

Dynamic keystroke analysis using AR model

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Abstract

The design and development of a pressure sensor based typing biometrics authentication system (BAS) is discussed in this paper. The dynamic keystroke, represented by its time duration and force generates a waveform, which when concatenated results in a user's typing pattern for the typed password. The design of the BAS is in two stages, whereby the hardware comprising the pressure sensor and the associated data acquisition system (DAS) is first implemented. The system DAS has been designed using LabVIEW software. Furthermore several data preprocessing techniques have been used to improve the quality of the acquired waveforms. The second stage involves a classifier to authenticate the users. This paper discusses a new data classifier technique based on autoregressive signal modeling (AR), which has been developed so as to correctly identify and authenticate the users of the system. Some experiments have been conducted to show the validity of the overall BAS performance. The results obtained have shown that this proposed system is reliable with many potential applications for computer security.

Keywords: Biosensors, Sensor systems, Biometrics, Authentication, Force sensors, Concatenated codes, Hardware, Data acquisition, Software design, Data preprocessing

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