A: Datasheet

Algorithm: aware_6

Developer: Aware

Submission Date: 2018_10_30

Template size: 124 bytes

Template time (2.5 percentile): 764 msec

Template time (median): 789 msec

Template time (97.5 percentile): 1280 msec

Investigation:

Frontal mugshot ranking 207 (out of 259) -- FNIR(1600000, 0, 1) = 0.0697 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 178 (out of 221) -- FNIR(1600000, 0, 1) = 0.1283 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 177 (out of 190) — FNIR(1600000, 0, 1) = 0.9832 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 99 (out of 142) -- FNIR(1600000, 0, 1) = 0.1111 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 107 (out of 139) -- FNIR(1600000, 0, 1) = 0.4208 vs. lowest 0.0694 from cib_000

Identification:

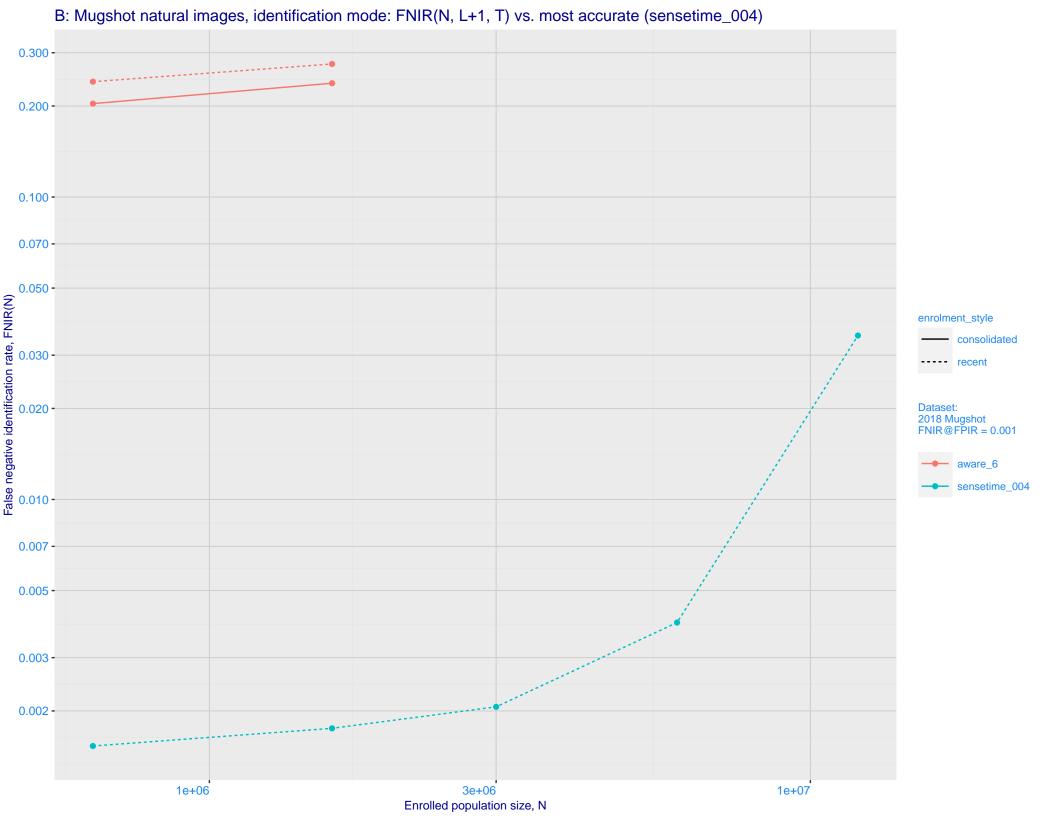
Frontal mugshot ranking 185 (out of 259) -- FNIR(1600000, T, L+1) = 0.2754, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 166 (out of 219) -- FNIR(1600000, T, L+1) = 0.3983, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

