## 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 95 (out of 279) -- FNIR(1600000, 0, 1) = 0.0050 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 152 (out of 241) -- FNIR(1600000, 0, 1) = 0.0446 vs. lowest 0.0062 from sensetime\_005

Mugshot profile ranking 69 (out of 210) -- FNIR(1600000, 0, 1) = 0.5605 vs. lowest 0.0587 from xforwardai\_002

Immigration visa-border ranking 102 (out of 168) -- FNIR(1600000, 0, 1) = 0.0346 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 97 (out of 165) -- FNIR(1600000, 0, 1) = 0.2106 vs. lowest 0.0568 from cloudwalk\_hr\_000

Identification:

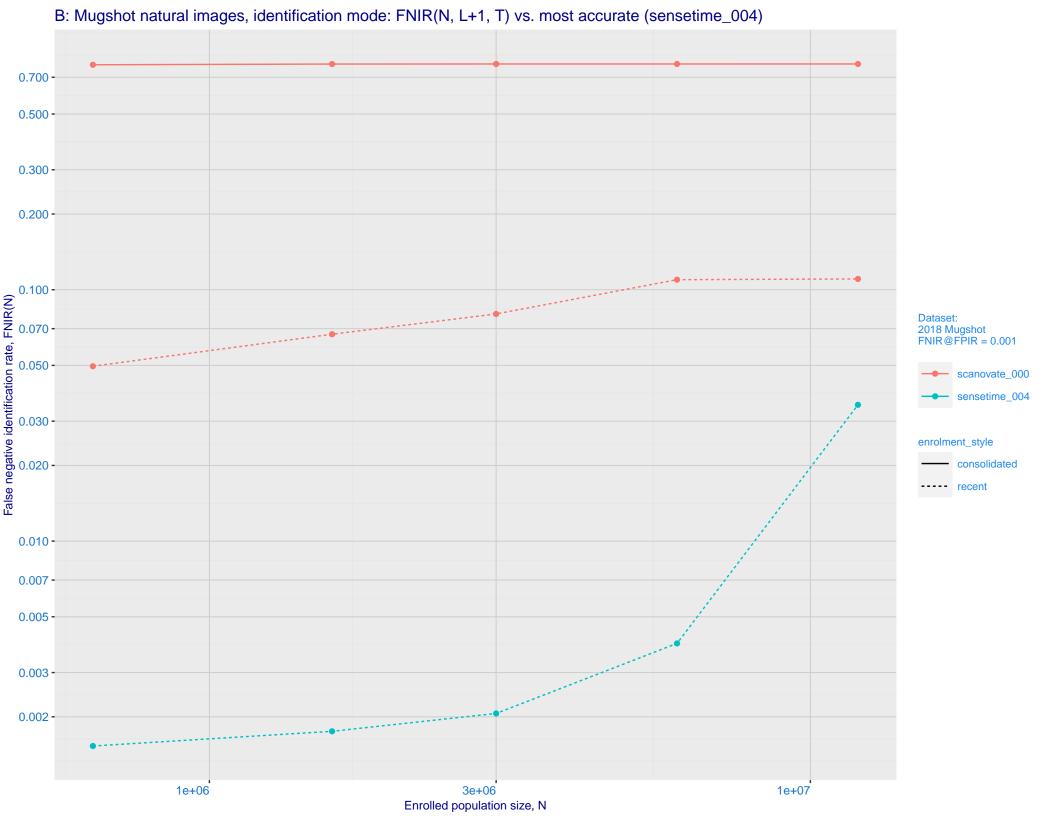
Frontal mugshot ranking 119 (out of 279) -- FNIR(1600000, T, L+1) = 0.0665, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 152 (out of 236) -- FNIR(1600000, T, L+1) = 0.2403, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

