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Hand tracking by extending distance transform and hand model in real-time (Article)

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View references

Abstract

Tracking a human's hand is not a trivial task. This paper contributes a new approach for hand tracking based on distance transform (DT) and edge points in real-time. In the beginning, we create a hand model geometrically in three dimensions. It is done by utilizing shortened quadrics. After that, the degrees of freedom, shortly called as DOF, for every joint angle correspond to each DOF to use in the later process. The edge likelihood is used for the feature extraction. A Bayesian classifier is utilized adaptively and accurately for the silhouette likelihood. For this reason, it is to cope greatly with any environmental changes visibly. By using these techniques, this method can be performed in real-time. Experimental results are provided. © 2015, Pleiades Publishing, Ltd.

Indexed keywords

Engineering controlled terms: Degrees of freedom (mechanics); End effectors; Feature extraction

Bayesian classifier; Distance transforms; Edge point; Environmental change; Hand tracking; Joint angle; New approaches; Three dimensions

Engineering main heading: Palmprint recognition

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