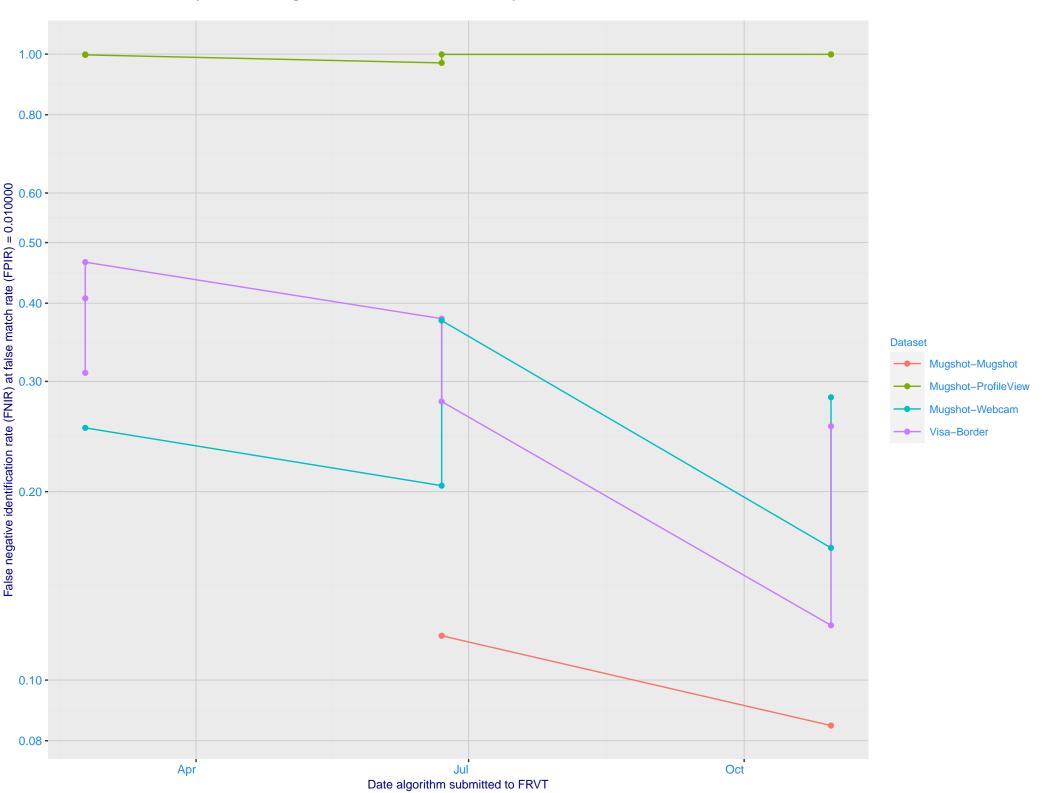
Mugshot profile ranking 140 (out of 189) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 89 (out of 139) -- FNIR(1600000, T, L+1) = 0.3680, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 77 (out of 134) -- FNIR(1600000, T, L+1) = 0.7488, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



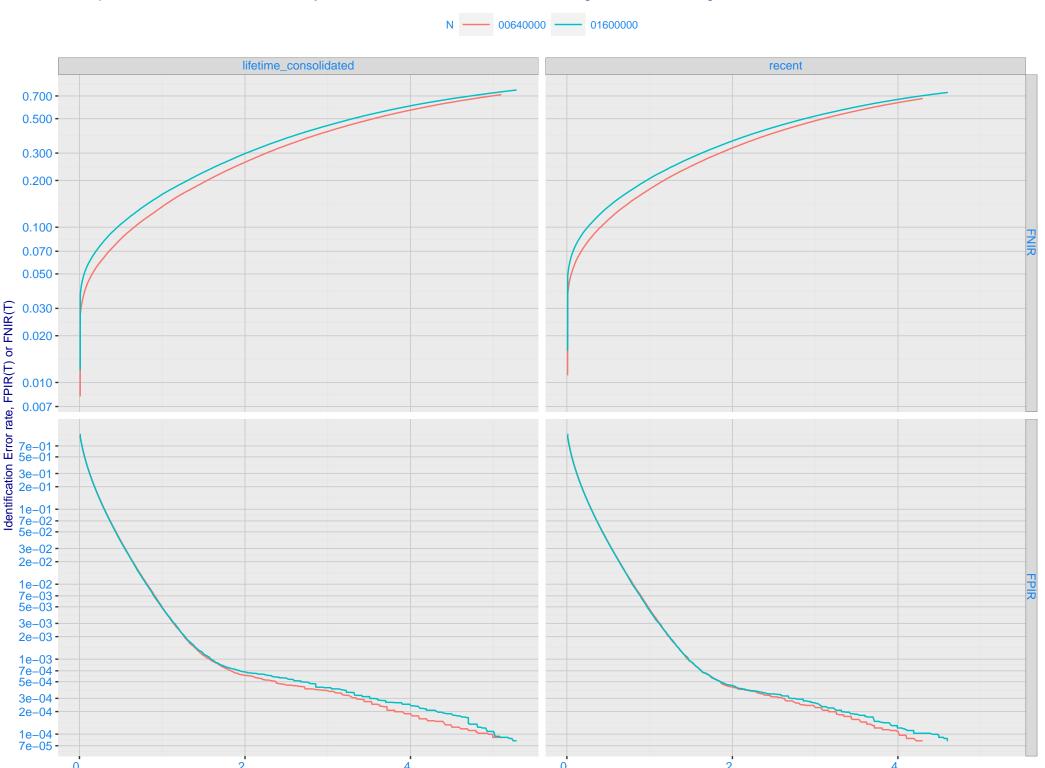
C: Evolution of accuracy for AWARE algorithms on three datasets 2018 – present



