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Tactile visualization

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Most classrooms utilize generic two-dimensional representations in the form of scientific illustrations. In this talk we discuss various academic practices that have been used to enhance learning utilizing 3D printing and digital modeling technologies. Topics will explore the integration of data to digital models and finally to physical objects. The use of multiple 3D software applications will be demonstrate the process involved with modeling, encoding, preparing, and printing digital models. This presentation will allow users to take an expanded view of interdisciplinary approaches to developing 3D print ready models with added information in the form of tactile visualizations. In this way, the students can feel the object and get some sense about the concept upon which the data is based. Additionally, this would allow customizing and individualizing of educational material. By providing a physical and tactile representation, as well as the opportunity to take part in the process of creating tactile visualizations; we believe will more effectively and efficiently aid in the development of mental images, transfer of prior knowledge to new context, as well as positively contribute to shared and authentic collaborative learning experiences. As an example, one particular area of interest is in using 3D printing technology as an educational tool for blind and visually impaired learners.

Biography

Howard Kaplan is the Head of the Advanced Visualization Center at the University of South Florida in Tampa. He uses multiple aspects of visualization as a means of study and application. Many of his visualization applications revolve around real-world data, 3D graphics and simulation, and 2D interactive media. He received a BFA from Ringling College of Art, and an MEd from the University of South Florida. He is currently pursuing a PhD in Engineering Science, Biomedical and Chemical Engineering. His work has been featured in the journal *Science*, *Wired.com*, *AMC Siggraph*, and *Discovery.com*. He was also selected by the Center for Digital Education as a Top 30 Technologists, Transformers and Trailblazers in 2014.

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