

【文献調査】

Hierarchical retinal blood vessel segmentation based on feature and ensemble learning

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1 タイトル

特徴とアンサンブルに基づく階層型の網膜血管セグメンテーション

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3 出典

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4 アブストラクト

網膜血管のセグメンテーションは、糖尿病性網膜症、高血圧及び新血管疾患のような多くの疾患の診断のために実際の臨床において重要である。本稿では、網膜血管セグメンテーションの問題を解決するために、畳み込みニューラルネットワーク (CNN) 及びランダムフォレスト (RF) の二つの優れた分類器を組み合わせた教師あり学習を提案する。この手法では、CNN は学習可能な階層的特徴抽出器、RF は学習可能な分類器としての役割を担う。特徴の学習と伝統的な分類器のメリットを統合する事により、提案手法は自動的に元画像の特徴量を学習し、パターンを予測する事が可能である。実験は二つの公開されている網膜画像データベース (DRIVE と STARE) を利用して行い、同じデータベース上の他の主な研究と比較して、提案手法のパフォーマンスと有効性を実証する。

5 キーワード

Convolutional neural network, Ensemble learning, Feature learning, Random forest, Retinal blood vessel segmentation

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