## A: Datasheet

Algorithm: tevian\_5

Developer: Tevian

Submission Date: 2018\_10\_30

Template size: 2048 bytes

Template time (2.5 percentile): 368 msec

Template time (median): 405 msec

Template time (97.5 percentile): 611 msec

Investigation:

Frontal mugshot ranking 105 (out of 265) -- FNIR(1600000, 0, 1) = 0.0073 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 108 (out of 227) -- FNIR(1600000, 0, 1) = 0.0282 vs. lowest 0.0062 from sensetime\_005

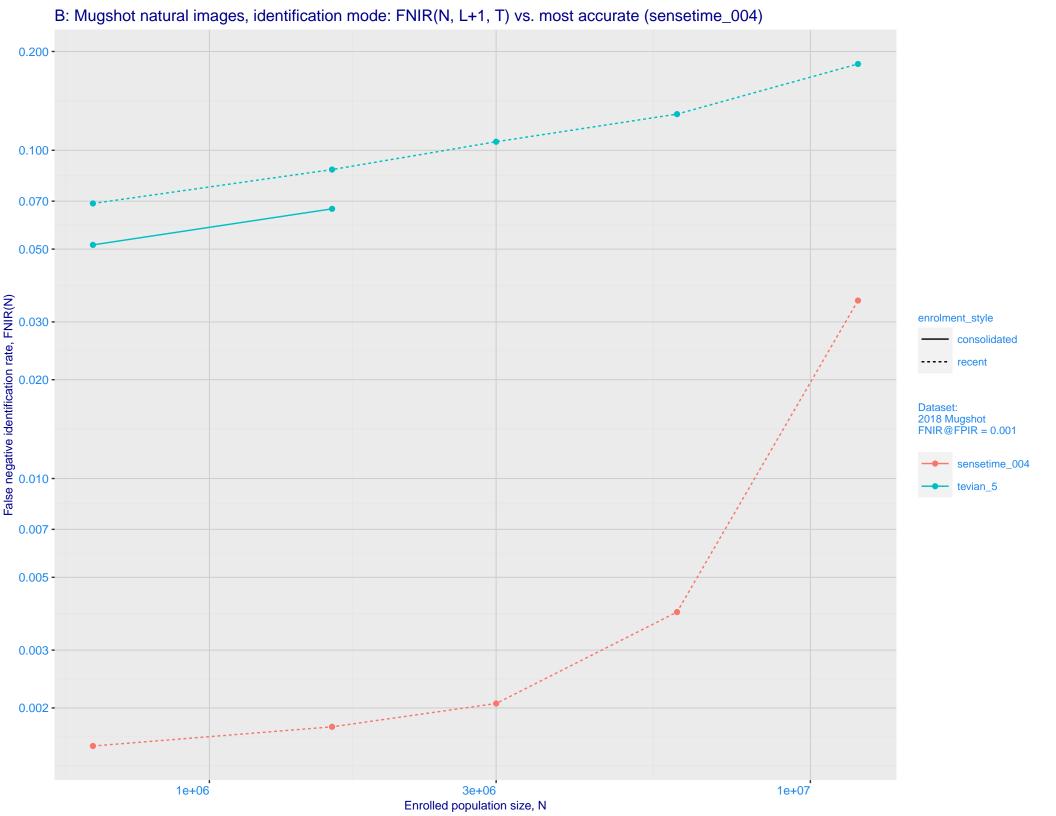
Mugshot profile ranking 41 (out of 196) -- FNIR(1600000, 0, 1) = 0.4667 vs. lowest 0.0591 from sensetime\_005

