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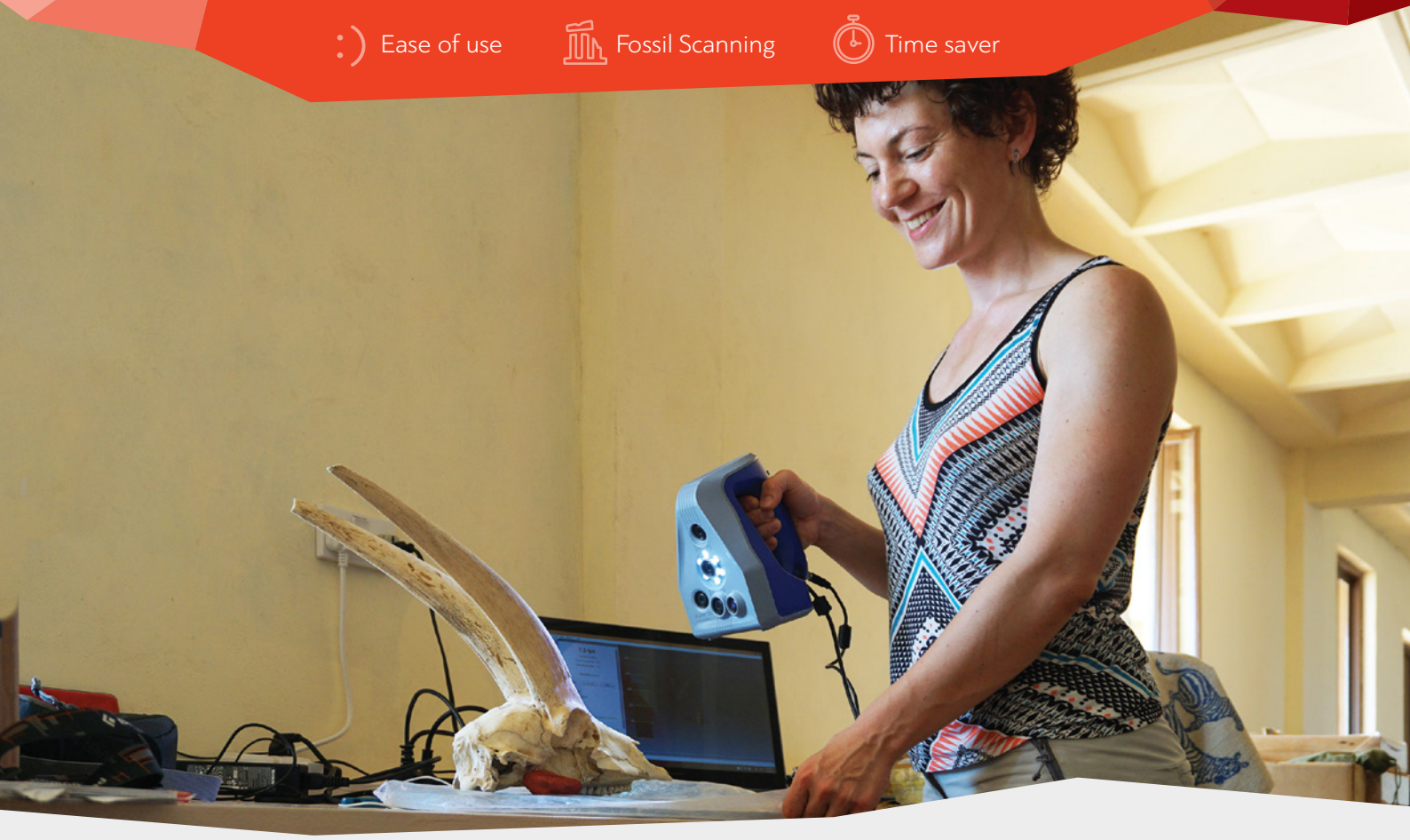
3D SCANNING IN EXTREME CONDITIONS OF AFRICAN DESERT: A NOVICE'S SUCCESS STORY

:) Ease of use Fossil Scanning Time saver



A paleontology student with basic 3D scanning knowledge ventured on an expedition at an excavation site in Kenya to digitize finds discovered by world-famous paleontologists.

