y Energías Limpias in Mexico. The authors present work on developing a Learning Ecosystem for Training Linemen in Maintenance Maneuvers using Big Data components and Learning Analytics.

These articles display the multicultural and multidisciplinary application of immersive learning. It is our hope that this special issue reflects the important work of defining and creating effective immersive learning experiences.

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