

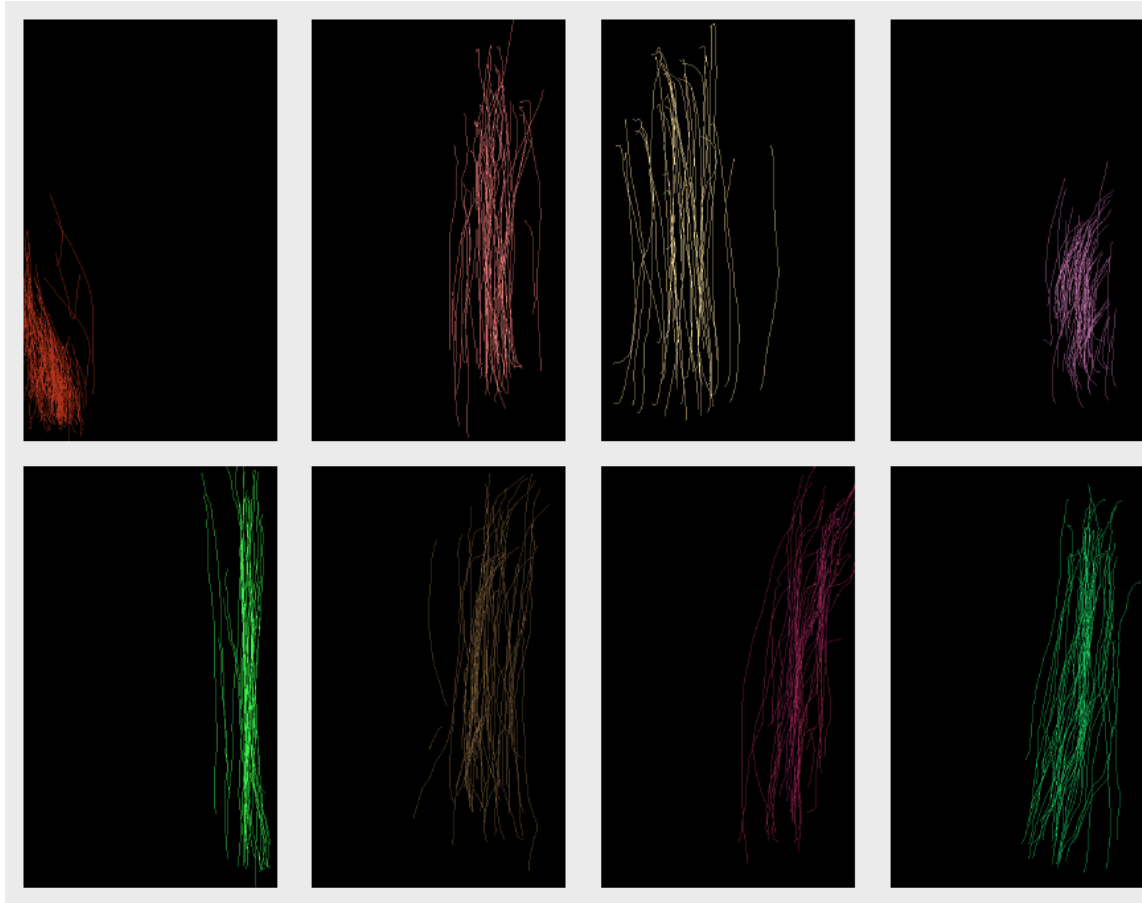
Touchalytics:

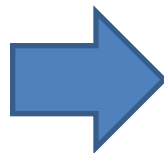
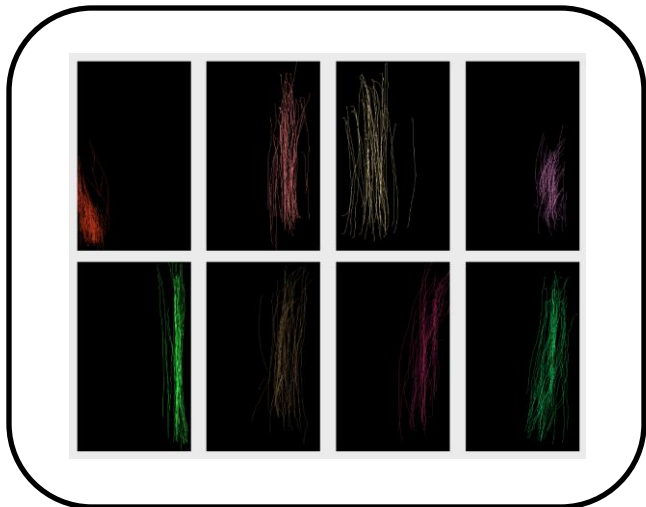
On the Applicability of Touchscreen Input as a Behavioral Biometric for Continuous Authentication