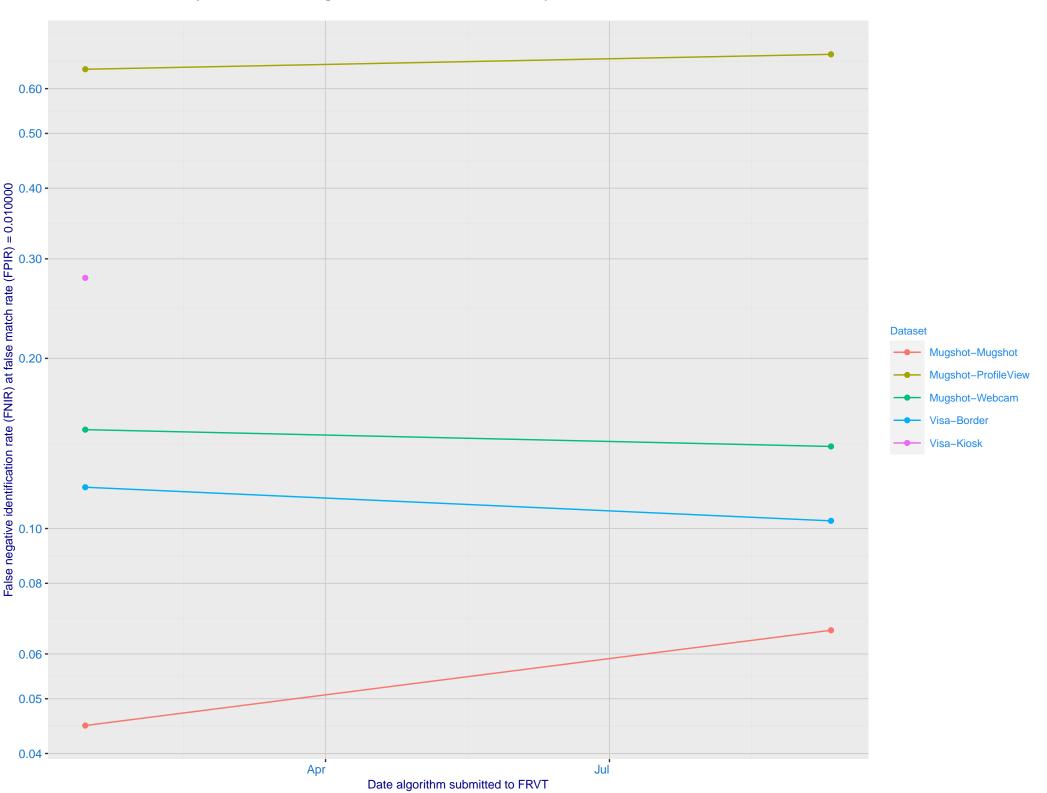
Mugshot profile ranking 34 (out of 209) — FNIR(1600000, T, L+1) = 0.8928, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

Immigration visa-border ranking 103 (out of 167) -- FNIR(1600000, T, L+1) = 0.2152, FPIR=0.001000 vs. lowest 0.0047 from idemia\_008

Immigration visa-kiosk ranking 62 (out of 162) — FNIR(1600000, T, L+1) = 0.4044, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk\_hr\_000



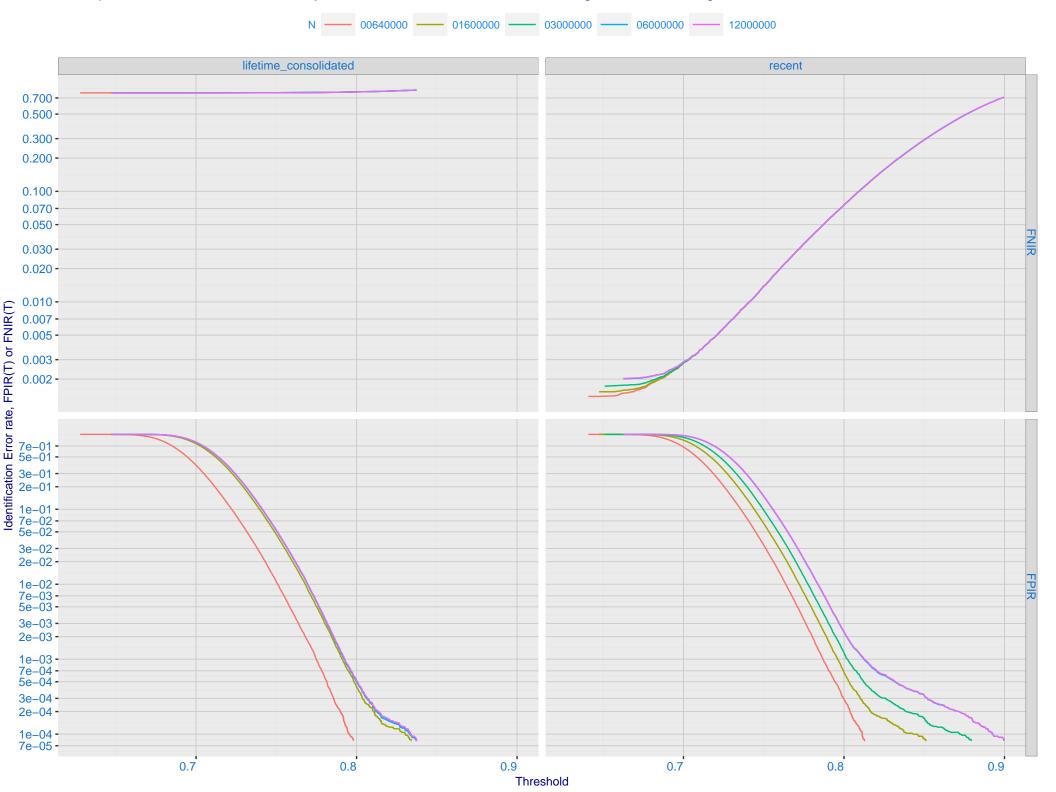
C: Evolution of accuracy for SCANOVATE algorithms on three datasets 2018 – present



