



3 Dimensional Body Scanning Techniques and Applications for the Australian Apparel Industry



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Executive Summary

This International Specialised Skills Institute (ISS Institute) Fellowship was sponsored by the Department of Education, Employment and Workplace Relations (DEEWR). It provided the opportunity to undertake an overseas study program in three dimensional (3D) body scanning technologies and their applications for apparel development, and to investigate the role these technologies play in facilitating innovation.

In addition, the study provided an opportunity to gain a comprehensive understanding of three major anthropometric survey projects undertaken by 3D scanning techniques, SizeUK, SizeUSA and the French Sizing Survey - Campagne Nationale de Mensuration, and to observe how body scanning is being used as a research and training tool. Knowledge was also gained in the interface of scanning technologies, CAD applications and traditional pattern development techniques.

Currently for the apparel industry in Australia there is no reliable data or current size standards to accurately define the anthropometric size and shape of our population. In recent years there have been requests from sections of the apparel industry and consumers to provide relevant size reference material. The latest bid by the Sizing Consortium of Australia Landmark Evaluation (SCALE) to harness Federal Government funding for a large scale 3D body scanning survey has not yet achieved support.

For TCF technical designers, the lack of reliable anthropometric data on which to base their skills development and work practices is of constant concern. The foundations to their technical frameworks for body size definitions are uncertain. Anthropometric changes to the physical size of our population because of aging and or the so called 'obesity crisis' have lead to an ad-hoc approach to size determination. 3D Body Scanning as demonstrated by projects such as SizeUK, SizeUSA and the French Sizing Survey have provided data and a new approach to the specification of body size.

Further to this, changes to the industry from a manufacturing base to a merchandise or brand model have fundamentally changed the supply relationship and created skills shortages in clothing pre-production skills. This has been identified by the TCF IAB in the TCF&L Industry Report, 2007/2008.

As the industry operates on shorter lead times from concept to market, it is more reliant on virtual supply tools. 3D body scanning technologies offer a new approach to creating, producing and marketing, "...products based on cutting-edge technical knowledge",¹ and highlighted as vital to the success of TCF companies by Senator Kim Carr, in a speech to Australian TCF Technology Network annual Creativity Workshop in August 2007.

As a way to fast track the adoption of these technologies and to bridge the knowledge gap it is advised that the industry invest in subscriptions to existing databases eg: SizeUSA and WEAR. It is recommended that the Australian TCF Technology Network become a SizeUSA sponsor, and form a strategic relationship with US apparel research company [TC]².

This would provide a resource to establish skills and knowledge in anthropometric database applications for both local and export markets. It will illustrate the purpose and application of such data to assist with implementation of either an Australian large scale survey, or mini surveys for individual companies. In addition it offers the ability to test and validate database tools for the Australian TCF Industry.

The opportunity to visit Cornell University's Centre for Body Scanning Research highlighted the importance of the 3D body scanning as an R & D resource, and creates new approaches into creating, producing and marketing. Key areas of interest for global research are: the virtual supply chain, mass customisation and automatic pattern extraction methods. Thus it is recommended that RMIT University establish a Centre for Body Scanning Research under the umbrella of the Specialist Skills Centre and enter this international research field with applied research.

Executive Summary

A number of modules in the new clothing training packages LMT07 TCF, recently submitted to DEEWR, and expected to be endorsed for release to the industry in September/October 2007, identify key learning areas relating to and requiring knowledge and skills in 3D body scanning technologies.

Universities visited during the study – Cornell University, The University of the Arts - London, and Hochschule Niederrhein University, currently incorporate body scanning within their curriculum structures.

The importance of the interface between traditional trade skills and technology was confirmed by training in the Grafis CAD system. As this system is based on a block construction methodology it provides a digital approach to the traditional craft skill of pattern tailoring, at an affordable price. It is feasible for this system to be linked to body scanning platforms to create automatic pattern outputs from 3D data. It is potentially an area of research that could provide the automated link to mass customised apparel.

The opportunity to undertake this study has provided insights and knowledge into the value that this emerging technology of 3D body scanning can play in redefining the way we create, produce and distribute products. It is envisaged that this knowledge be imparted via a series of industry seminars and workshop demonstrating 3D body scanning and applications.