3D Immersive and Interactive Learning
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Editor

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The introduction of the Internet into our conscious environment brought about a transformation in the way we communicate, making it possible to exchange information and acquire knowledge with little practical delays. While this represented a tremendous increase in efficiency, it was not until the advent of Web2.0 tools, which allowed for greater interactivity and enhanced online collaboration capability, that a new frontier was reached. Such tools fundamentally alter the ways in which we interact, and more importantly, they extend the connectivity for each individual to not just sources of knowledge, but also sources of expertise. A carefully structured connectivity sphere can then allow the individual to have access to a range of diverse and enriching interactions that was not possible before. When led by pedagogically sound designs, Web2.0 tools can be meaningfully weaved into teaching and learning environment to greatly enhance the educational journey of a learner.

3D visualization technology represents an important extension of interactive tools that has potentially inordinate applicability in a wide range of areas. Over the past five decades, this technology has made significant progress, particularly in bringing about accurate visualization of concepts that are difficult to verbalize. These include the illustration of the structures of macromolecules and the simulation of the life cycles of stars and galaxies. The use of the technology enables the learner to immerse in an environment that allows for learning through an increased range of sensory experience, which can potentially deepen understanding.

While there is much to be done in effectively using 3D visualization technology for teaching and learning, this book reports on a good range of efforts toward this end. It presents the collaborative efforts from researchers and practitioners in designing 3D native content for different subject learning, setting up of 3D environments for visual learning, conducting curriculum-based 3D classroom teaching, as well as nurturing students’ learning interests and curiosity through 3D innovative co-curriculum research activities. Prof. Cai, the editor of this book with over 20 years of research experience in computer graphics, visualization and
virtual-reality, has put together a commendable set of findings from a wide variety of work in using 3D visualization for teaching and learning. Such efforts are invaluable toward building a greater understanding of the educational use of such technologies. It is my pleasure to congratulate the editors and researchers represented in this book for adding on to our collective wisdom.

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