## A: Datasheet

Algorithm: vigilantsolutions\_1

Developer: Vigilant Solutions

Submission Date: 2018\_02\_14

Template size: 2056 bytes

Template time (2.5 percentile): 726 msec

Template time (median): 735 msec

Template time (97.5 percentile): 783 msec

Investigation:

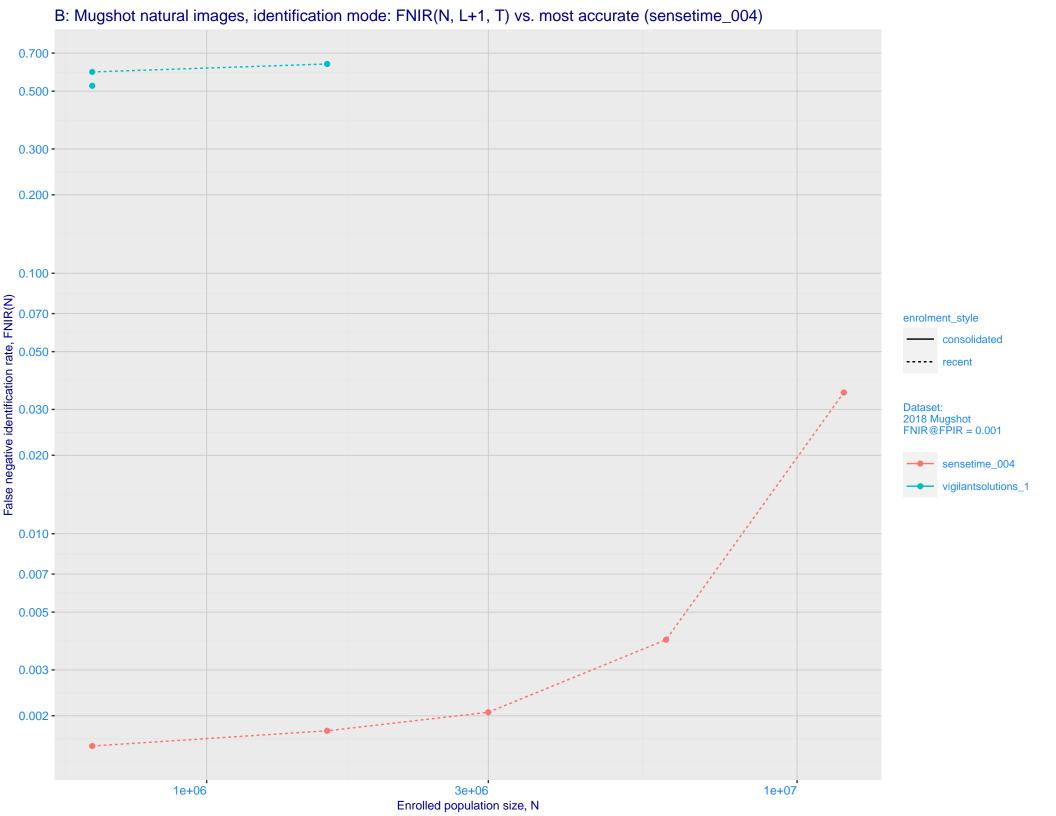
Frontal mugshot ranking 233 (out of 259) -- FNIR(1600000, 0, 1) = 0.2017 vs. lowest 0.0009 from sensetime\_005