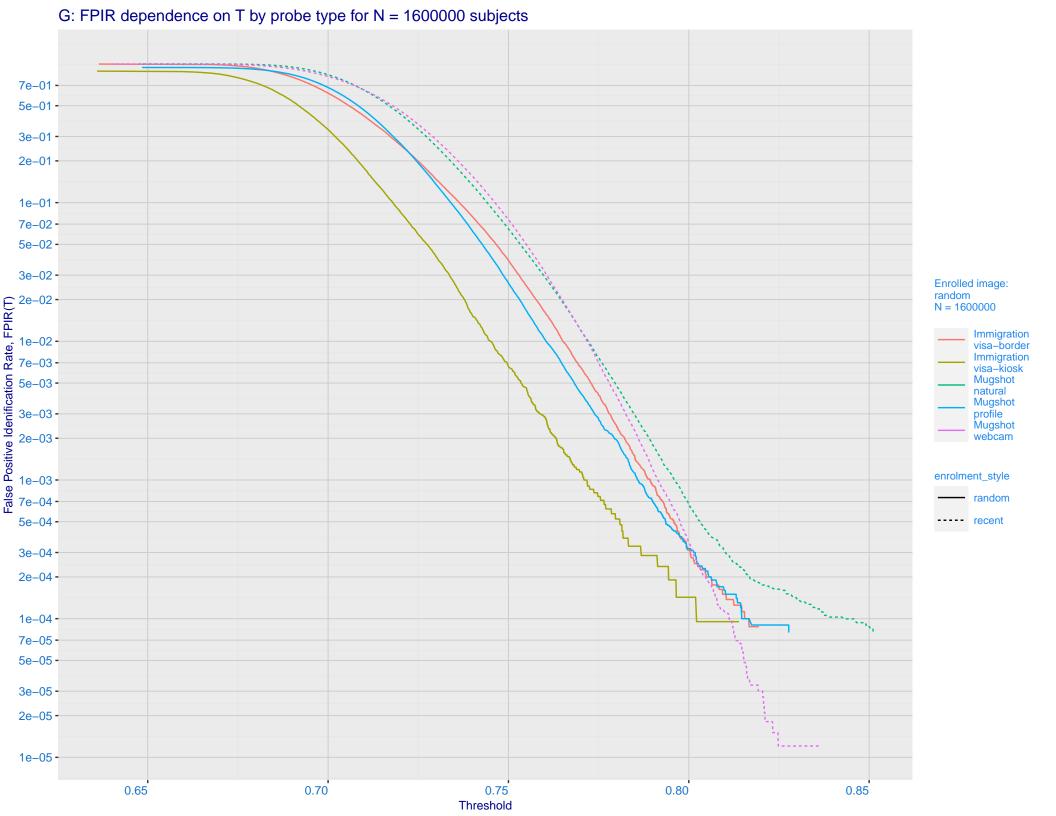
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 scanovate 000 0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.0001 - 0.500 - 0.200 enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 sensetime 004 0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

