# Touchalytics

A set of 30 behavioral touch features that can be extracted from raw touchscreen log (where user touch on his phone screen) to be used for validating the user i.e. the right user is using the phone.

**Dataset files**

* Raw dataset:<http://www.mariofrank.net/touchalytics/data.zip>
* Extracted features dataset: <http://www.mariofrank.net/touchalytics/features.zip>

**Dataset entry description**

**Raw dataset**

Attribute 1 (phone ID) : Phone used

Attribute 2 (user ID) : User identifier

Attribute 3 (document ID) : Document identifier (what user was seeing on screen)

Attribute 4 (time[ms]) : time taken

Attribute 5 (action) : action on screen (drag, click etc)

Attribute 6 (phone orientation): phone’s orientation

Attribute 7 (x-coordinate) : x coordinate of touch

Attribute 8 (y-coordinate) : y coordinate of touch

Attribute 9 (pressure) : pressure measured

Attribute 10 (area covered) : Area covered during the touch

Attribute 11 (finger orientation): FInger’s orientation

**Extracted features dataset**

Attribute 1 : user id

Attribute 2 : doc id

Attribute 3 : inter-stroke time

Attribute 4 : stroke duration

Attribute 5 : start $x$

Attribute 6 : start $y$

Attribute 7 : stop $x$

Attribute 8 : stop $y$

Attribute 9 : direct end-to-end distance

Attribute 10 : mean resultant length

Attribute 11 : up/down/left/right flag

Attribute 12 : direction of end-to-end line

Attribute 13 : phone id

Attribute 14 : 20\%-perc. pairwise velocity

Attribute 15 : 50\%-perc. pairwise velocity

Attribute 16 : 80\%-perc. pairwise velocity

Attribute 17 : 20\%-perc. pairwise acc

Attribute 18 : 50\%-perc. pairwise acc

Attribute 19 : 80\%-perc. pairwise acc

Attribute 20 : median velocity at last 3 pts

Attribute 21 : largest deviation from end-to-end line

Attribute 22 : 20\%-perc. dev. from end-to-end line

Attribute 23 : 50\%-perc. dev. from end-to-end line

Attribute 24 : 80\%-perc. dev. from end-to-end line

Attribute 25 : average direction

Attribute 26 : length of trajectory

Attribute 27 : ratio end-to-end dist and length of trajectory

Attribute 28 : average velocity

Attribute 29 : median acceleration at first 5 points

Attribute 30 : mid-stroke pressure

Attribute 31 : mid-stroke area covered

Attribute 32 : mid-stroke finger orientation

Attribute 33 : change of finger orientation

Attribute 34 : phone orientation

**Example entry**

**Raw dataset**

0,36,3,1334893336544,0,1,272,269,0.21,0.04444445,0.0

**Extracted features dataset**

37,4,0.341,0.256,27.416,-27.113,12.398,-32.96,16.116,0.35736,4,-2.7704,1,0.41784,4.1784,2719.2,-6.0418e+005,-432.24,6.0332e+005,4.1784,0.17777,0,0,0.12444,-2.5812,16.132,0.99898,63.018,-432.24,0.32,0.044444,0,0,1

**Labelling field**

**Raw dataset:**

Attribute 1 (phone ID), Attribute 2 (user ID), Attribute 3 (document ID)

**Extracted features dataset**

Attribute 1 (user ID), Attribute 2 (document ID), Attribute 13 (phone ID)

**Questions to answer using ML**

1. Is the current user is a valid user?

**Reference**

* <http://www.mariofrank.net/touchalytics/index.html>