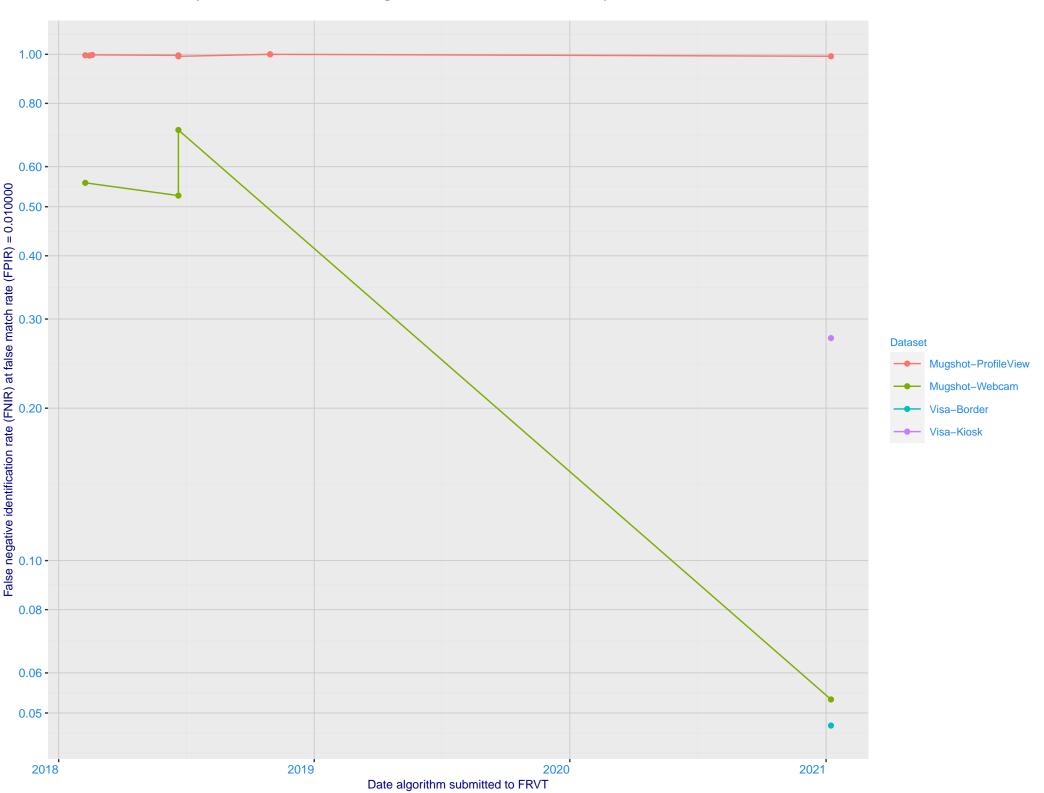
Mugshot profile ranking 169 (out of 190) -- FNIR(1600000, 0, 1) = 0.9748 vs. lowest 0.0591 from sensetime\_005

Identification:

Frontal mugshot ranking 227 (out of 259) -- FNIR(1600000, T, L+1) = 0.6359, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

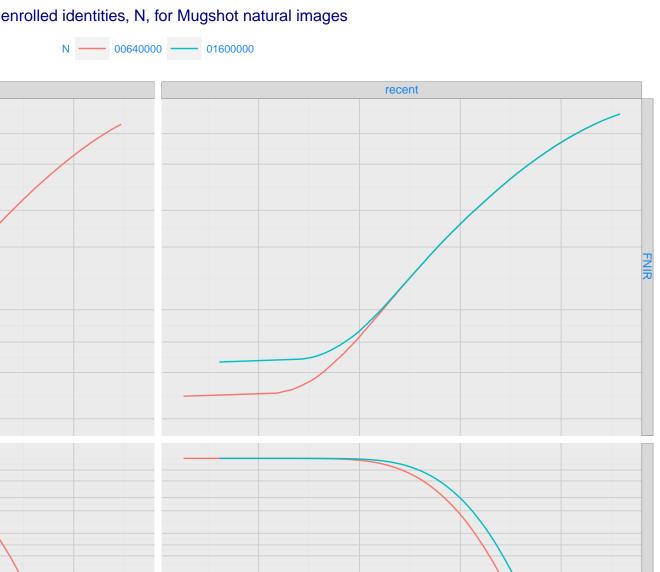
Mugshot profile ranking 148 (out of 189) -- FNIR(1600000, T, L+1) = 0.9997, FPIR=0.001000 vs. lowest 0.1733 from sensetime\_005

