A: Datasheet

Algorithm: scanovate_000

Developer: Scanovate Ltd

Submission Date: 2020_01_15

Template size: 2048 bytes

Template time (2.5 percentile): 669 msec

Template time (median): 705 msec

Template time (97.5 percentile): 778 msec

Investigation:

Frontal mugshot ranking 78 (out of 259) -- FNIR(1600000, 0, 1) = 0.0050 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 134 (out of 221) -- FNIR(1600000, 0, 1) = 0.0446 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 54 (out of 190) -- FNIR(1600000, 0, 1) = 0.5605 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 81 (out of 142) -- FNIR(1600000, 0, 1) = 0.0346 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 77 (out of 139) -- FNIR(1600000, 0, 1) = 0.2106 vs. lowest 0.0694 from cib_000

Identification:

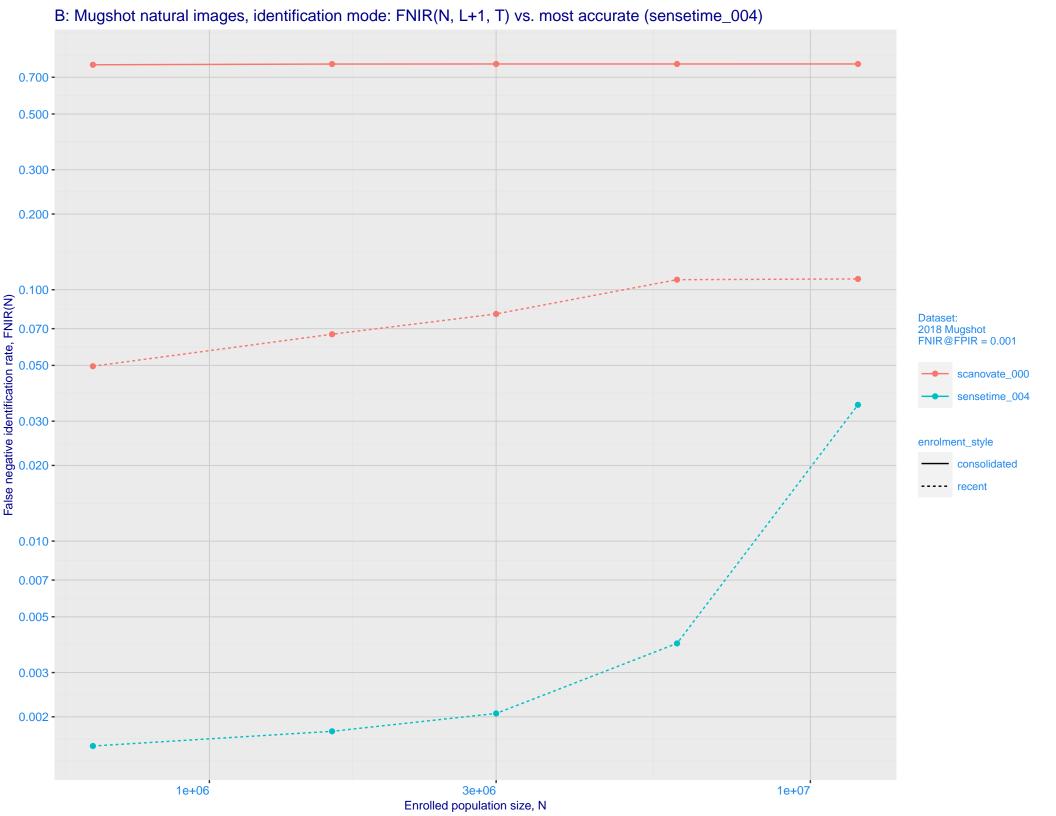
Frontal mugshot ranking 102 (out of 259) -- FNIR(1600000, T, L+1) = 0.0665, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 136 (out of 219) -- FNIR(1600000, T, L+1) = 0.2403, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