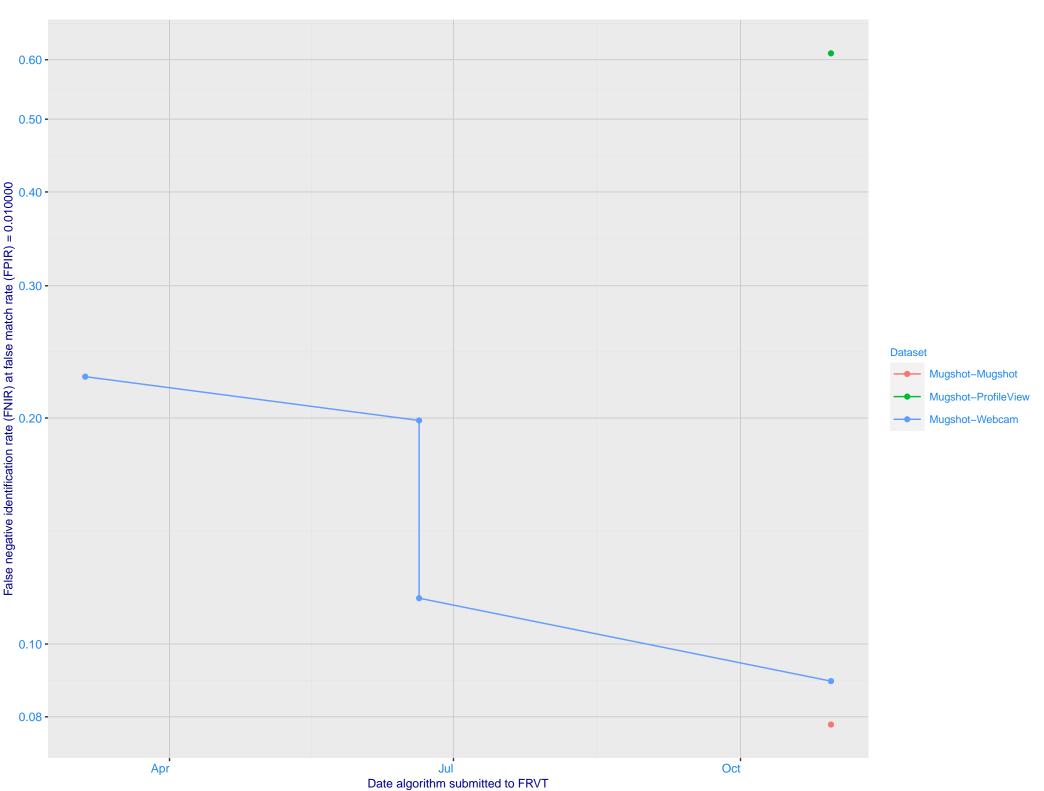
Identification:

Frontal mugshot ranking 123 (out of 265) -- FNIR(1600000, T, L+1) = 0.0873, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 102 (out of 225) -- FNIR(1600000, T, L+1) = 0.1438, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

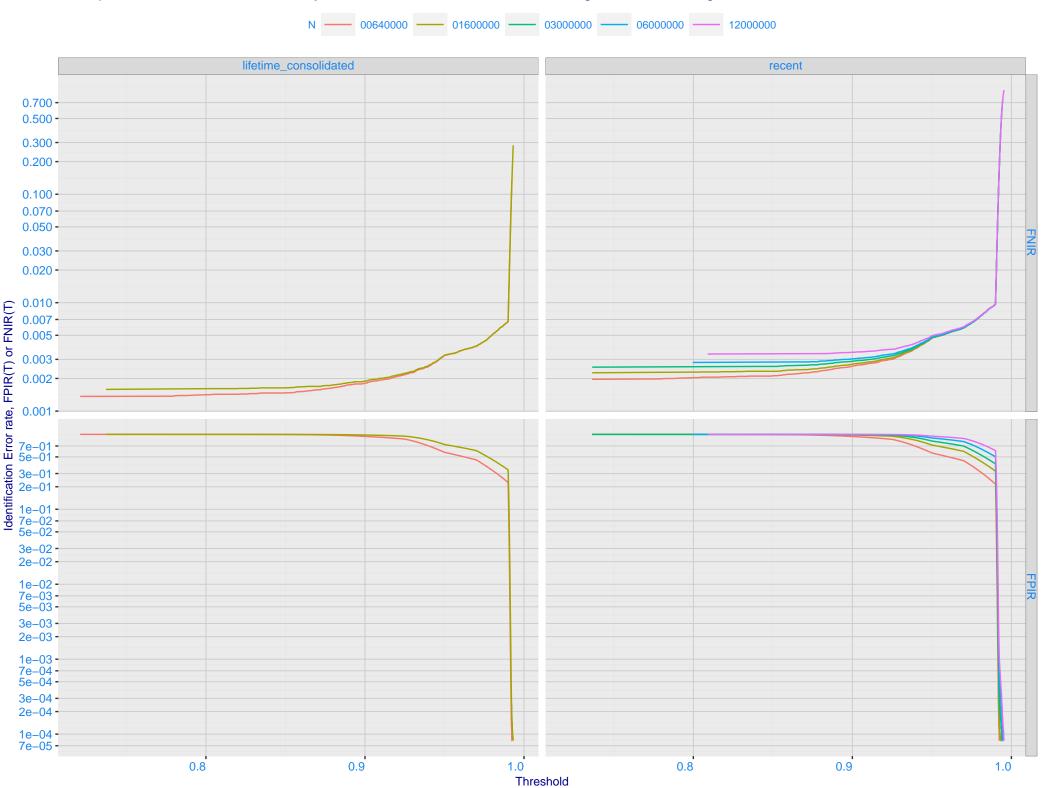
Mugshot profile ranking 41 (out of 195) -- FNIR(1600000, T, L+1) = 0.9619, FPIR=0.001000 vs. lowest 0.1331 from hr\_000



