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Topic of the Speech:
Three-dimensional Human Body Scanning and Measurement

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Professor Yueqi Zhong is regarded as a specialist in the area of virtual clothing and virtual human body. He joined the faculty of the College of Textiles, Donghua University in October 2005 on completion of his postdoctoral research at the University of Texas at Austin. Previous to this he completed his Ph.D degree at Donghua University in 2001.

His research continues to address topics on virtual clothing, online sizing, fit evaluation, and in the area of on virtual human body towards E-commerce. He was granted NSFC (National Natural Science Foundation of China) funding three times to support his research work on digitalizing the physical world in the cyberspace. He was also the PI of many projects granted at the Level of Province and Department. In 2014 he was awarded the nationwide prize for his contribution to the textile and apparel industry. His patents on solving the problem of “virtual reality towards online dressing” won him the prize of Shanghai Science and Technology Award in 2013.

ABSTRACT SUBMISSION
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Three-dimensional Human Body Scanning and Measurement

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ABSTRACT (NO MORE THAN 500 WORDS:)

For a long time, three-dimensional human body scanning and its measurement have been the focus of attention in the apparel industry. With the advancement of technology, the pursuit of low-cost but powerful three-dimensional body scanning devices has become increasingly urgent. In this work, an acquisition system that collects 3D point clouds of human body through multiple RGB-Depth cameras and the way to accurately fuse the clouds patch is introduced, including camera calibration, point-cloud noise reduction, surface reconstruction and/or simplification. After obtaining the three-dimensional human model, a fully automatic three-dimensional body measurement system based on geometric analysis and cutting loops has been detailed, including how to determine the crotch point, acromion and armpit points of the human body. With these key landmarks, the human body under A-Pose can be automatically divided into limbs and torso, and various anthropometric measurements can be extracted via trivial efforts. The experimental results indicate that the three-dimensional human body scanning and measurement methods proposed in this work has excellent adaptability for obtaining the three-dimensional human body and the body measurements with the accuracy that meets the standard requirements of apparel industry.