A: Datasheet

Algorithm: aware_5

Developer: Aware

Submission Date: 2018_10_30

Template size: 3100 bytes

Template time (2.5 percentile): 765 msec

Template time (median): 793 msec

Template time (97.5 percentile): 1280 msec

Investigation:

Frontal mugshot ranking 175 (out of 259) -- FNIR(1600000, 0, 1) = 0.0311 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 155 (out of 221) -- FNIR(1600000, 0, 1) = 0.0671 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 174 (out of 190) — FNIR(1600000, 0, 1) = 0.9780 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 87 (out of 142) -- FNIR(1600000, 0, 1) = 0.0481 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 96 (out of 139) -- FNIR(1600000, 0, 1) = 0.3081 vs. lowest 0.0694 from cib_000

Identification:

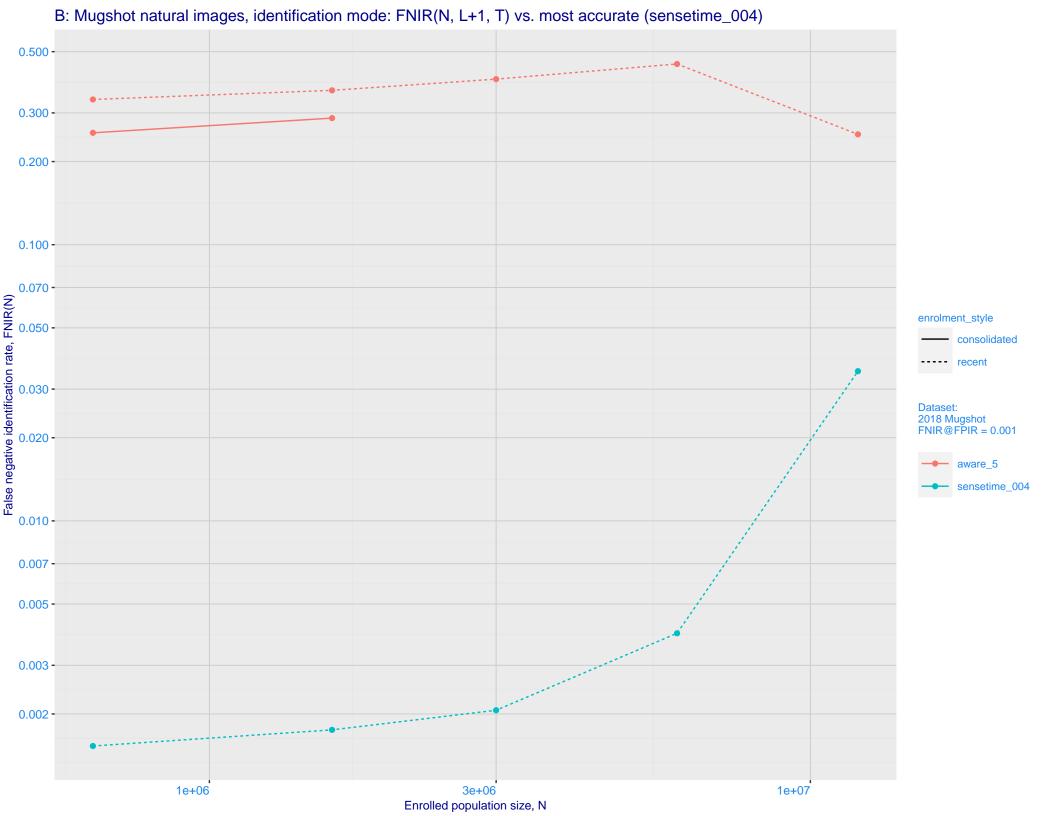
Frontal mugshot ranking 197 (out of 259) -- FNIR(1600000, T, L+1) = 0.3622, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 138 (out of 219) -- FNIR(1600000, T, L+1) = 0.2531, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

