粗糙集二进制布谷鸟算法在情感识别中的应用

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摘 要： 为了提高情感识别过程中选择最优情感特征子集的能力，提出了一种粗糙集二进制布谷鸟算法.首先分别提取皮肤电、呼吸、肌电、脑电四种生理信号的原始特征；然后使用粗糙集二进制布谷鸟算法进行特征的优化选择，并使用支持向量机进行情感分类.仿真分析表明：提出的算法较好地优化了特征选择过程，可以通过较少特征获得较高的识别率，也说明了多模态生理信号的情感识别效果要优于单模态生理信号.

关键词： 情感识别；特征选择；多生理信号；二进制布谷鸟算法；粗糙集
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Application of Binary Cuckoo Algorithm Based on Rough Set in Emotion Recognition

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Abstract：In order to improve the ability of selecting the best subset of emotion features in emotion recognition， a rough set binary cuckoo algorithm is proposed. The original features of four physiological signals which are galvanic skin reaction， respiratory， electromyography， electroencephalogram are extracted; then， the rough set binary cuckoo algorithm is used to optimize the feature selection， and the support vector machine is used to classify the emotions. Simulation results show that the proposed algorithm can optimize the feature selection process and achieve higher recognition rate with fewer features. It also shows that the emotion recognition effect of multimodal physiological signals is better than that of single modality physiological signal.

Key words：emotion recognition; feature selection; multimodal physiological signal; binary cuckoo search; rough sets

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