ACBM: Attention-Based CNN and Bi-LSTM Model for Continuous Identity Authentication

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Abstract : Keystroke dynamics are widely used in identity recognition. It has the advantage that the individual typing rhythm is difficult to imitate. It also supports continuous authentication through the keyboard without extra devices. The existing keystroke dynamics authentication methods based on machine learning have a drawback in supporting relatively complex scenarios with massive data. There are drawbacks to both feature extraction and model optimization in these methods. To overcome the above weakness, an authentication model of keystroke dynamics based on deep learning is proposed. The model uses feature vectors formed by keystroke content and keystroke time. It ensures efficient continuous authentication by cooperating attention mechanisms with the combination of CNN and Bi-LSTM. The model has been tested with Open Data Buffalo dataset, and the result shows that the FRR is 3.09%, FAR is 3.03%, and EER is 4.23%. This proves that the model is efficient and accurate on continuous authentication.