## A: Datasheet

Algorithm: vigilantsolutions\_6

Developer: Vigilant Solutions

Submission Date: 2018\_10\_30

Template size: 1544 bytes

Template time (2.5 percentile): 810 msec

Template time (median): 817 msec

Template time (97.5 percentile): 892 msec

Investigation:

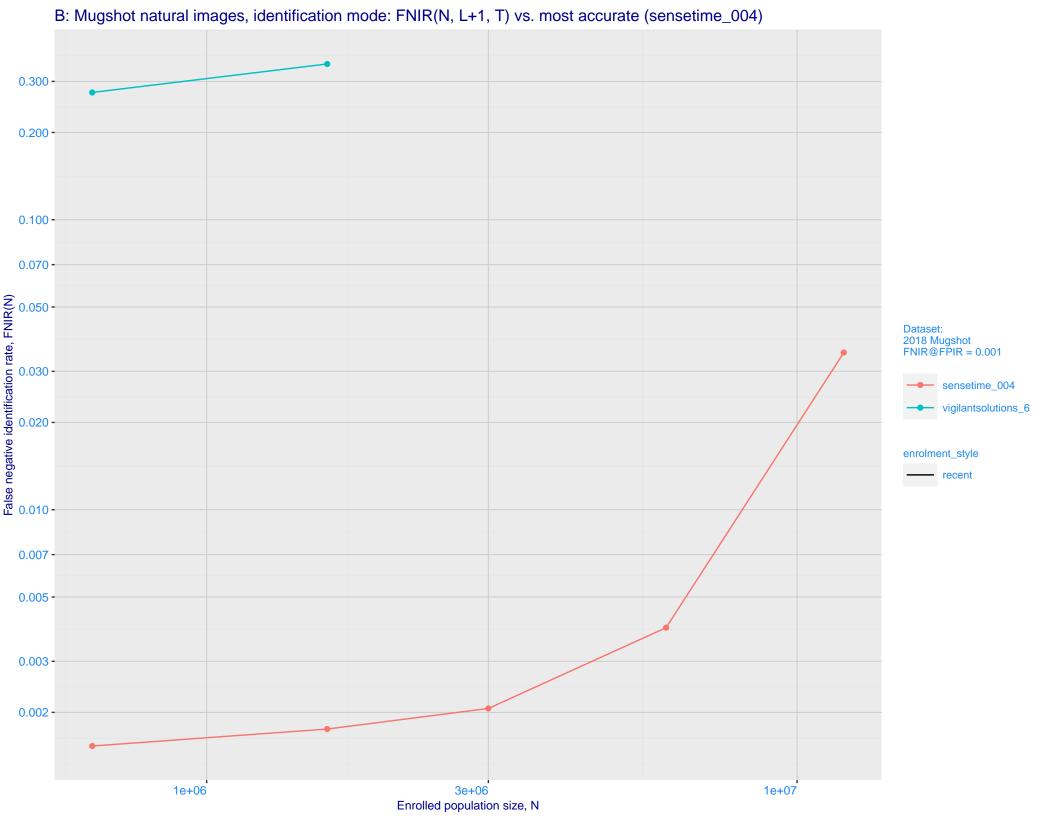
Frontal mugshot ranking 127 (out of 265) -- FNIR(1600000, 0, 1) = 0.0099 vs. lowest 0.0009 from sensetime\_005