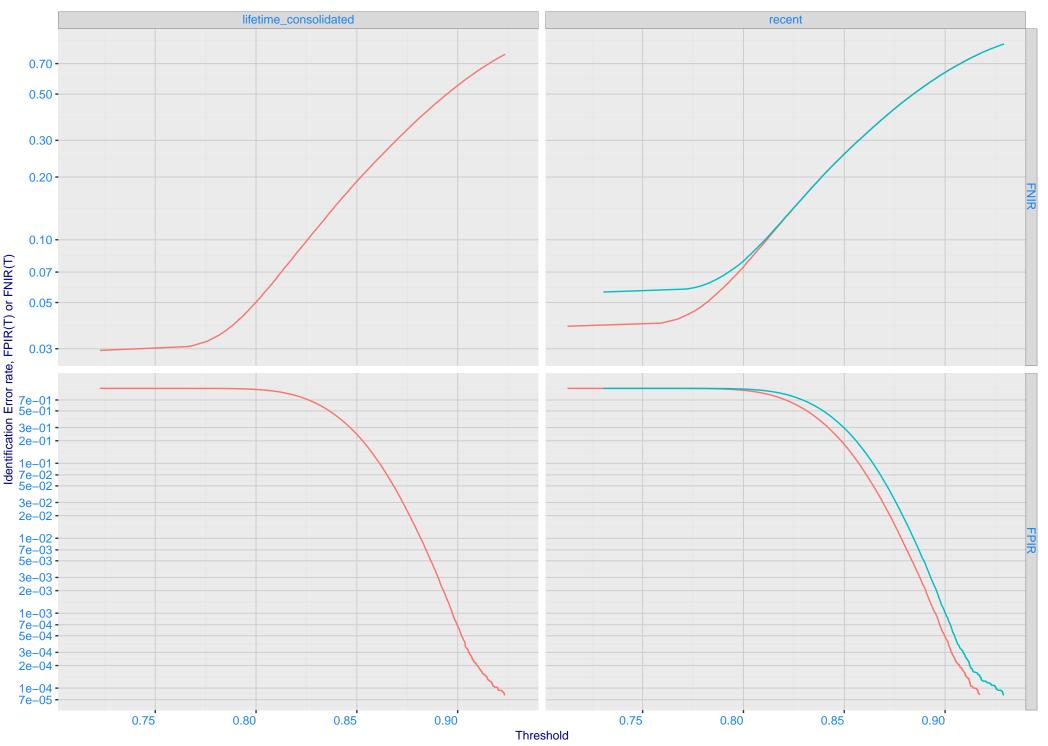




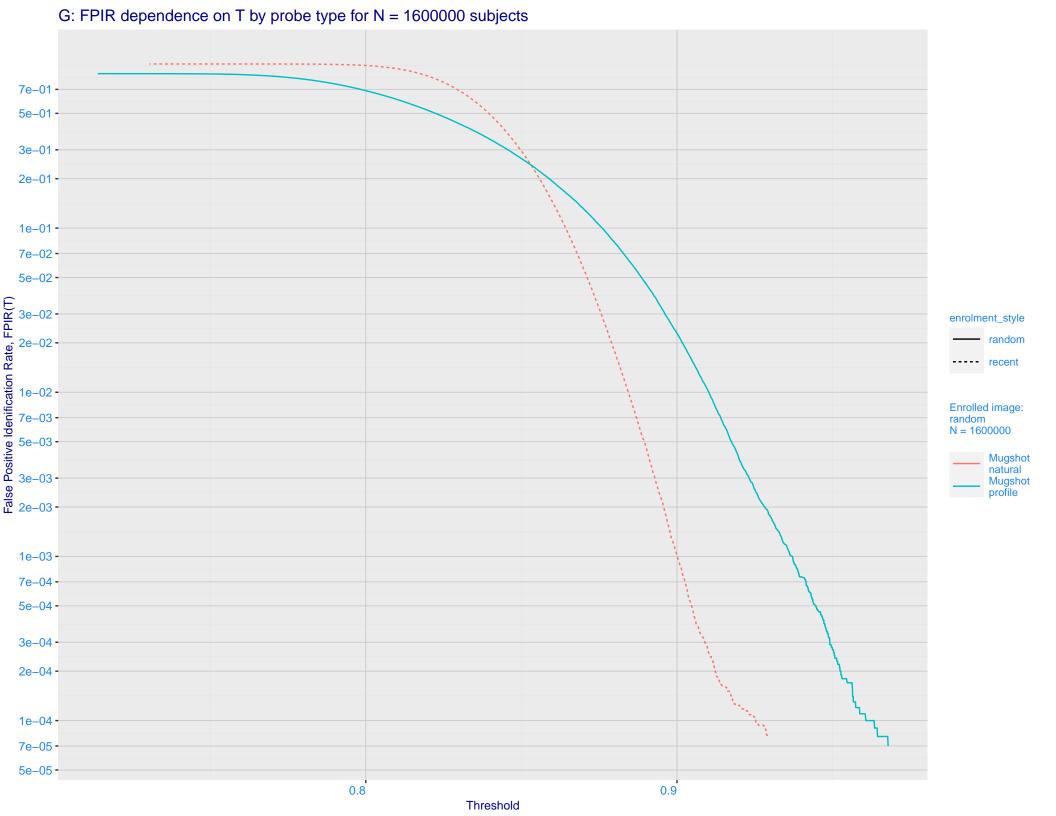
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.000 - 0.500 - 0.200 - 0. enrolment\_style random-ONE-MATE recent-ONE-MATE 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 - $1e^{-0.4}e^{-0.3}e^{-0.4}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.1}e^{-0.3}e^{-0.1}e^{-0.3}e^{-0.4}e^{-0.3}e^{$ False positive identification rate, FPIR(T)