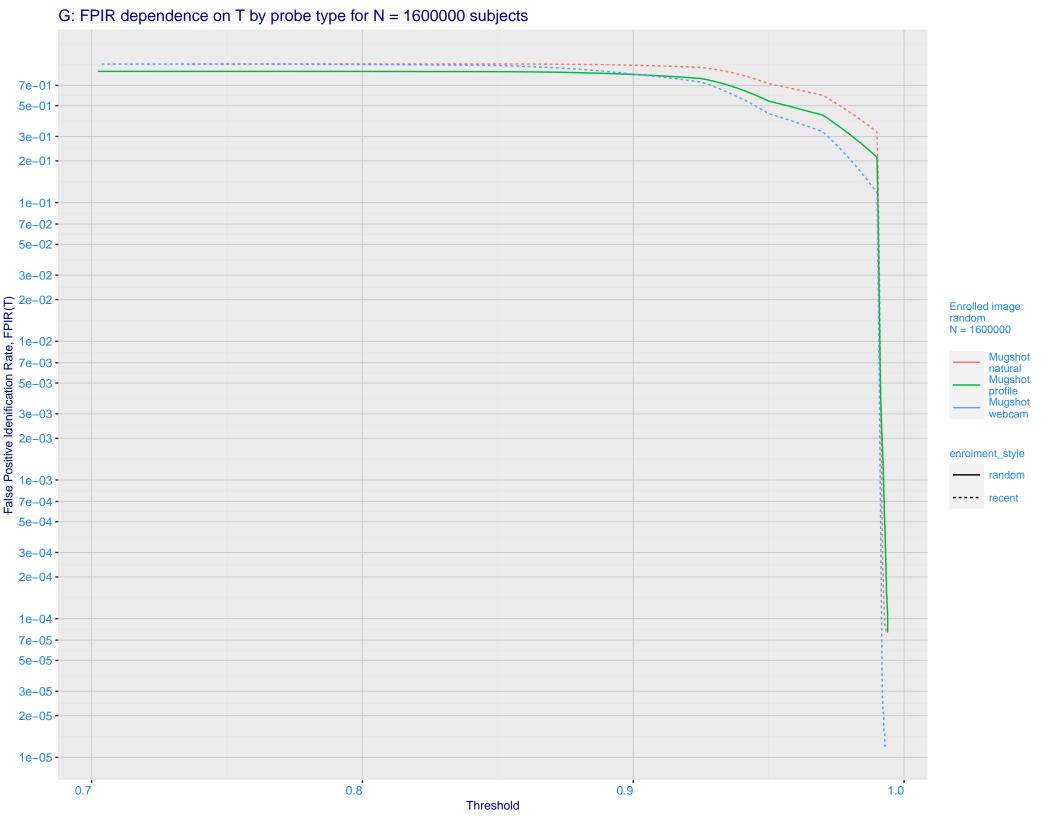


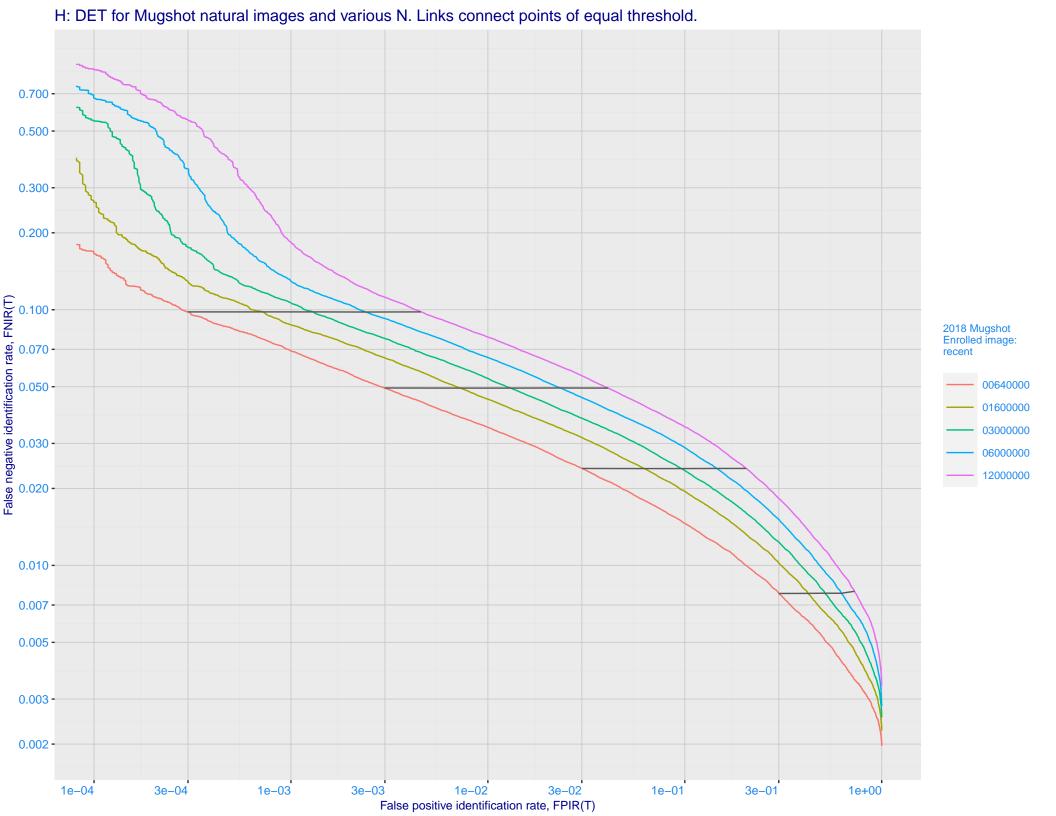
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.500 - 0.500 - 0.200 - 0.200 - 0.001 - 0 enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