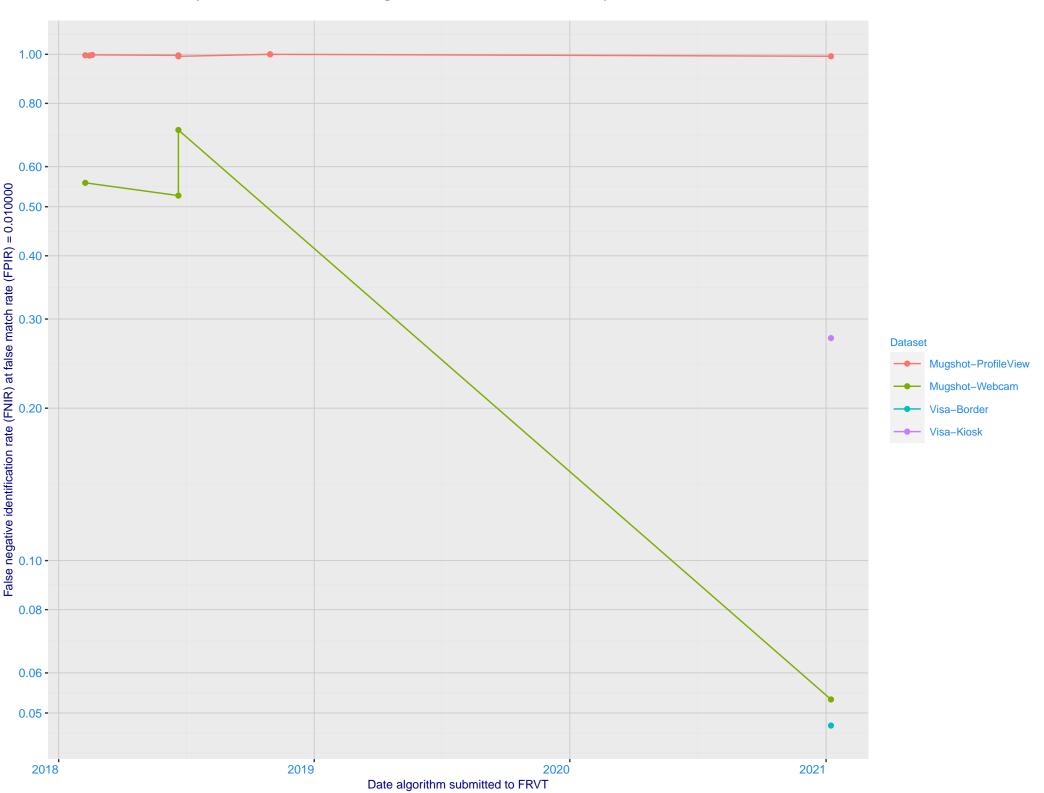
Mugshot profile ranking 116 (out of 196) -- FNIR(1600000, 0, 1) = 0.9206 vs. lowest 0.0591 from sensetime\_005

Identification:

Frontal mugshot ranking 200 (out of 265) -- FNIR(1600000, T, L+1) = 0.3446, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot profile ranking 176 (out of 195) -- FNIR(1600000, T, L+1) = 0.9999, FPIR=0.001000 vs. lowest 0.1331 from hr\_000



