

عنوان مقاله:

An analysis on biometric identification by hand vein patterns

محل انتشار:

دهمین کنفرانس بین المللی تحقیقات پیشرفته در علوم، مهندسی و فناوری (سال: 1401)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Identity verification and validation both refer to the process during which your company confirms a user's identity. It ensures the identification process is valid, that there is a real person behind an action, and that they are who they say they are. It is particularly important in the context of fraud prevention, where flagging false identities is often the best way to reduce damage to your organization. A novel personal verification method using the thermal images of palm-dorsa vein-patterns is presented in this paper. The characteristics of the proposed method are that no prior knowledge about the objects is necessary and the parameters can be set automatically. In our work, an infrared (IR) camera is adopted as the input device to capture the thermal images of palm-dorsa. According to the heat conduction law (the Fourier law), multiple features can be extracted from each feature points of the vein-patterns (FPVPs). Multiresolution representations of images with FPVPs are obtained using multiple multiresolution filters (MRFs) that extract the dominant points by filtering miscellaneous features for each FPVP. A hierarchical integrating function is then applied to integrate multiple features and multiresolution representations. We also introduce a logical and reasonable method to select a trained threshold for verification. The experimental results demonstrate that our proposed approach is valid and effective for vein-pattern verification.

کلمات کلیدی:

Inter-to-intra personal variation ratio, multiple multiresolution filters, positive Boolean function (PBF), vein-pattern verification, watershed transformation

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