【文献調査】
Hybrid EEG–Eye Tracker: Automatic Identification and Removal of Eye Movement and Blink Artifacts from Electroencephalographic Signal

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1 タイトル

ハイブリット EEG ーアイトラッカー：脳波信号からの眼の動きとまばたきの自動同定と除去

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3 出典

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4 アブストラクト

EEG に記録される眼球運動および瞬きのアーチファクトによる汚染は，脳波データの分析をより困難にし，誤まった結果に導く可能性がある．EEG データからこれらのアーチファクトを効率的に除去することは，ブレインコンピュータインターフェース（BCI）を開発するための分類精度を改善するための重要なステップである．本稿では，EEG とアイトラッカーのハオブリッドシステムを用いて EEG データから眼のアーチファクトを識別し除去するための独立成分分析（ICA）とシステム同定に基づく自動フレームワークを提案した．提案するアルゴリズムの性能は，実験的および標準的な EEG データセットを用いて評価した．提案されたアルゴリズムは，アーチファクトの領域から目に関連するアーチファクトを除去するだけでなく，非アーチファクト領域での神経活動に関連する EEG 信号を保存する．ADJUST based ICA，REGICA と呼ばれる二つの最先端の技術を比較することで，EEG データから目の動き及び瞬きのアーチファクトを除去するために提案されたアルゴリズムにおける重要な改善点と性能差を明らかにする．さらに提案されたアルゴリズムにより修正された EEG データとアーチファクトのない EEG データとの間に低い相対誤差及び高い相関を得られることを実証した．

5 キーワード

electroencephalogram, eye tracker, ocular artifacts, independent component analysis, auto-regressive exogenous model, affine projection algorithm; composite multi-scale entropy, median absolute deviation

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