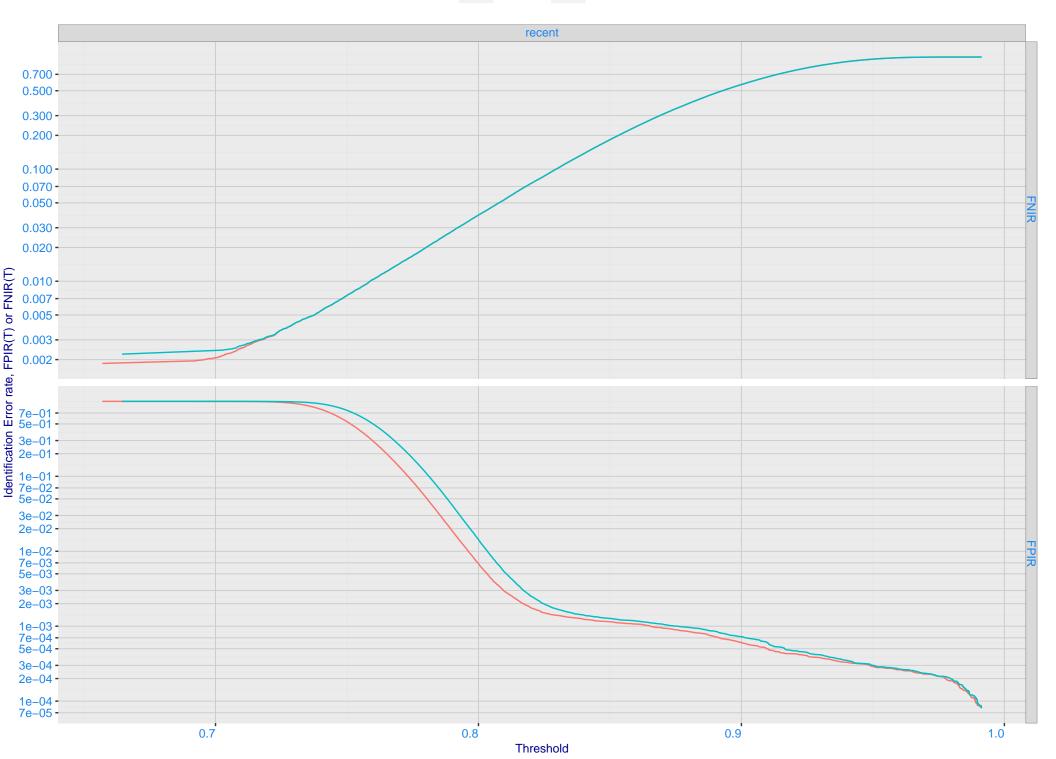


D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style 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 -

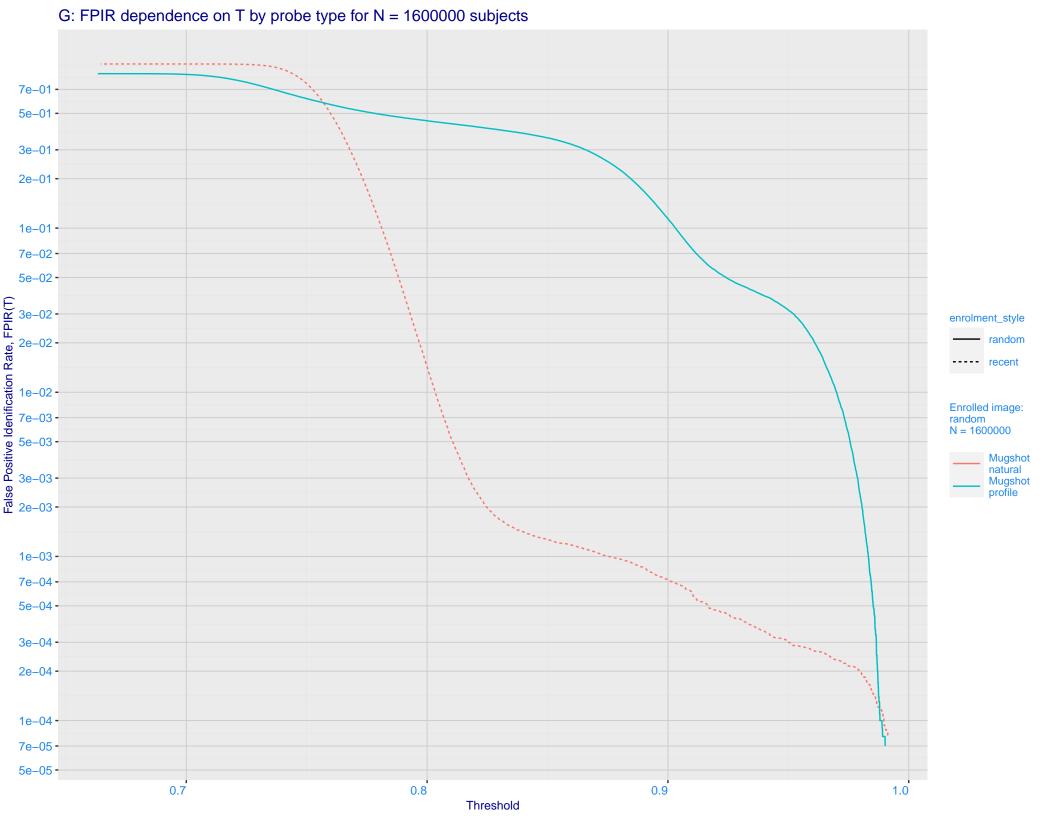
False positive identification rate, FPIR(T)

