H62 Reconstructing Facial Freeform Images Using FREEFORM Software

Ann Marie W. Mires, PhD, Chief Medical Examiner, 720 Albany Street, Boston, MA; Mary H. Manhein, MA, Louisiana State University, FACES Laboratory, Baton Rouge, LA; Greg Mahoney, Boston Crime Laboratory, 720 Albany Street, Boston, MA; and Eileen Barrows, Louisiana State University, Faces Laboratory, Baton Rouge, LA*

This presentation introduces the participant to a software package that has applications to facial imaging, useful to law enforcement or medical examiner personnel.

Reconstruction of facial images can be facilitated through a number of different techniques. This poster will present the adaptation of a sculpting software program entitled FREEFORM, to the task of facial reconstruction, superimposition and image progression. Designed for the character animation industry, this package offers technology that allows the "reconstructionist" to fully interact with the image via the sense of touch through a stylus.

In a cooperative research venture between SensAble Technologies, the Office of the Chief Medical Examiner, Boston Crime Lab, and the Louisiana State University FACES Laboratory, this product has be applied to the task of facial imaging and reconstruction. Libraries of populationspecific average tissue depths and anatomical facial features and landmarks, have been developed to provide the artist with a series of options to select from in the reconstruction process.

Skeletal and live facial images were captured utilizing a Polhemus, Fastscan 3-D imaging wand. These images were downloaded directly as 3-D "clay" images, fully interactive in a digital format. Through the use of a stylus, the artist can manipulate the raw image manually or refer to libraries of marker templates that can be applied directly to the skull image. Again through manual manipulation, the artist can add tissue depth, dimension and form to the image, thus modeling a facial likeness. Through the use of the libraries, the artist may select several different eye shapes for instance, to render multiple likenesses from the same skull template.

The application of sculpting software to the techniques of facial reconstruction can expedite the accuracy, variety, and distribution of facial images for both law enforcement and medical examiner systems. Having these types of technologies available can facilitate the identification process and be applied to other forensic tasks.

Facial Reconstruction, Digital Modeling, Virtual Clay

 ** Presenting Author*