Evaluating tactile interactions with fine textures obtained with femtosecond laser surface texturing

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Abstract

Tactile perception deteriorates with age, resulting in a negative impact on life quality. A clinical assessment of this decline could help to reduce its effects. Such a clinical apparatus for fine texture does not yet exist. Femtosecond laser surface texturing (LST) is capable of manufacturing fine textures on materials that are sufficiently robust for clinical requirements. This presentation starts by addressing how LST can be used to manufacture surfaces for tactile tests, i.e. of sufficient dimensions to permit interrogation, and with a minimum quantity of uncontrolled surface features. Vibrotactile interrogation tests on textured surfaces demonstrate that the surface textures have controllable tactile signature and thus underline the suitability of the process for generating fine textures for tactile perception assessment.

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