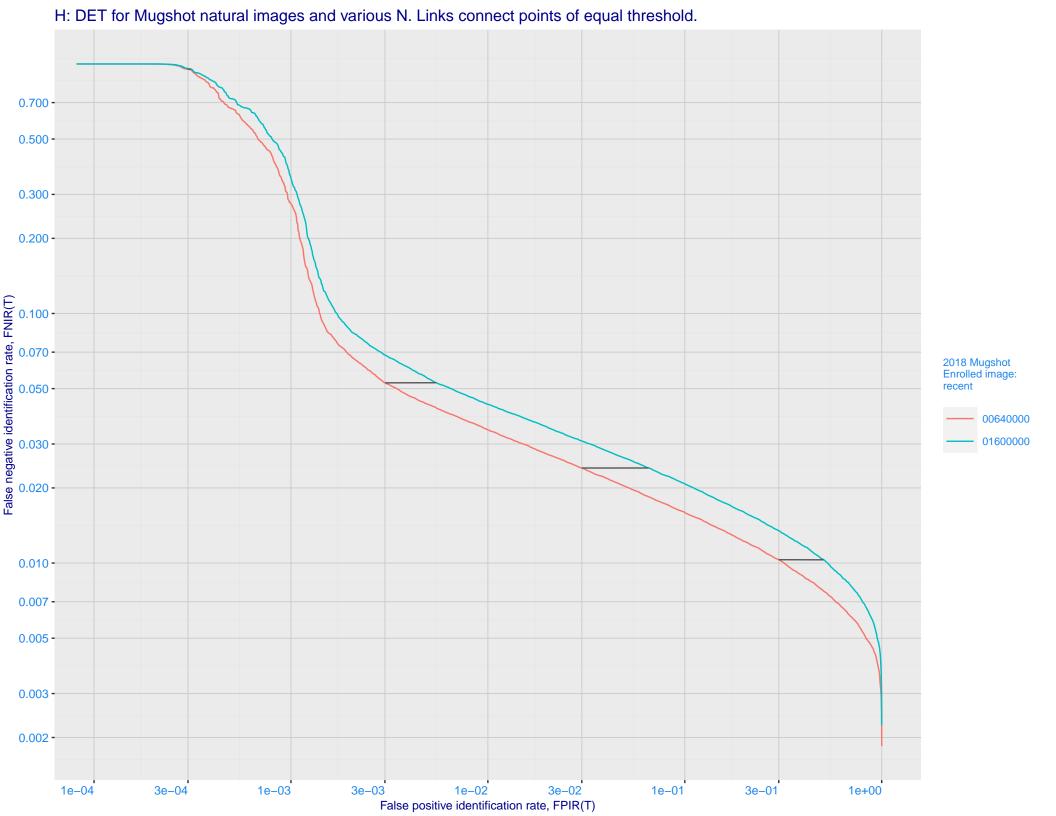
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



