

# 基于 DKP 和 OS-KELM 算法的姿态识别

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**摘要:** 提出了一种基于智能手机识别人体姿态的神经网络分类器的设计方案.该设计的主旨是用第一级分类器区分动态和静态动作,然后用第二级分类器分别识别这两类动作.第一级分类器采用直接核感知机 DKP(Direct Kernel Perceptron),其具有简单、快速, $\alpha$  系数可直接计算得出而无需任何反复训练的特点.在线序列核极限学习机 OS-KELM(Online Sequential Kernel Extreme Learning Machine)因其高效性被作为第二级分类器.实验结果成功验证提出的识别方案是可行的.

**关键词:** 在线序列 ELM; 核函数; 直接核感知机; 姿态识别; 模式识别

## Activity Recognition Based on DKP and OS-KELM Algorithm

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**Abstract:** This paper presents a systematic design approach for constructing neural classifiers that are capable of classifying human activities using a smartphone. The philosophy of our design approach is to apply first order classifier that separates dynamic activities from static activities and recognizes these two different types of activities separately using second order classifier. We adopt the direct kernel perceptron (DKP) as first classifier for it is a very simple and fast kernel based classifier whose  $\alpha$ -coefficients are calculated directly, without any iterative training. And online sequential kernel extreme learning machine (OS-KELM) is chosen as the second classifier for its high efficiency. Experimental results have successfully validated the effectiveness of the proposed recognition scheme.

**Key words:** online sequential ELM; kernel function; direct kernel perceptron; activity recognition; pattern recognition

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