基于残差网络的特征加权行人重识别研究

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摘　要： 文章讨论了基于视频到视频的行人重识别的深度学习方法，提出的网络模型主要由特征表示子网络和相似性度量子网络两部分组成.首先利用残差网络提取视频的每帧图像的特征，再该特征输入到长短期记忆网络中获取时空特征，在长短期记忆网络层后添加权重模块，在该模块中使用帧质量注意力机制为视频的每一帧分配适当的权重.进一步将加权后的特征向量传入相似性度量子网络进行距离度量学习，在该框架中,将特征表示与相似性度量使用全连接层进行连接，同时学习和优化特征表示和相似度度量学习.最后在两个公共数据集上进行实验，通过一系列对比实验验证了该网络模型的能提高行人重识别准确率和性能.

关键词： 残差网络；行人重识别；特征加权；注意力机制；相似性度量

Person Re-identification based on residual network with weightedfeatures

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Abstract： In this paper, we address the video-to-video person re-id. The proposed network is mainly composed of the feature representation subnetwork and the similarity measure network. First, the residual network is used to extract features from each frame of video, and then the features are inputtedinto the Long Short-Term Memory network to obtain features which contain information of time and space. Aweight module isappliedon the upper layer of Long Short-Term Memory network.Inthis model, applying an attentive quality mechanism to assign appropriate weight for each frame.Then, the weighted feature of each video sequence will be inputted into the similaritymeasure sub-network to measure similarity. In this framework, use fully connected layers to connect feature representation subnetwork and the similarity measure network, so the feature representation and similarity metric learning can be learned and optimized at the same time. Finally, we do experiments on two public datasets to prove that our network model can improve pedestrian recognition accuracy and performance.

Key words： residual network；person re-identification；weighted features； attentive mechanism；similaritymeasure

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