

NATO Research Task Group: 3D Scanning for Clothing Fit and Logistics

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Issuing soldiers with clothing and equipment in an effective and cost-efficient manner is a challenge to military forces around the world. While operational challenges such as environment, ballistic and chemical threats and load carriage dictate the physical properties and design elements of the garment, it is critical that clothing and equipment are properly fit to the soldiers' body. A well fitted garment is of appropriate dimensions, provides acceptable comfort and mobility, provides protection, and integrates well with other items of clothing, personal equipment and workspaces. Countering these is the requirement to accommodate an increasing diversity within NATO's participating nations. For example, Canada's Strong Secure and Engaged Defence Policy has expressed a desire for the Canadian Armed Forces to increase diversity by recruiting and training under-represented populations, with a specified target of 25% membership of women by 2026.

In response, NATO Science and Technology Organization (STO) has recognized the importance of providing guidance on the use of anthropometric data and advances in sizing and fitting methods to optimize current processes. In particular, it has identified the potential of 3D body scanning as a tool to rapidly acquire 3D anthropometry and body shape data. This has led to the establishment of NATO Research Task Group (RTG) HFM-266: 3D scanning for clothing fit and logistics.

A survey of NATO countries conducted by the RTG indicated that 30% respondents use body scanning for clothing sizing and issuing, however there is a high level of dissatisfaction with their clothing sizing systems. Over 80% of respondents expressed a requirement for better guidance on the development of sizing systems. In response, RTG 266 has developed a STANREC which provides guidance on the use of anthropometric data (1D and 3D scan data) for design and fitting, describes fit testing methods (live and virtual) and sizing system development and provides an overview of 3D scanning system requirements for sizing and logistics.

This STANREC will benefit military users by identifying state-of-the-art tools methods to optimize the specification, design and evaluation of military clothing and equipment and modernize the development of clothing sizing standards across NATO countries.