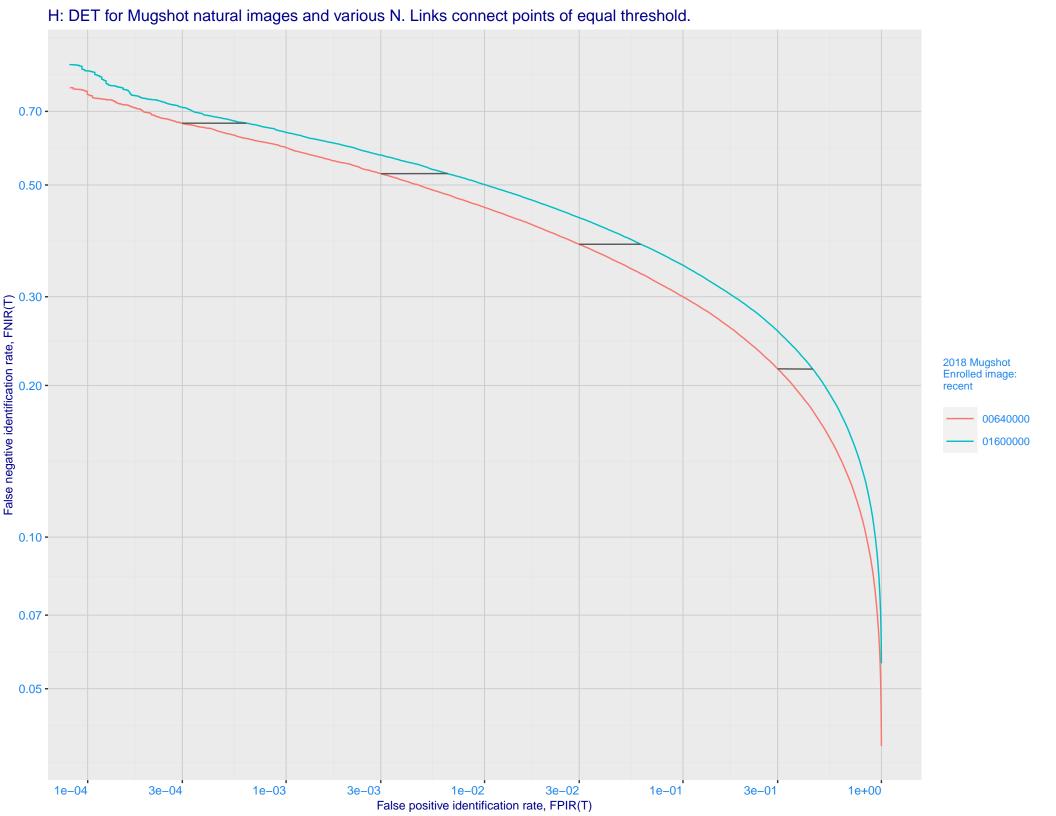
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