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 -Ealse negative identification rate, FNIR(T) 0.003 - 0.002 - 0.001 - 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 -

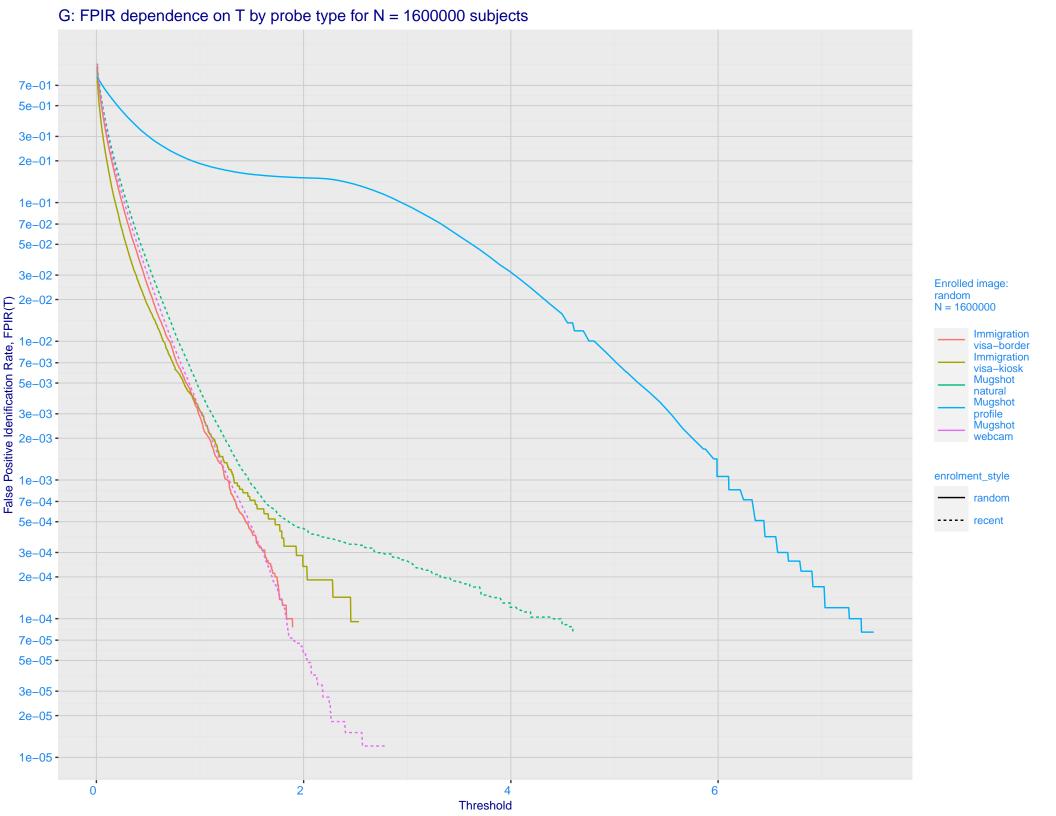
False positive identification rate, FPIR(T)

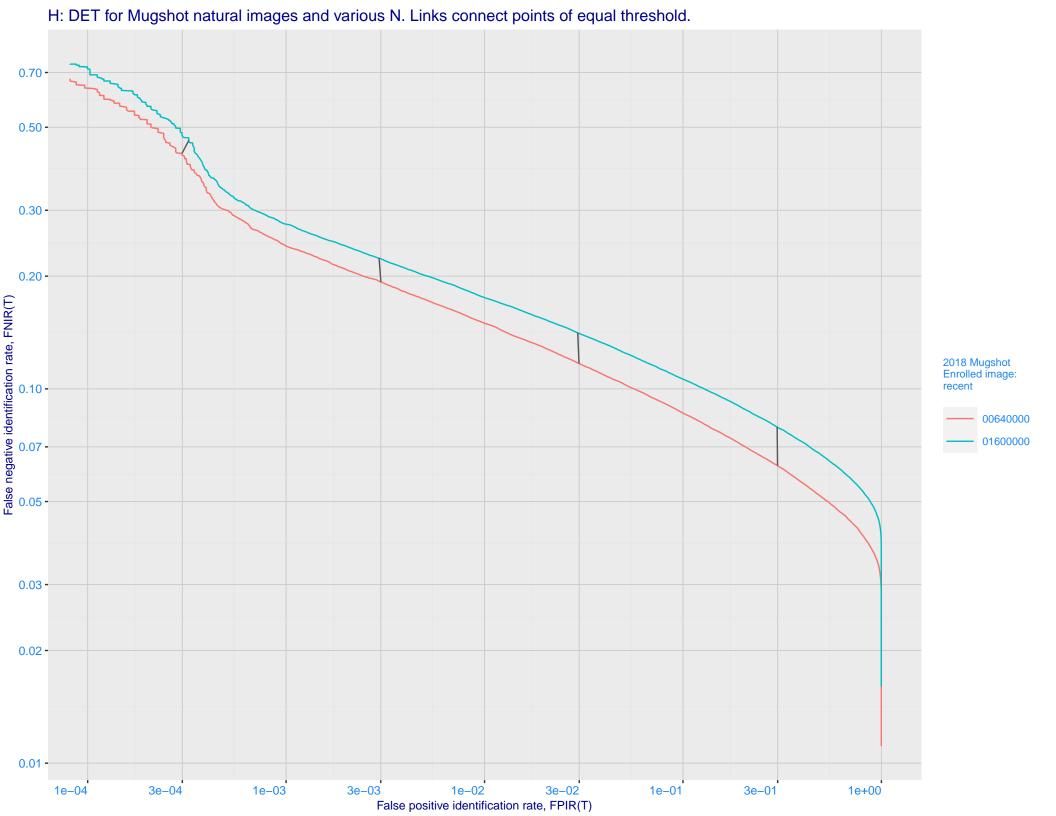
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



Threshold

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)

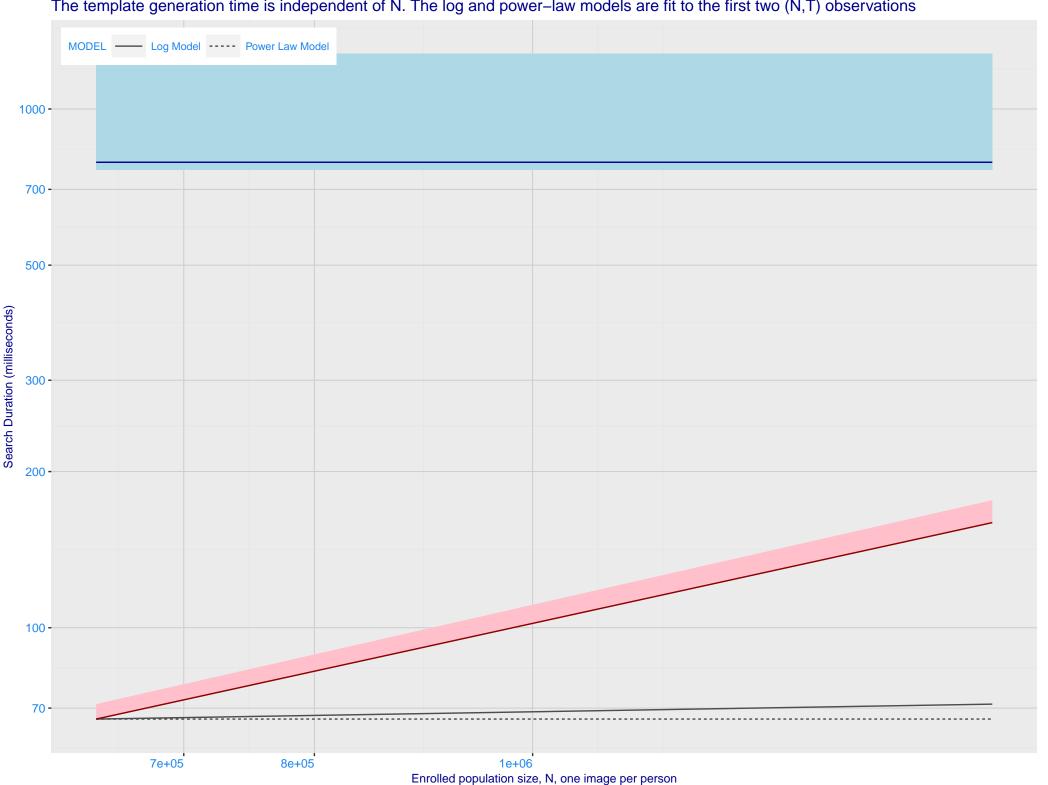




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.500 -• 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.500 - 0.200 - 0.100 - 0. FNIR@Rank = 1 aware_6 sensetime_005 Mugshot Mugshot webcam natural enrolment_style consolidated ---- random --- recent 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 aware_6 sensetime_005 0.500 -0.300 -0.200 -0.100 -0.070 enrolment_style Ealse negative identification rate, FNIR(N) - 0.000 - lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.005 -0.003 -0.002 -0.001 -10 30 3 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

