

## عنوان مقاله:

Fuzzy Centralized Coordinate Learning and Hybrid Loss for Human Activity Recognition

## محل انتشار:

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## خلاصه مقاله:

Human activity recognition has been a popular research topic in recent years. The rapid development of deep learning techniques has greatly helped researchers to achieve success in this field. But the researches in the literature, usually ignore the distribution of features in the coordinate space despite its great effect on the convergence status of network and activities classification. This paper proposes a hybrid method based on fuzzy centralized coordinate learning and a hybrid loss function to overcome the explained constraint. The fuzzy centralized coordinate learning induces features to be dispersedly spanned across all quadrants of the coordinate space. This causes the angle between the feature vectors of the activity classes to increase significantly. Furthermore, a hybrid loss function is suggested to increase the discriminative power of the proposed method. Our experiments were carried out on the OPPORTUNITY and the PAMAP2 datasets. The proposed model has been compared with six machine learning and three deep learning methods for activity recognition. Experimental results showed that the proposed method outperformed all of the comparative methods due to the identification of discriminative features. The proposed method successfully enhanced the average accuracy by ۱۴.۹۹% and ۲.۹۴% on the PAMAP2 and OPPORTUNITY datasets, respectively, compared to the deep learning methods.

## کلمات کلیدی:

Human Activity Recognition, Deep Learning, Fuzzy Centralized Coordinate Learning, hybrid loss function

## لینک ثابت مقاله در پایگاه سیویلیکا:

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