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Iris Recognition System (IRS) in Biometric World

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Abstract: *Identity recognition through human iris organ is claimed as one of the famous biometric techniques due to its reliability promising higher accurate return as compared to other traits. Reviewing past literatures, poor imaging condition, low flexibility of model, and small size iris images dataset are the limitations needing solutions. In this paper,a proposed algorithm development flow and systematic analysis has been conducted to achieve high efficiency in the iris recognition task. A transfer learning method that does not involve iris segmentation phase is proposed to capitalize pre-trained Convolutional Neural Network (ConvNet) model introduced in the ImageNet Large Scale Visual Recognition Competition (ILSVRC) on iris recognition system. Both data augmentation and Bayesian optimization are also involved in optimizing the network and prevent it from overfitting. Simulation results showed the transferability of a pre-trained model on new target task is improved and meanwhile, the high recognition rate of the algorithm on small-size Institute of Automation, Chinese Academy of Sciences (CASIA) Iris-Interval V1 iris image dataset is achieved.*

Keywords: deep learning, ConvNet, transfer learning, iris recognition.

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