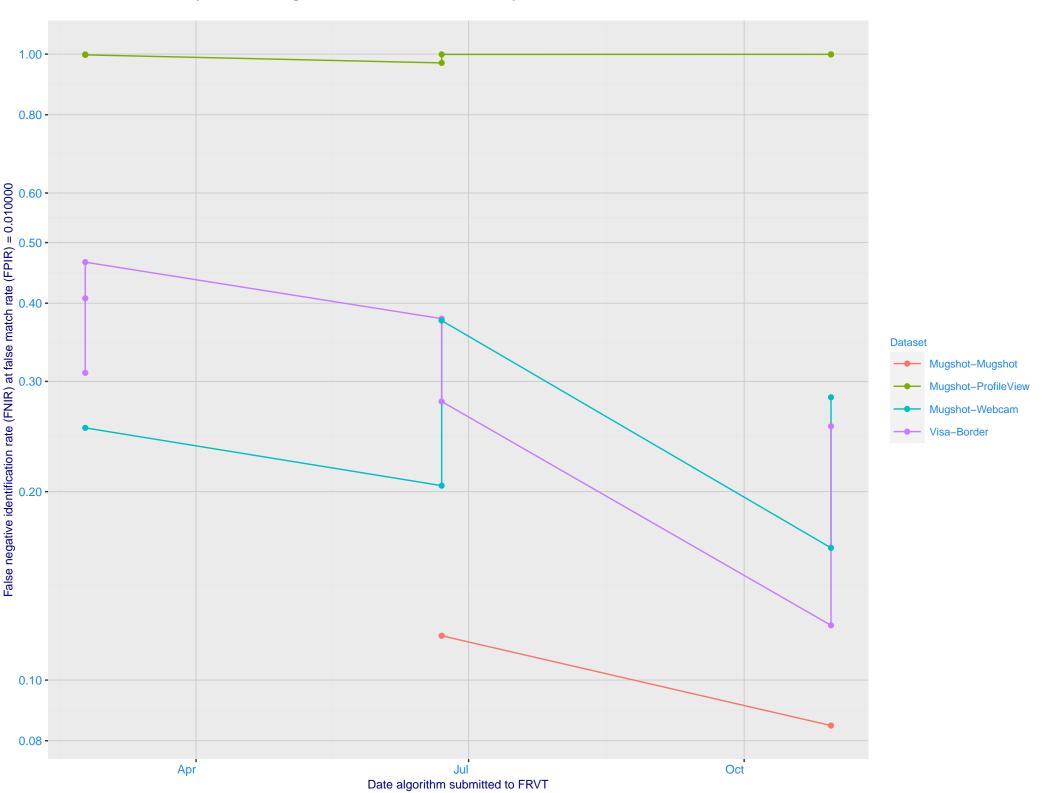
Mugshot profile ranking 151 (out of 189) -- FNIR(1600000, T, L+1) = 0.9997, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 84 (out of 139) -- FNIR(1600000, T, L+1) = 0.2549, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 99 (out of 134) -- FNIR(1600000, T, L+1) = 0.9202, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



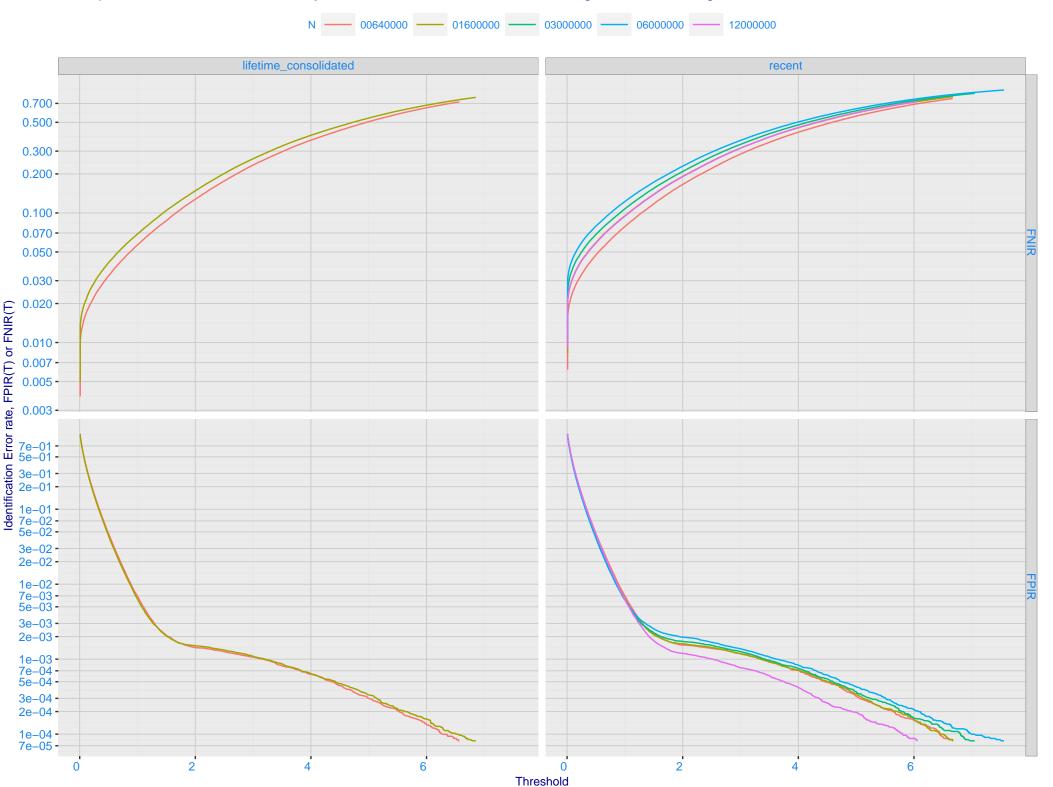
C: Evolution of accuracy for AWARE algorithms on three datasets 2018 – present



