BodiData's Patented Kora Scanner and Software System

Tuoc LUONG
BodiData Inc., Saratoga CA, USA

Abstract

In October of last year in Montreal, I introduced BodiData, Inc. and initial look at the development of our multi-sensors handheld scanner.

In the 3rd Quarter (August) of this year, our Kora Handheld Scanner will be generally available to the marketplace. The Korea Scanner removes the limitations of the current state of 3D body scanning technology: size, mobility and clothing constraint.

In Montreal, the focused of the session was on the hardware aspects of the Kora Scanner. Here I would like to present the entire Kora Scanning System: Hardware, Software and Big Anthropometrics Data Set. There have been multiple patents already granted on our technology – additionally in 2018 we have a new provisional patent filed: describing a software system and method for interactively capturing 3D data using a handheld device with multiple sensors and providing semantic labeling of regions and sub-objects. The model may then be used for deriving measurement, displaying functional aspects of the scanned object, and determining geometric fit to other objects based on those aspects. I will be discussing our patented software process of:

- Scanning using the handheld device and stitching the 3D Optical point cloud of the subject together successfully regardless of the type or color of the clothing being worn.
- The 3D point cloud is further refined and annotated using depth data from a millimeter wave transceiver array. The constructed 3D point cloud may be call the “Subject Cloud”.
- Leveraging our anthropometrical large data set obtained from real world scans of 1M people, we generate a parametric 3D human models where the appearance, shape and size of models, its sub-objects or regions can be changed parametrically. The parametric 3d model is constructed so that each meaningful region of the model is labeled. The generated point cloud of 3D human models can be called the “Reference Cloud”.
- A best fit “Reference Cloud” is selected for the “Subject Cloud” and morphed into the “Subject Cloud”.
- The newly constructed “Reference Cloud” can be added to increase the data set further – enhancing the learning system.
- The full 3D surface model and region labelling can be pulled and measurements extracted.

We believe our innovative solution of a mobile 3D body scanner capable of scanning an individual while fully clothed and extracting his/her body measurement is worthy of discussion and sharing.

Keywords: Handheld Scanner, 3D Body Scanner, Multi-Sensors, Portable Scanner, Millimeter Wave, Radar, Optical Depth Camera

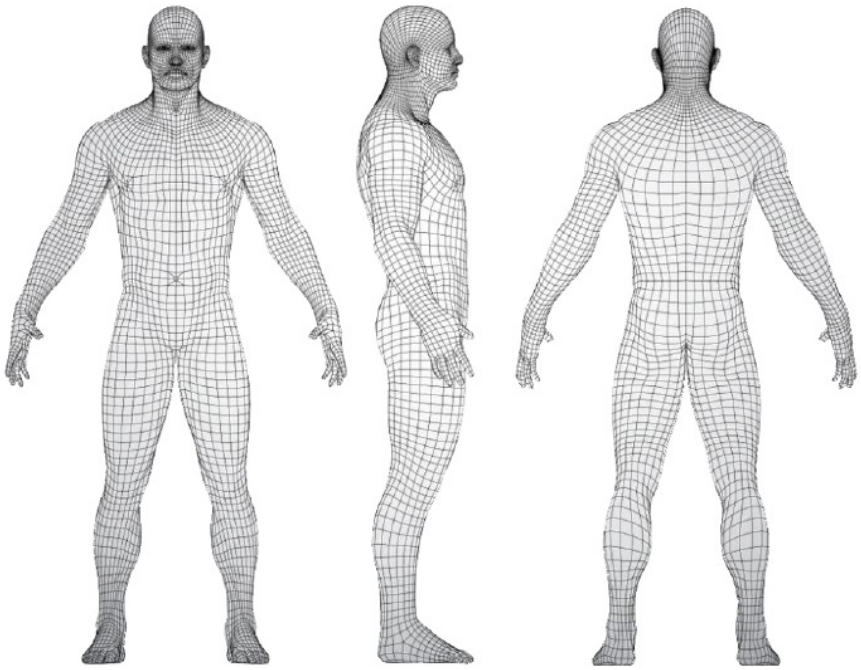

Figure 1: Statistical 3D Human Model

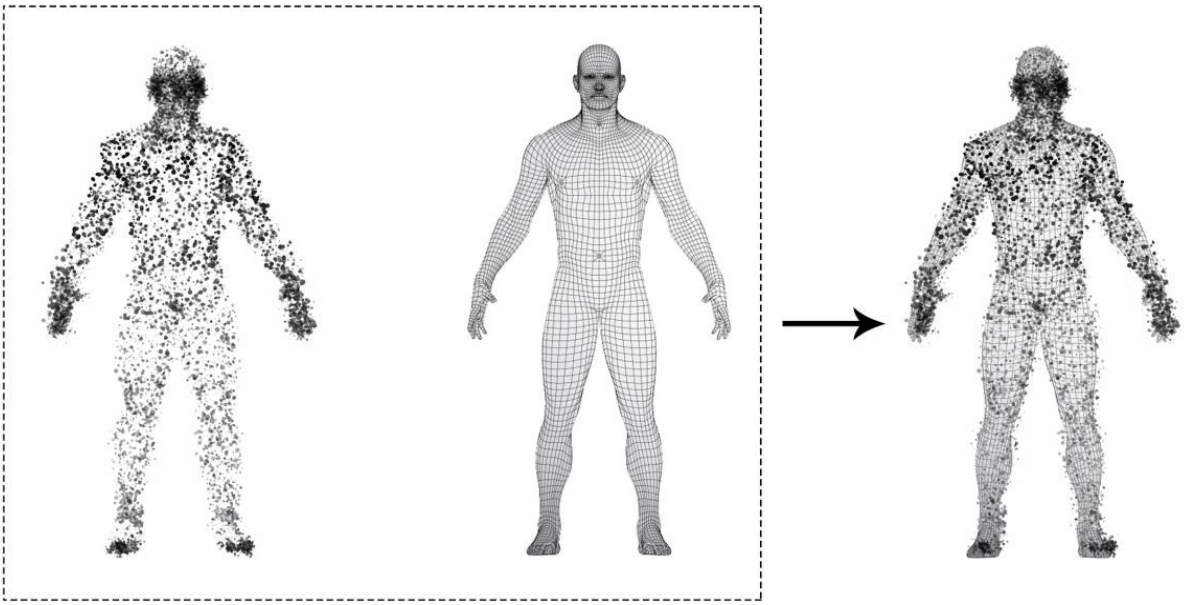

Figure 2: Morphing of 3D Model to Point Cloud