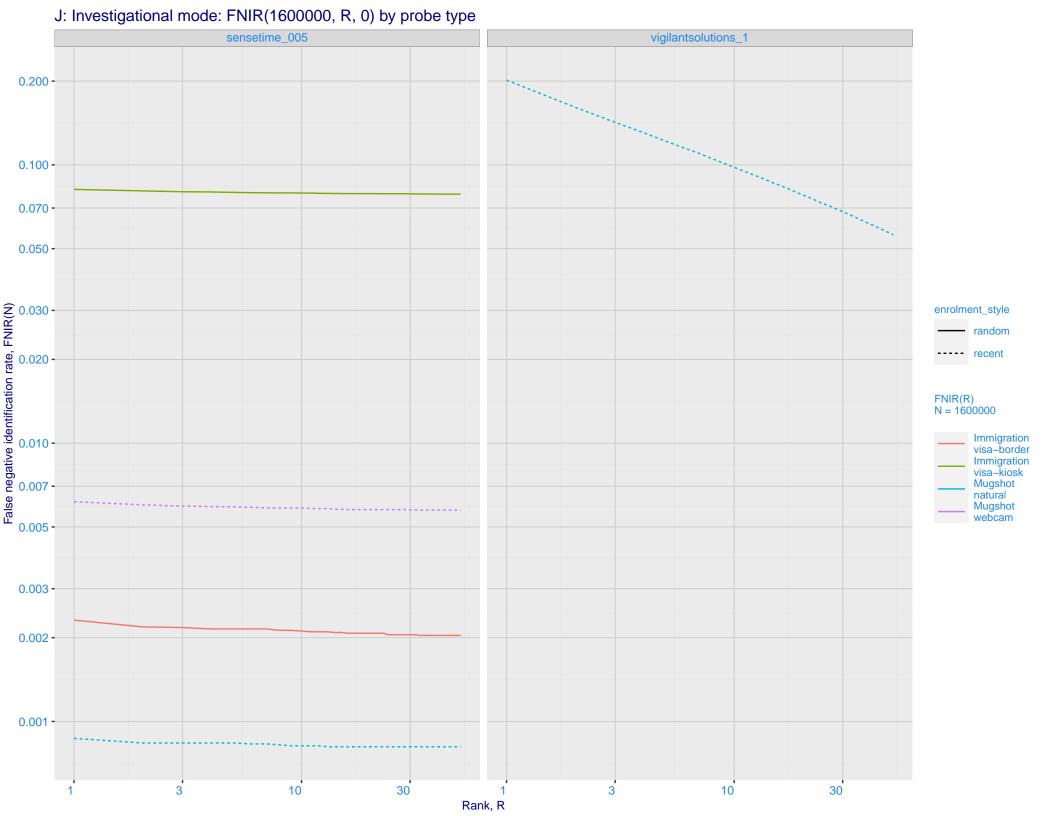


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -7e-01 - (L) 5e-01 - 5e-01 - 2e-01 - 2e Enrolled images: recent N = 1600000 natural 1e-01 -7e-02 -5e-02 -3e-02 -2e-02 -1e-02 -7e-03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

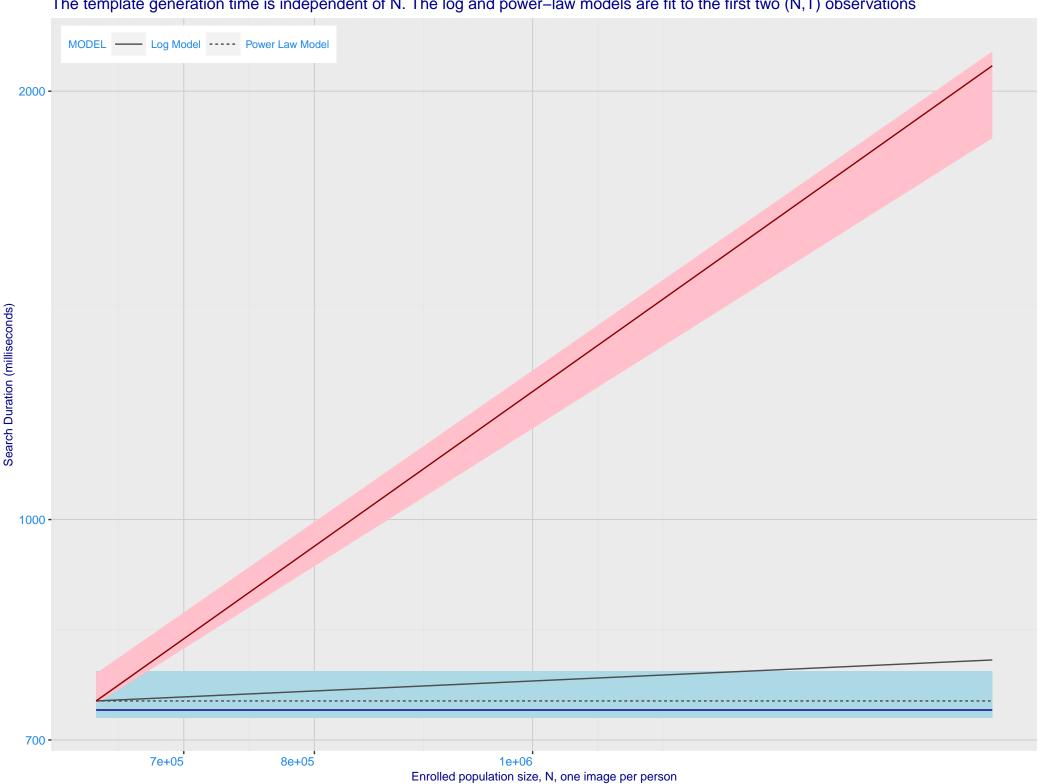




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.200 - 0.100 - 0.070 - 0.000 - 0. enrolment\_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 sensetime\_005 vigilantsolutions\_1 0.050 -0.030 -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