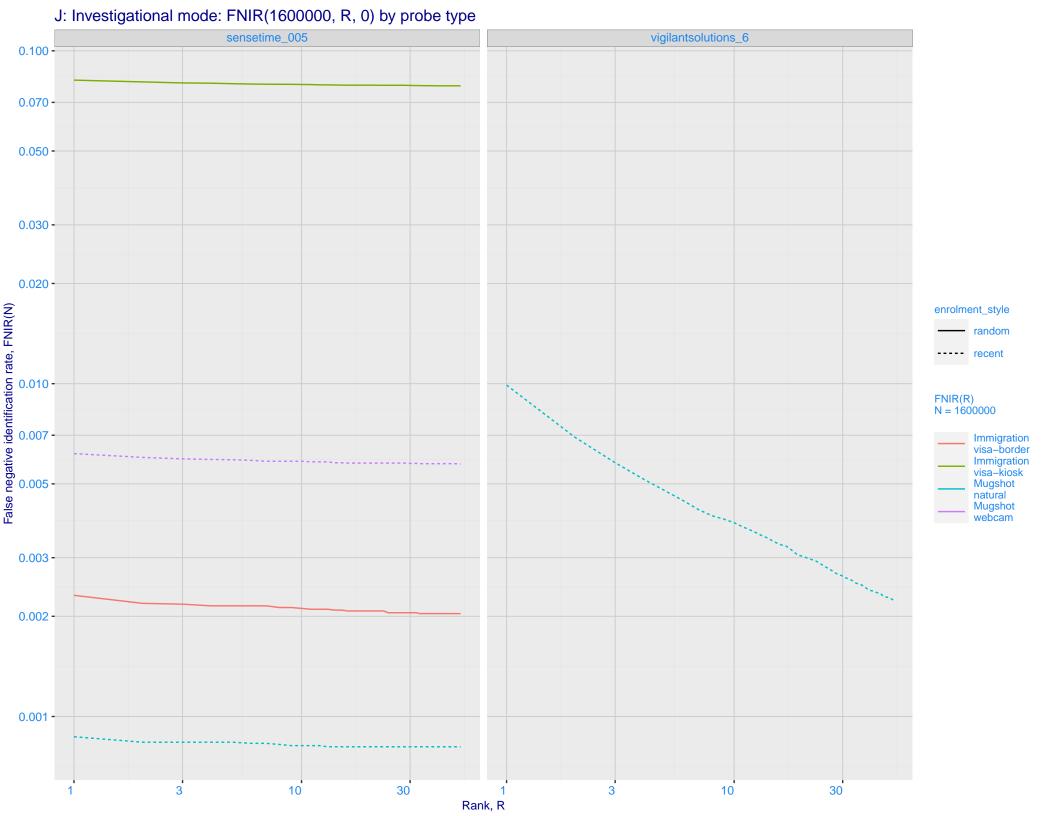


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -Selectivity, SEL(T) 5e-01 -5e-01 -3e-01 -2e-01 -Enrolled images: recent N = 1600000 Mugshot natural 1e-01 -7e-02 -5e-02 -3e-02 -2e-02 -1e-02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

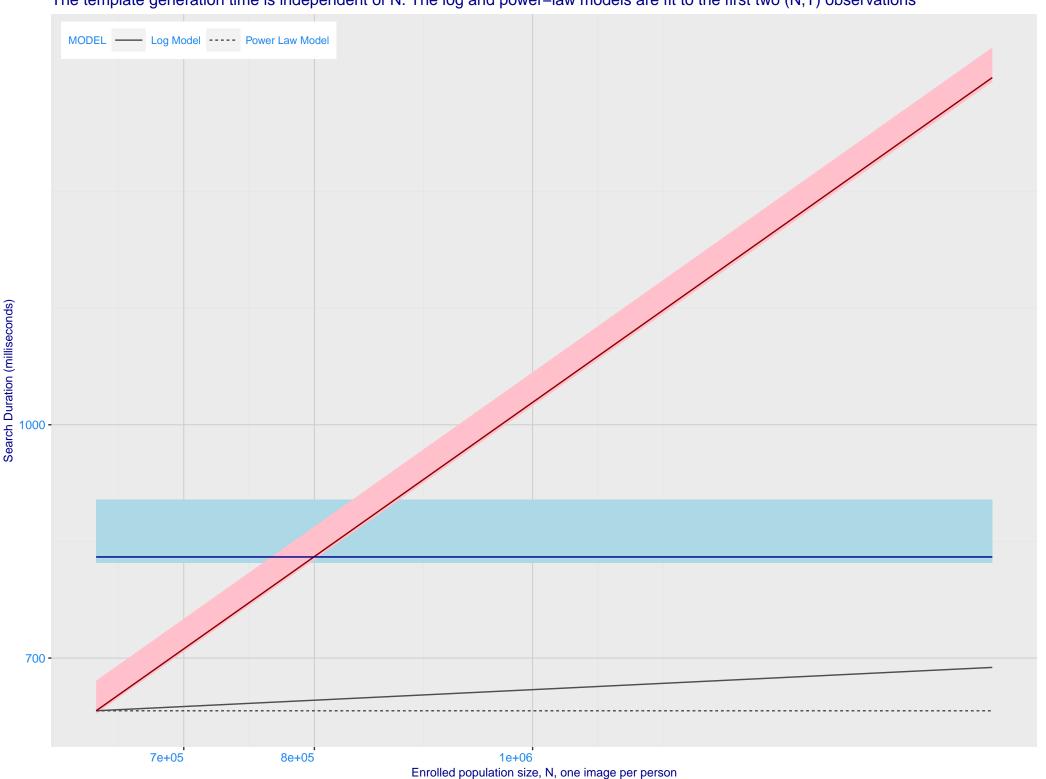




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Palse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. FNIR@Rank = 1 sensetime\_005 vigilantsolutions\_6 Mugshot webcam Mugshot natural enrolment\_style random ---- recent 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