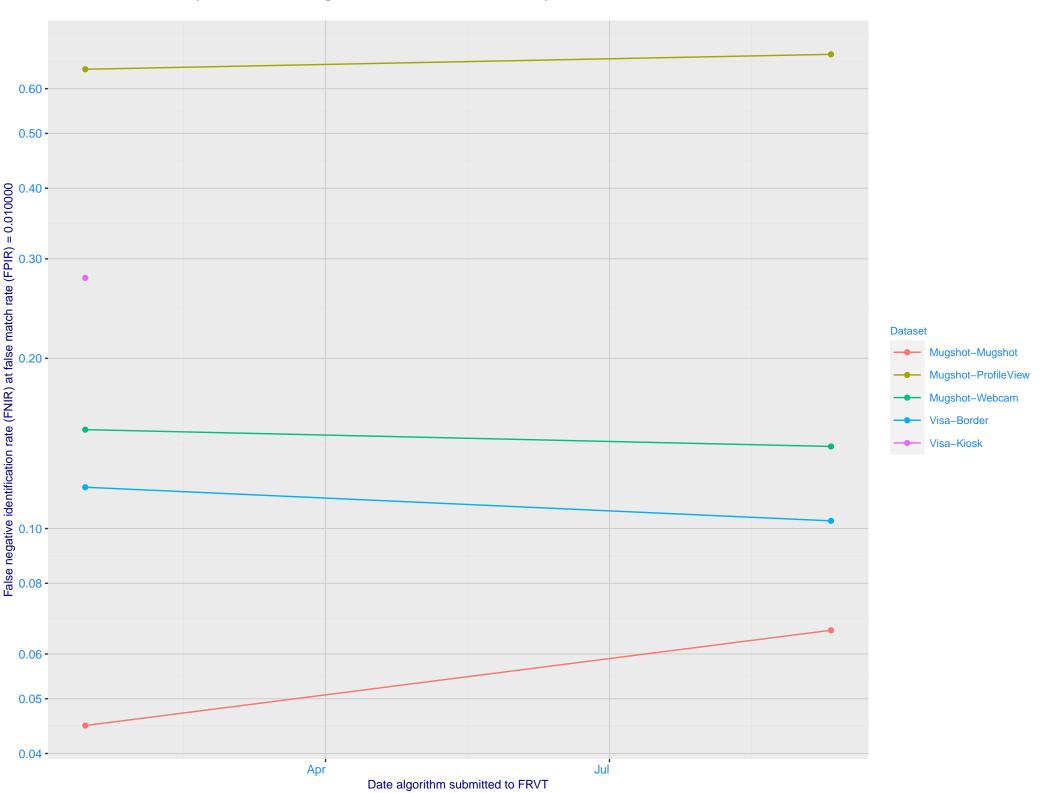
Mugshot profile ranking 27 (out of 189) -- FNIR(1600000, T, L+1) = 0.8928, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 82 (out of 139) -- FNIR(1600000, T, L+1) = 0.2152, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 50 (out of 134) -- FNIR(1600000, T, L+1) = 0.4044, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



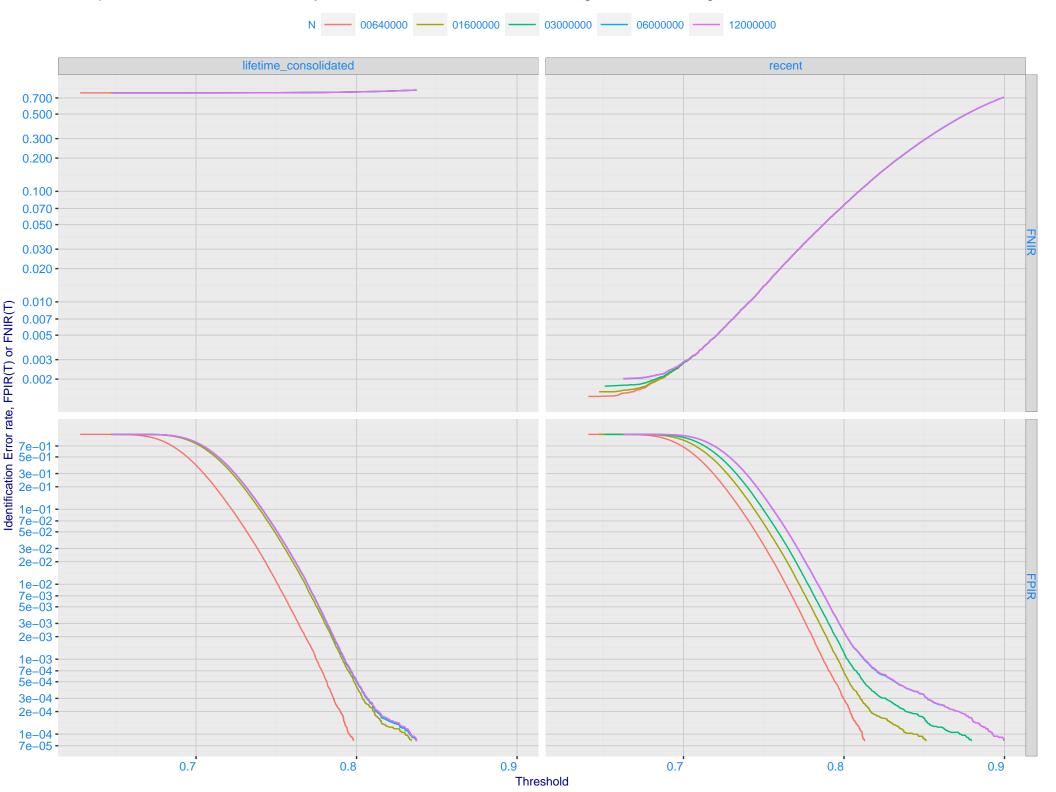
C: Evolution of accuracy for SCANOVATE algorithms on three datasets 2018 – present