Mario Frank, Ralf Biedert, Eugene Ma, Ivan Martinovic, and Dawn Song
IEEE Transactions on Information Forensics and Security, 2013

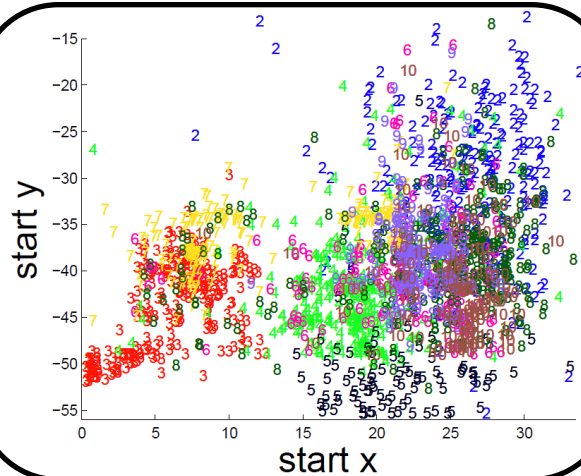
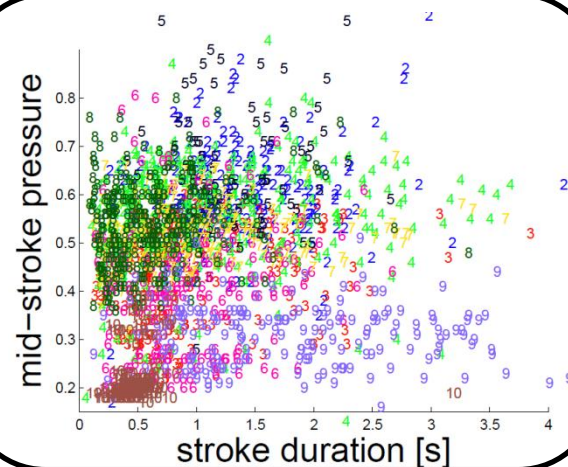
Mario Frank, UC Berkeley

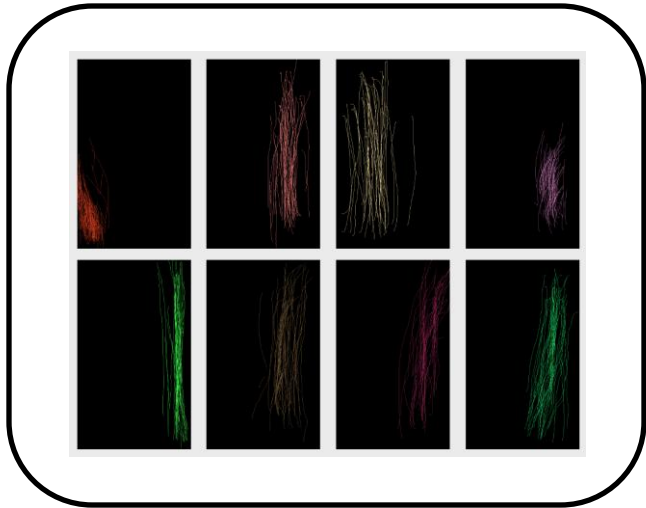
Touch-based continuous authentication





30 behavioral touch features



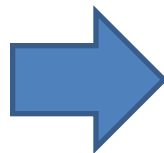
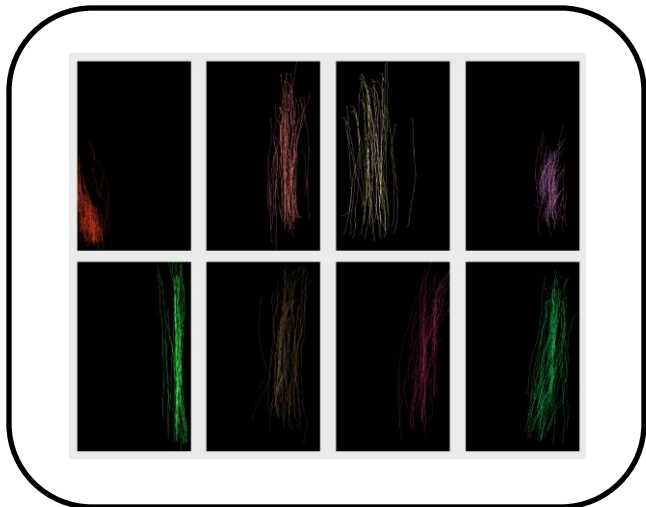


