

Analysis of Tactile Perception of Textiles by Fingertip Skin Model

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Abstract : This paper presents finite element models of the fingertip skin which have been created to simulate the contact of textile objects with the skin to gain a better understanding of the perception of textiles through the skin, so-called Hand of Textiles (HoT). Many objective and subjective techniques have been developed to analyze HoT, however none of them provide exact overall information concerning the sensation of textiles through the skin. As the human skin is a complex heterogeneous hyperelastic body composed of many particles, some simplifications had to be made at the stage of building the models. The same concerns models of woven structures, however their utilitarian value was maintained. The models reflect only friction between skin and woven textiles, deformation of the skin and fabrics when "touching" textiles and heat transfer from the surface of the skin into direction of textiles.

Keywords : fingertip skin models, finite element models, modelling of textiles, sensation of textiles through the skin

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