Effects of pitch level, pitch ratio and finger used for tactile identification on embossed and indented dot arrays

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Abstrak

ABSTRACT
The tactile sense is of increasing importance in contemporary human machine interface design as a means of improving operator information processing performance under sensory resource competitive circumstances. However, there is not enough knowledge of some aspects of human tactile identification ability for different surface textures with varying stimulus characteristics. Thus, the aim of this study was to investigate the effects of dot engraving forms (embossed and indented), dot pitch (4.50, 4.95, and 5.45 mm), pitch ratio (1.00, 1.10, and1.21), and finger used (index and middle) as well as gender on human tactile identification ability. The results here showed significantly higher accuracy of identification for the embossed stimulus and for the pitch ratio of 1.21. The significant interaction effect of dot engraving form and dot pitch indicated that embossed dots with 4.50 mm pitch level produced the best accuracy of identification. No significant differences for finger used and gender were shown.