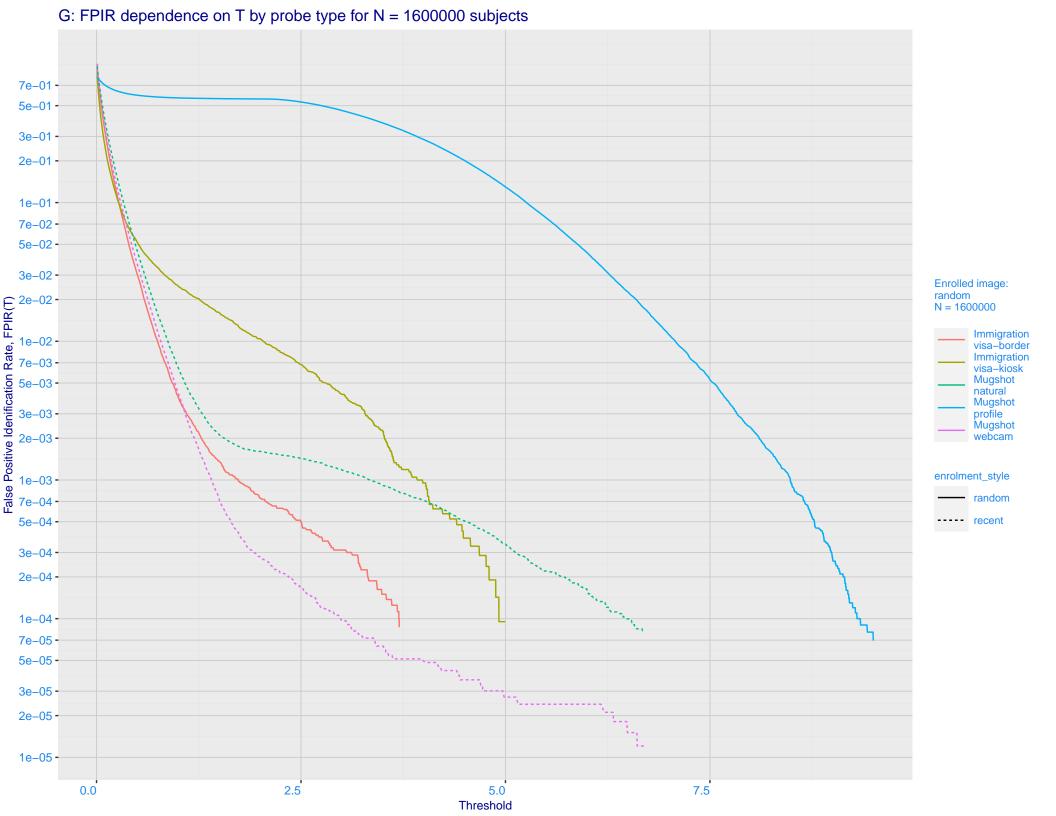
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