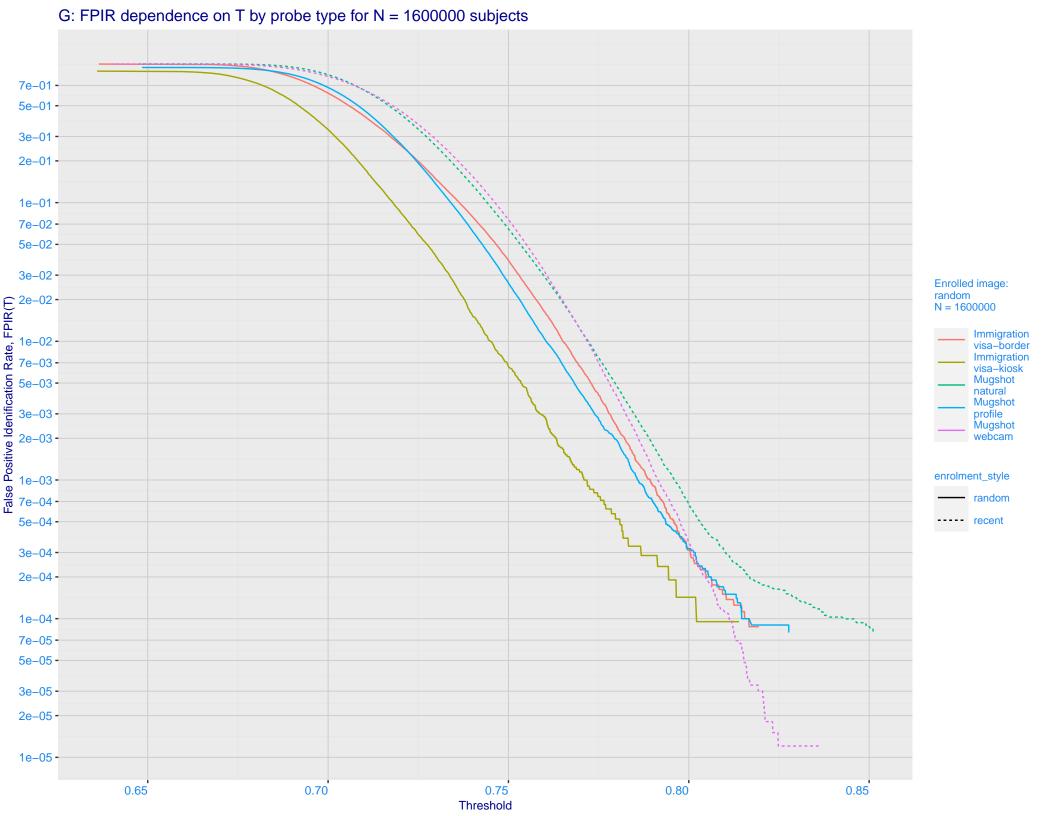
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.002 - 0.000 - 0.500 - 0.500 - 0.200 - 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 -

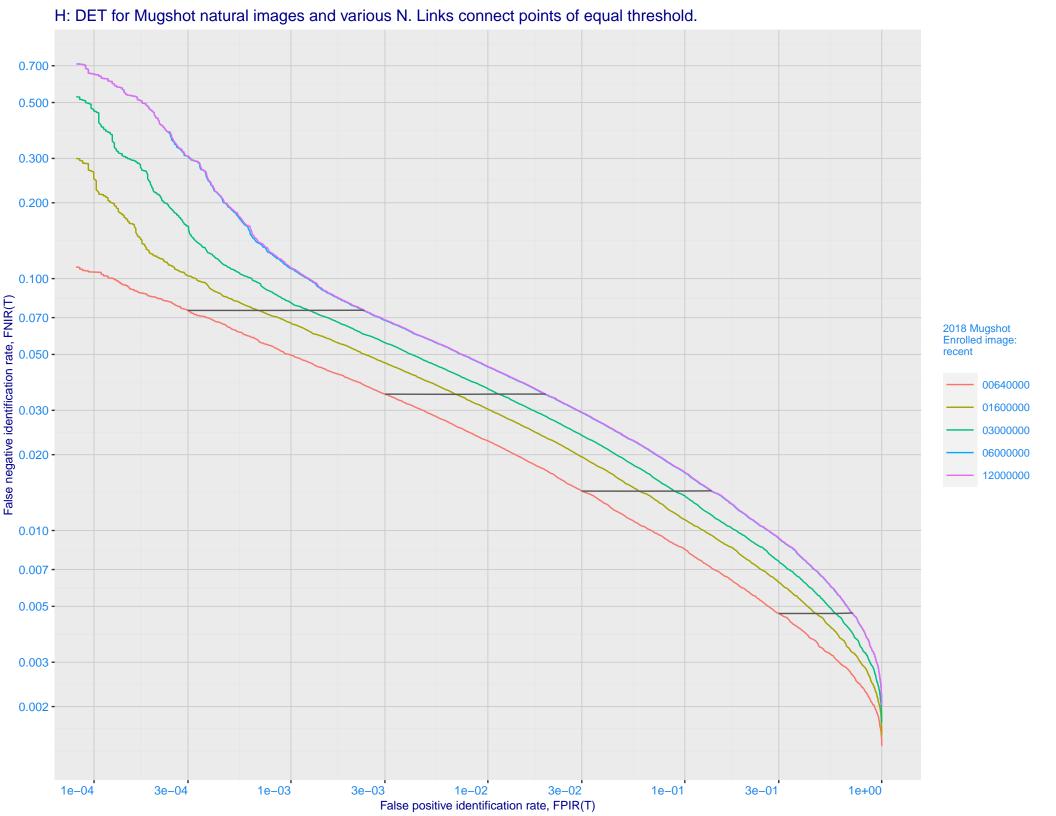
False positive identification rate, FPIR(T)