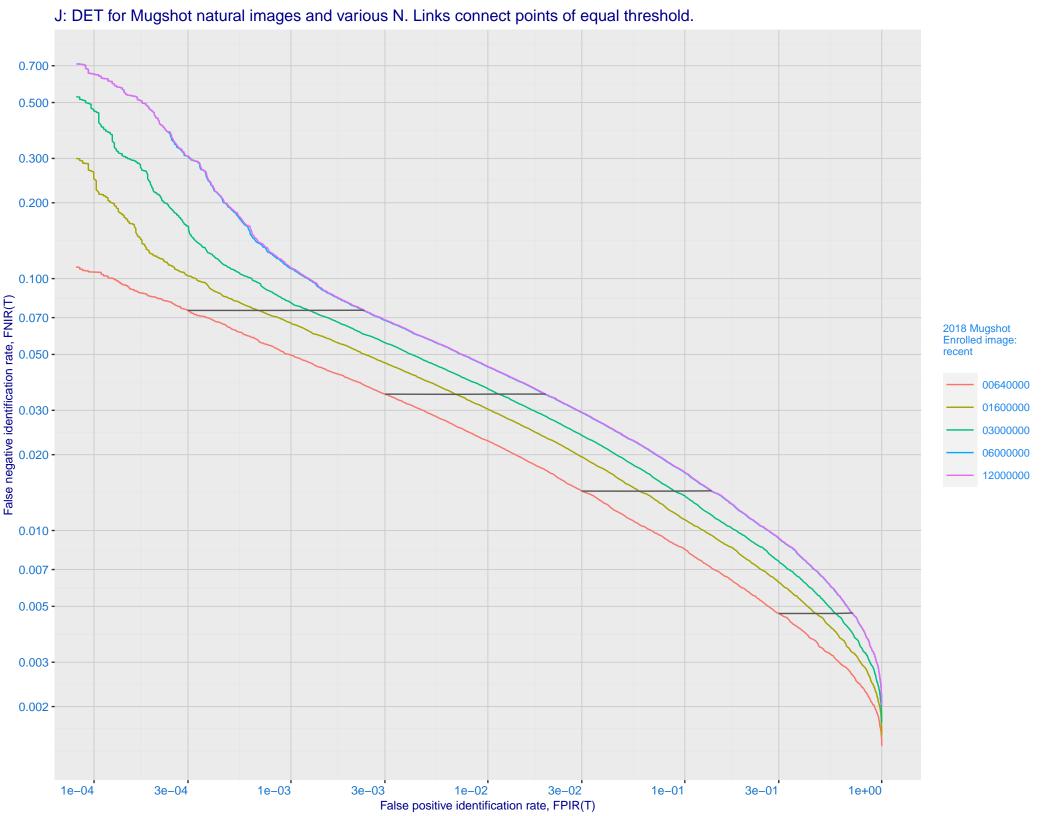
False positive identification rate, FPIR(T)

