SDSU
presents
a thesis defense for the
Master of Science
degree in
Computer Science

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GMCS 418

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JPEG to STL Translation Software for Color/Texture Mapping in Support of 3D Printing of Surfaces Used in Visual/Tactile Cross-Modal Cognitive Neuroscience Research

Abstract

Can a patient who has lost the sense of sight learn to recognize a tactile representation of a work of visual art? If so, do any similarities exist between the "touch tracks" such a patient's fingers follow when tactilely "viewing" such a representation, and the "eye tracks" a sighted person follows when viewing the corresponding visual image? Cognitive neuroscientists exploring these questions require a means to fabricate multi-textured surfaces whose texture patterns encode a tactile equivalent of a given visual image. Fortunately, the recent emergence of 3D printing technology has greatly simplified this process; but the process still requires the specification of color/texture mappings and the translation of color visual images (typically supplied in .jpg format) into the STL-format files used as input to 3D printers. This thesis project comprised the design, coding, and testing of a computer-based system fulfilling those requirements.

Thesis Committee

Bill Root, Thesis Chair, Department of Computer Science
Carl Eckberg, Department of Computer Science
Rich Levine, Department of Mathematics and Statistics