

**Identifying Emotional States Using Keystroke Dynamics**  
Annual Conference on Human Factors in Computing Systems 2011

This study dealt with the recognition of user emotion by analyzing the rhythm of their typing patterns on a standard keyboard. 12 participants were monitored for 4 weeks using specific software, which recorded every keystroke, and showed a dialog with a short questionnaire about their emotional states throughout their day.

Emotion	Prediction Accuracy
Confidence	83%
Hesitancy	82%
Nervousness	83%
Relaxation	77%
Sadness	88%
Tired	84%

Note: The study suggests the “ability to recognize emotions is an important part of building intelligent computers” and see their work in the context of “affective computing”, which refers to “computing that relates to, arises from, or deliberately influences emotions.” In their related work section, Epp et al state that in prior approaches, computers successfully identified emotional states based on “facial expressions, gestures, vocal intonation, and language”. Keystroke dynamics have also been successfully used to identify and authenticate users”(20).