

Human user authentication based on mouse dynamics

Xuantong Zhang

Abstract

Security problems have been discussed for a long time till now in many aspects such as communication, distributed system, networking and system authentication. Security and authentication methods such as password and fingerprint are most common methods being used nowadays. Password and fingerprint security methods have been used in computer login page and smart phone unlock page. With computers and smart phones population growing vastly, we need to put more attention on the security methods being used on them. However, these traditional authentication methods are not safe enough. Password are stolen and revealed to hackers, as for fingerprint, it can easily be got from an authenticated person and thus is not safe for users either. We moved our eyes on another way of security and authentication – biometric kinesiology. The muscle in our body can remember the movement if we practiced an action a lot, and this is built in the body, not in our memory, which means that we cannot forget a practiced movement like we forget a password. We tried to use the muscle movement from an authenticated user for a certain required action as the ‘password’ of a system. And only the user perform the right action can be regarded as an authenticated user. Otherwise the system will reject the user. This movement is hard to mimic unless the hacker do a lot of practice of the certain movement and do exactly the same as an authenticated user. This is very difficult because we modified the normal mouse and the mouse will not move as the hacker expect. What’s more, only the authenticated user knows how was the mouse be modified and how to react to adjust to that modification. In this way it is much safer than the above traditional security and authentication methods. We will also show that the proposed method is also accurate to recognize an authenticated user.