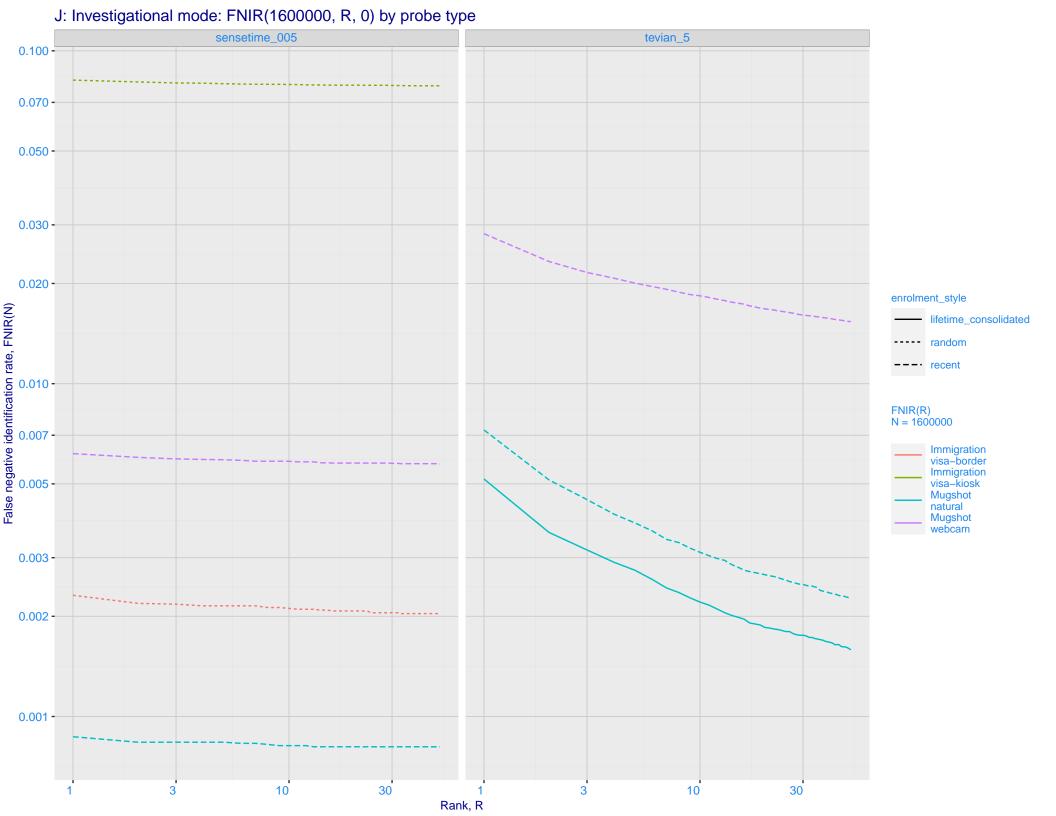


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 - 5e-02 -**Enrolled images:** recent N = 1600000 % 3e-02 -2e-02 -1e-02 -Mugshot natural Mugshot webcam 7e-03 -5e-03 -3e-03 -2e-03 -1e-03 -7e-04 -5e-04 -3e-04 -2e-04 -1e-04 -7e-05 -5e-05 -3e-05 -2e-05 -1e-05 -1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

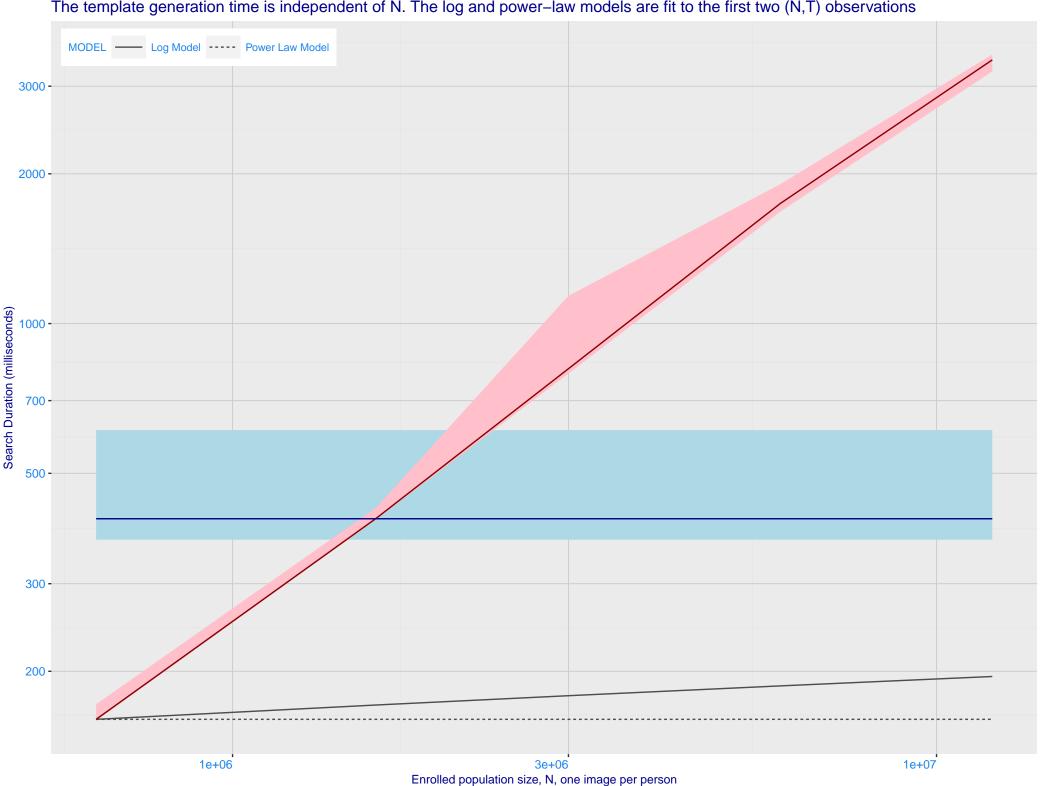




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Palse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. enrolment\_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 sensetime\_005 tevian\_5 0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -1e+06 3e+06 1e+07 1e+06 3e+06 1e+07 Enrolled population size, N



Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



M: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing