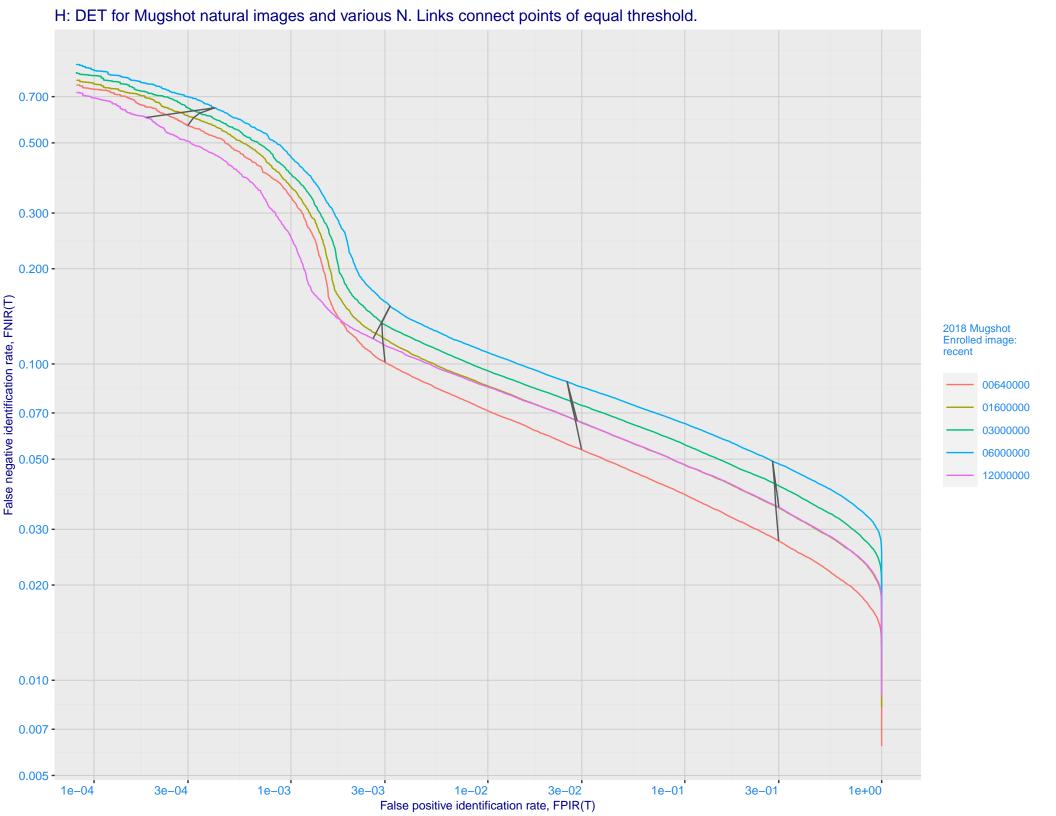
False positive identification rate, FPIR(T)

