

PAPER PROPOSAL

CONFERENCE TITLE:

International Conference on Education, Teaching and Learning

PAPER PRESENTER:

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Paper Title	Interdisciplinarity Collaboration in the Development of a Virtual Reality Application for Learning Molecular Structure		

PRESENTER'S BIO NOTE (must not exceed 100 words):

Miguel Garcia-Ruiz graduated in Computer Systems engineering and obtained his MSc in Computer Science from the University of Colima, Mexico. Miguel received his PhD in Computer Science and Artificial Intelligence from the Centre for Research in Cognitive Science (COGS), University of Sussex, UK. Currently, Miguel is an Associate Professor with the Department of Mathematics and Computer Science from Algoma University, Canada, where he conducts research on virtual reality in education. Dr. Garcia-Ruiz was awarded the Innovation Educator of the Year, given by the Sault Ste. Marie Innovation Centre (SSMIC) in 2015.

ABSTRACT

(must not exceed 250 words)

Virtual reality (VR), a computer-generated 3D world where people interact with it using their senses by donning special electronic equipment (Jerald, 2015) has been successfully applied for learning challenging scientific topics (Ott & Freina, 2015), such as molecular structure, since it offers educational affordances, unlike other educational tools such as plastic molecular models, including increased spatial knowledge representation, engagement, student motivation, and support for student collaboration (Dalgarno & Lee, 2010). We are currently developing VR applications for learning molecular structure, to be used by undergraduate biology students.

The development of educational VR is a highly interdisciplinary area involving computer scientists, software developers, teachers/educational researchers, usability/human-computer interaction specialists, etc., and in our case collaboration with a molecular biology expert is a must. To improve the VR development process we are following an Agile-type methodology (Highsmith & Cockburn, 2001), because it positively supports interdisciplinary collaboration; it fosters team work in the design, development and testing of a digital product (e.g. a VR application) in an iterative prototyping fashion.

Continuous collaboration between people who will use the VR application (molecular biology instructors) and people who develop it is essential (Jones, Jordan & Stillings, 2005). Thus, all of the stakeholders should participate in the VR development process. In addition, having an experienced project manager/coach who is knowledgeable both in Agile methodologies and the subject matter (molecular biology) is very important for developing a successful educational VR application. These and other aspects of interdisciplinary collaboration in educational VR development will be discussed in the conference.

References:

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