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

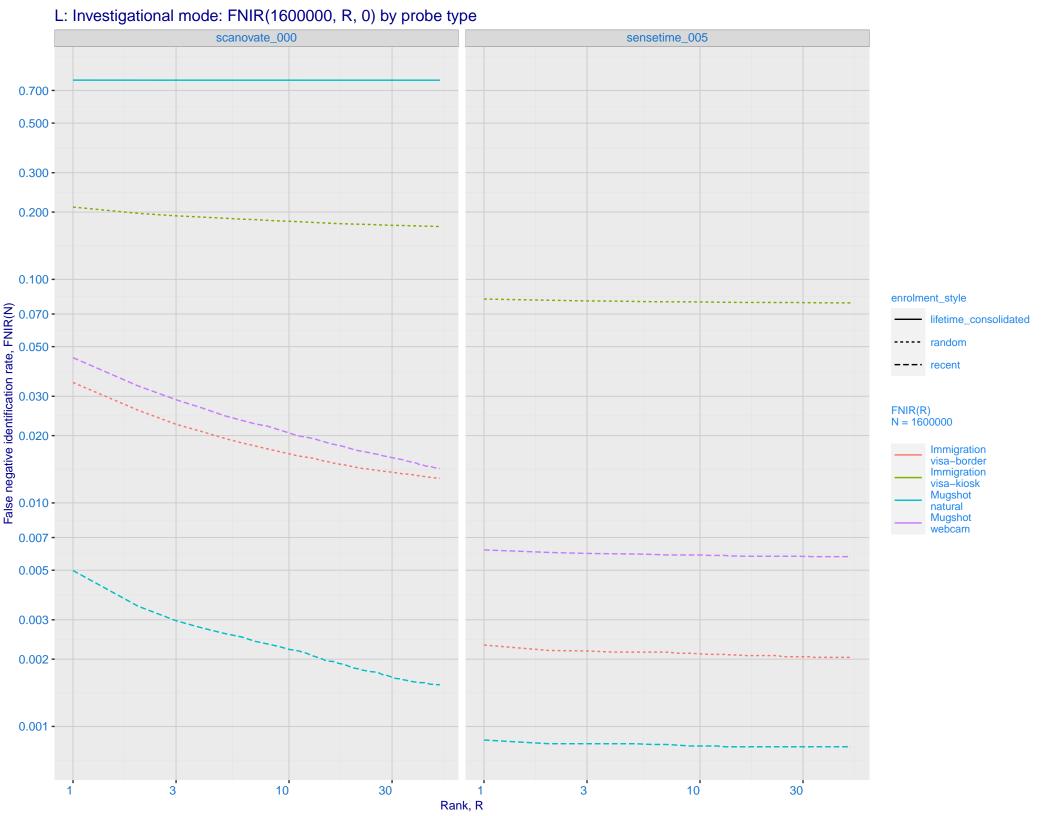


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 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 -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)

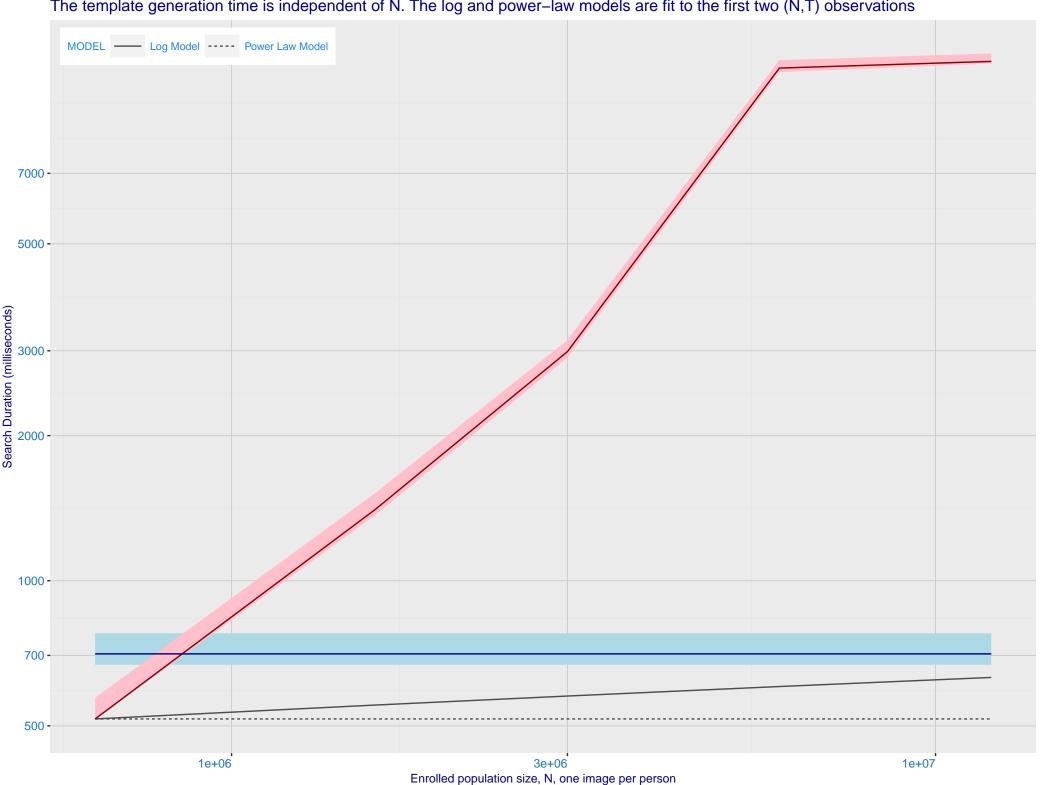




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam 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



M: 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



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