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

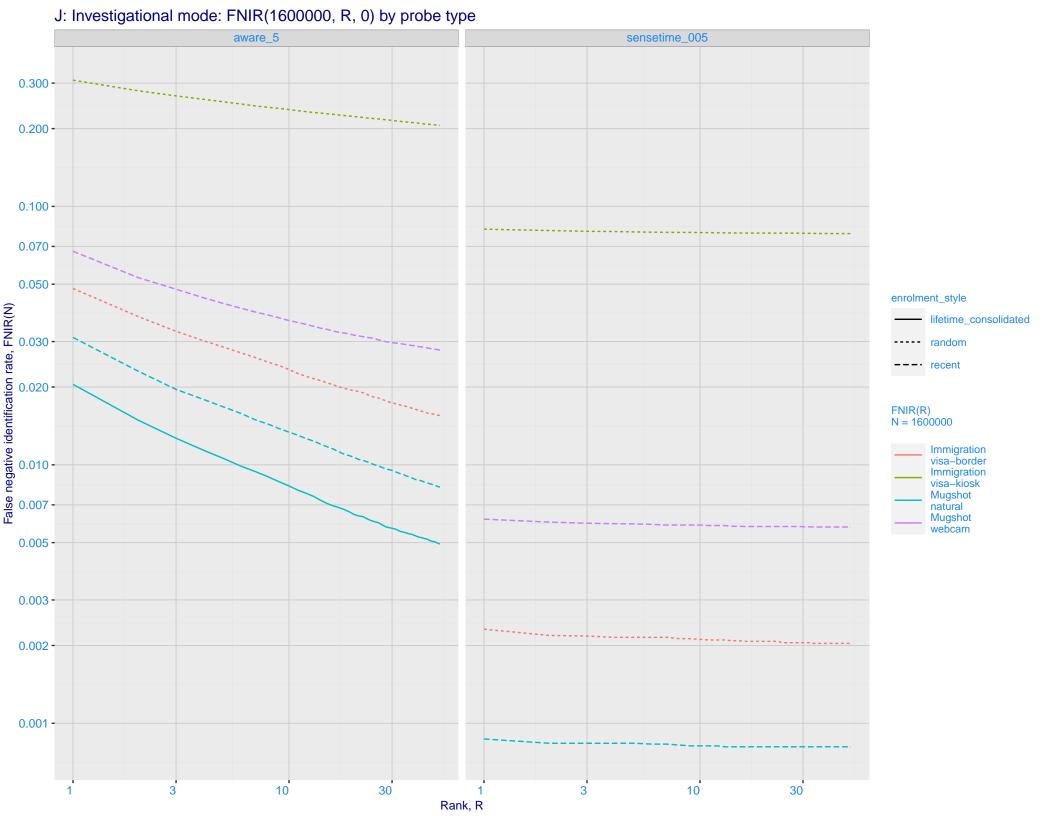


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 - 7e-02 **Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 1e-02 -7e-03 -5e-03 -3e-03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

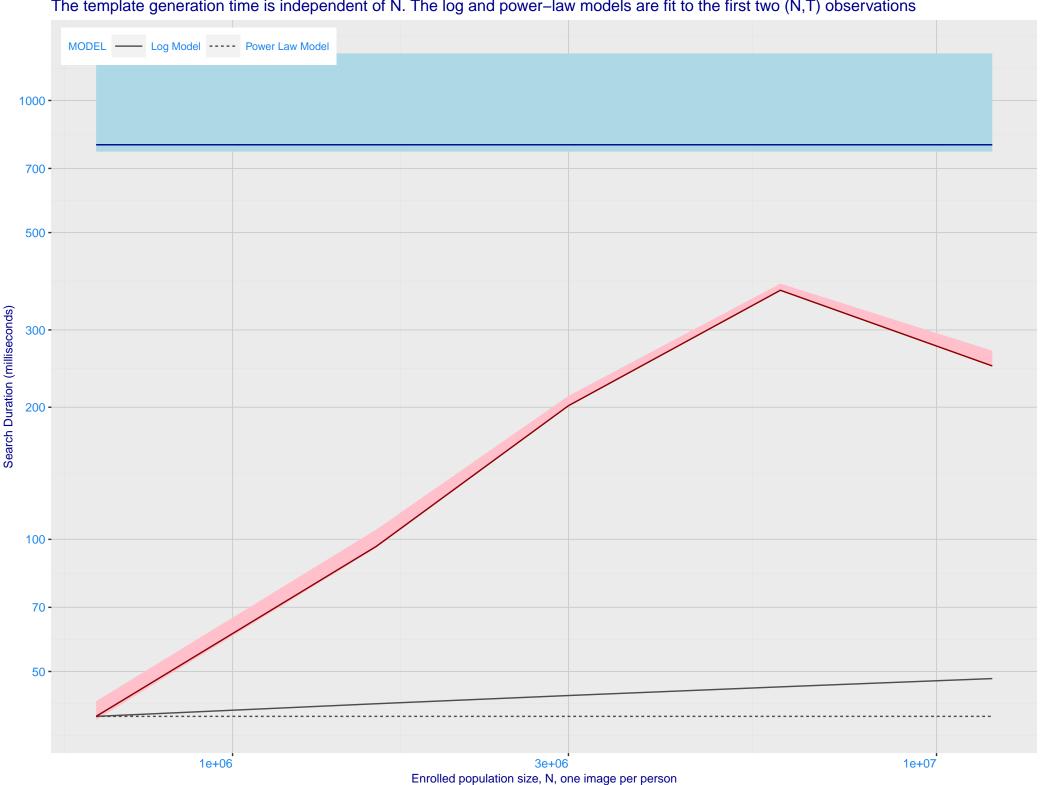




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.001 - 0.300 - 0.100 - 0.070 - 0. FNIR@Rank = 1 aware_5 sensetime_005 Mugshot Mugshot webcam natural enrolment_style consolidated ---- random --- recent 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



