Abstract

Integral Projections based face tracking algorithm provides high accuracy and computational efficiency to accurately track human faces. However, the inherent complexity of having three dimensions and the usage of projection model with each dimension has posed a challenge to deploy on resource constrained handheld devices. Motivated by these observations, we
propose a multi-threaded architecture on Android to address this issue. First, we discuss few related works to investigate and analyze the Integral Projection face tracking algorithm and detail the constraints associated to identify face tracking accurately. Second, we discuss few characteristics of android architecture and detail constraints associated with middleware sub-system to cater face tracking efficiently. Consequently, we describe the proposed architecture and the rationale of functionality based module classification to address inherent challenges like reducing false positive rate on resource constrained devices. In particular, we point out the benefits of the Face Algorithm Agent to ensure smooth and swift portability onto different flavors of android. To validate our approach, trial experiments were performed using the said architecture on Zoom2 hardware platform based on Android. Experimental results lead us to conclude the architecture is efficient at reducing the false positive rates significantly. Finally, future research directions based on the current architecture results are pointed out.

Reference

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Index Terms

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