

## EMS 3D Scans & 3D Prints a Forensic Sculpture

In 2010 a Jewish cemetery in Saint Maarten was discovered when research for other historical purposes was being performed. The discovery of a Jewish cemetery that was covered with residential houses was made. The Saint Maarten Archaeological Center (SIMARC) found remains of a decedent intact.

### The Problem

Broward County Sheriff's department is one of a few premier forensic labs in the US that performs facial reconstructions from human remains. Forensic artist Catyana Skory was contacted by SIMARC and asked to create a reconstruction from the remains for a museum exhibit they wanted to create.

After an anthropological study which produced a biological profile, a facial reconstruction was made by creating a replica of the skull with photographs and measurements from the actual skull. A replica using silicone mold making methods was made. With the replica of the skull a facial reconstruction was made in clay.

### The Solution

Because the original reconstruction was made of clay it would not be suitable for the museum exhibit. Catyana contacted EMS to 3D scan and 3D print a replica of the clay model. She would then paint the 3D printed model for the exhibit. EMS had worked with the Broward County Sheriff's office on other cases performing 3D scanning and 3D printing of human remains. Since many human remains are very delicate this method of non-contact scanning and printing is very beneficial.

EMS used their Creaform EXAScan hand held 3D scanner to quickly scan the entire clay model. With the scanning complete EMS then used Geomagic's Claytools product to do some additional virtual clay sculpting to finish the model.

Once complete, EMS 3D printed a full size bust with their 3D Systems ZPrinter Z650 3D Printer. The entire process took 16 hours to 3D scan and 3D print the model. Once the model was finished, forensic artist Catyana then hand painted the model so that exhibit would look very lifelike.

### Conclusion

When it comes to 3D scanning and 3D printing either delicate human remains or forensic clay models EMS has the equipment and know how to complete the project very quickly.



3D Scanning the clay model with a Creaform EXAScan 3D Scanner



Original clay model and 3D Printed copy from 3D scan data



Painted 3D printed model