Rel. mutual in-formation

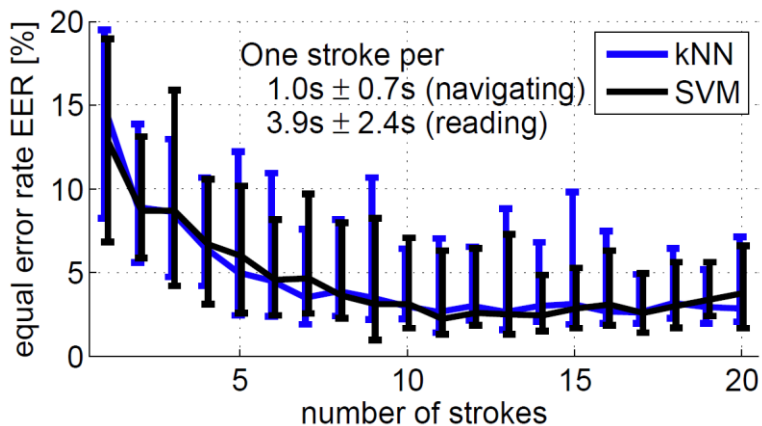
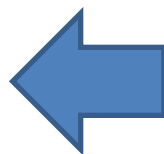
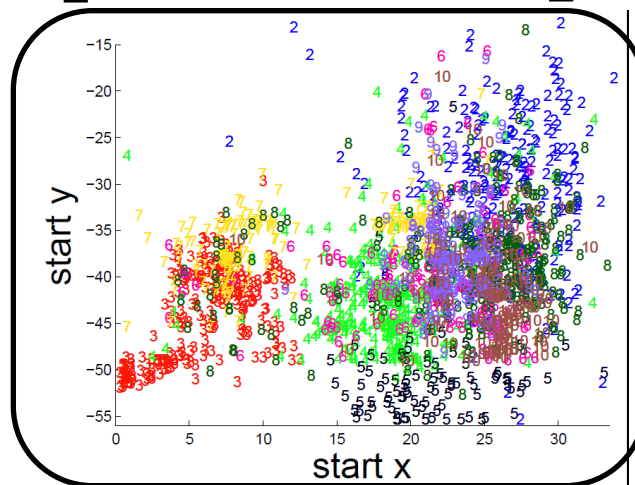
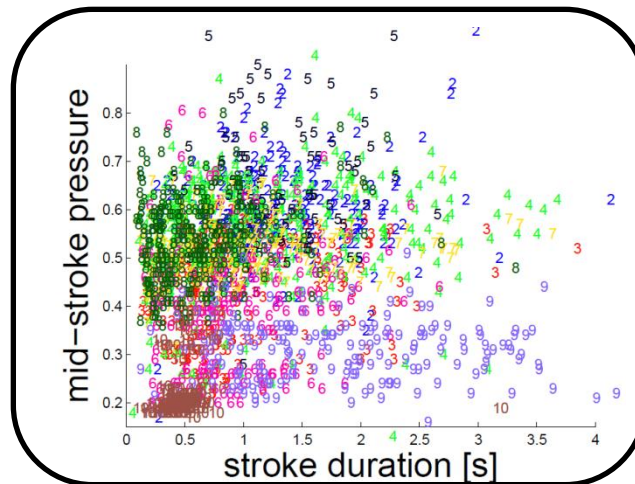
- 20.58%
- 19.63%
- 17.28%
- 11.06%
- 10.32%
- 10.15%
- 9.45%
- 9.43%
- 8.84%
- 8.61%
- 8.5%
- 8.27%
- 8.16%
- 7.85%
- 7.24%
- 7.22%
- 7.07%
- 6.29%
- 6.08%
- 5.96%
- 5.82%
- 5.42%
- 5.39%
- 5.3%
- 5.14%
- 5.04%
- 5.04%
- 3.44%
- 3.08%
- 0.97%
- 0%

Feature description

- mid-stroke area covered
- 20%-perc. pairwise velocity
- mid-stroke pressure
- direction of end-to-end line
- stop x
- start x
- average direction
- start y
- average velocity
- stop y
- stroke duration
- direct end-to-end distance
- length of trajectory
- 80%-perc. pairwise velocity
- median velocity at last 3 pts
- 50%-perc. pairwise velocity
- 20%-perc. pairwise acc
- ratio end-to-end dist and length of trajectory
- largest deviation from end-to-end line
- 80%-perc. pairwise acc
- mean resultant lenght
- median acceleration at first 5 points
- 50%-perc. dev. from end-to-end line
- inter-stroke time
- 80%-perc. dev. from end-to-end line
- 20%-perc. dev. from end-to-end line
- 50%-perc. pairwise acc
- phone orientation
- mid-stroke finger orientation
- up/down/left/right flag
- change of finger orientation



30 behavioral touch features



THANK YOU!

Please visit my poster at the
TRUST/SCRUB open house (Newton, 3rd floor Cory Hall).
Or visit www.mariofrank.net