TBI (Turkana Basin Institute) welcomes researchers who help at the excavation site and in the laboratory, scanning the bones of prehistoric animals and hominids. One such researcher is Natalya Prilepskaya, a postgraduate paleontology student of Moscow State University, who went to Lake Turkana to scan fossils using Artec Eva and Space Spider 3D scanners.

Natalya has gladly agreed to share her impressions with us:

"My mission at TBI was to scan paleontological samples with the new Artec scanner, Space Spider, and Artec Eva. The problem was I had no time to learn how to 3D scan.

At TBI, the challenge was to make the most of my skills. It was no easy task, but nothing is impossible.

To actually obtain a 3D model, I first had to learn how to operate the scanner so it didn't lose tracking. To do that, I had to keep my eyes on the screen, not on the object.

Also important was the speed of scanning. With Space Spider, you should go slowly and smoothly, without making any jerky movements. It's a bit different from making a quick all-around scan with Eva.

Another thing to learn was stopping once the scanner has collected enough data.

After a few training sessions, I began to work on perfecting my skills. I'd sometimes ask my colleagues to watch me scanning and correct me if I were going wrong. It proved to be extremely helpful.

Teamwork at an excavation site

The diversity of skulls with horns in TBI's collection

Climate also played a role in my learning. It was extremely hot on the site. Despite the fact that the room where I scanned was airy, the laptops would often overheat. To make them work longer, we put them on flat plastic containers with ice, replacing those once ice had melted.

Another factor to consider was strong wind. It blew all the time, bringing huge amounts of dust and sand, which permeated every hole and crack in our hardware. Dr. Meave Leakey uses a transparent protective cover for her laptop to protect it.

I was very lucky to have almost no insects around while I worked. Usually at this time of the year there are hordes of insects in the area, making it impossible to work in the evening, as they are drawn to the bright screen glowing in the dark."

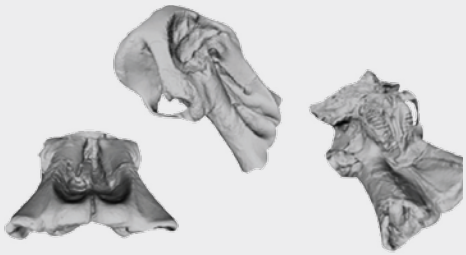
The importance of creating a collection of 3D models of hominids and animals is hard to overestimate.

First of all, 3D scanning technology allows a researcher to get precise data for the geometry of a paleontological sample. One can use a ruler or caliper to measure samples, of course, but such measurements are neither complete nor accurate enough.

Likewise, photos and drawings do not always reflect the shape of an object accurately.

Secondly, 3D scanning helps preserve information about the shape of a sample. Even fossils that look strong can disintegrate, especially if they are exposed to sunlight, wind, rain and fluctuating temperatures in the field. And even if an object is stored in a museum, it can still fall apart due to humidity, unfavorable temperatures and other destructive conditions.

Thirdly, the creation of 3D model collections facilitates broader exchange of information about samples: scientists don't have to spend time and money on a trip to an excavation site or a museum to see a sample. Several laboratories can work together, sharing 3D data about the morphology of specimens, which increases the efficiency and quality of their collaboration.



3D scans of the fossil elephant skull, captured with Artec Eva and Spider

Ultimately, 3D scanning fosters education, since 3D models are often used as visual aids in the classroom. 3D models can be studied not only on a computer but also printed out on a 3D printer, which is becoming increasingly common.

3D scanning has opened up a new chapter in paleontology, putting a powerful tool in the hands of researchers to preserve their fragile, priceless finds, engage a wider circle of colleagues in studying samples in greater depth than ever before, and inspire the younger generation to pursue the search for answers to fundamental questions about human origins.