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 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 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 -3e-02 1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 1e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

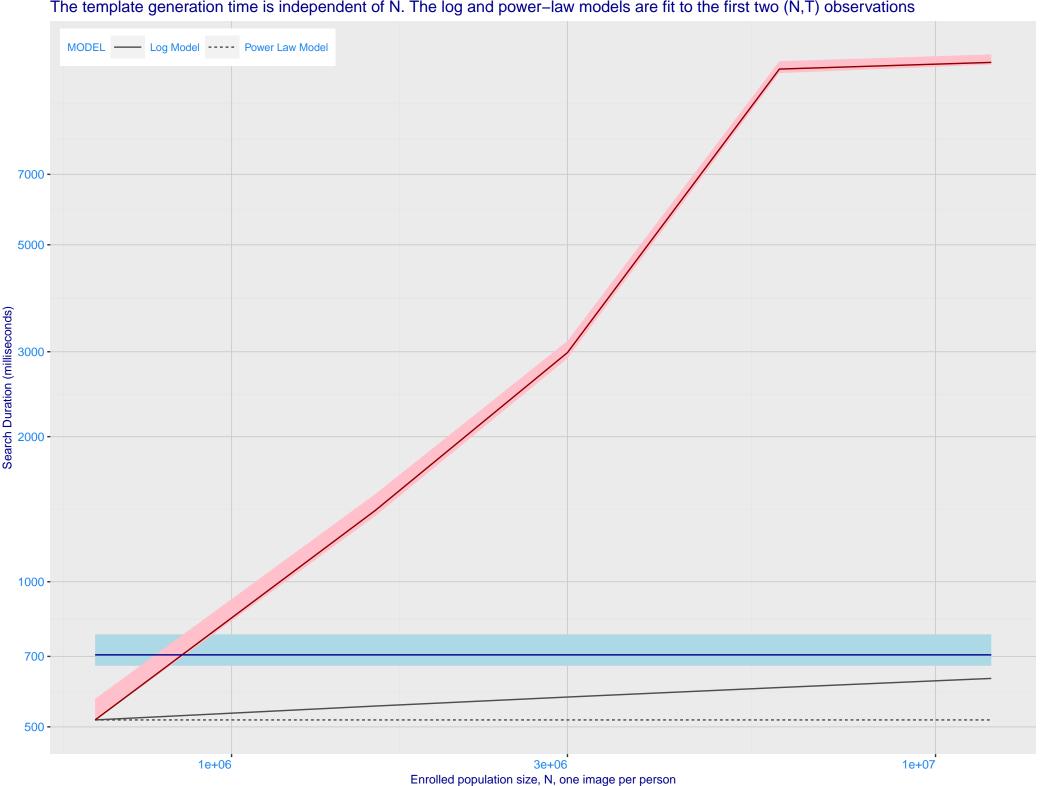




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.300 - 0.200 enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 scanovate_000 sensetime_005 0.100 -0.070 -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

J: Investigational mode: FNIR(1600000, R, 0) by probe type scanovate_000 sensetime_005 0.700 -0.500 -0.300 -0.200 -0.100 enrolment_style Ealse negative identification rate, FNIR(N) 0.000 - 0.000 - 0.000 - 0.010 - 0. lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.007 -0.005 -0.003 -0.002 -0.001 -10 30 10 30 Rank, R

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



