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 213 (out of 265) -- FNIR(1600000, 0, 1) = 0.0697 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 184 (out of 227) -- FNIR(1600000, 0, 1) = 0.1283 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 183 (out of 196) — FNIR(1600000, 0, 1) = 0.9832 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 105 (out of 148) -- FNIR(1600000, 0, 1) = 0.1111 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 113 (out of 145) — FNIR(1600000, 0, 1) = 0.4208 vs. lowest 0.0568 from hr_000

Identification:

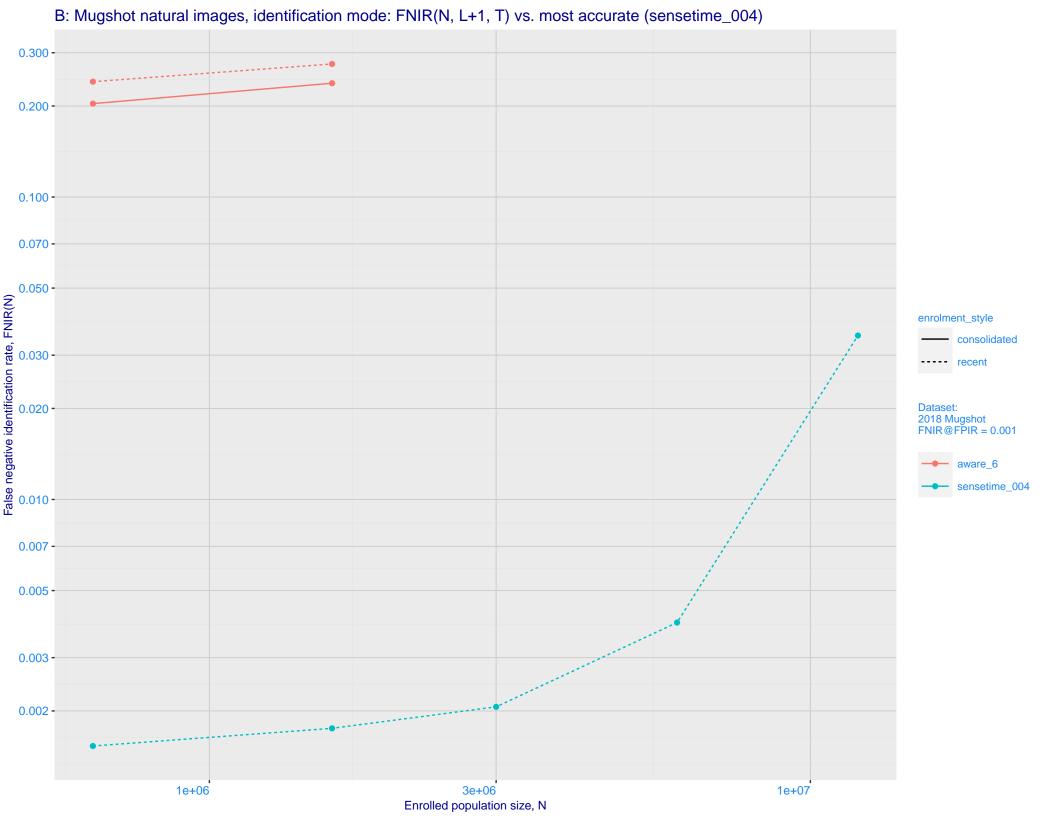
Frontal mugshot ranking 191 (out of 265) -- FNIR(1600000, T, L+1) = 0.2754, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 172 (out of 225) -- FNIR(1600000, T, L+1) = 0.3983, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

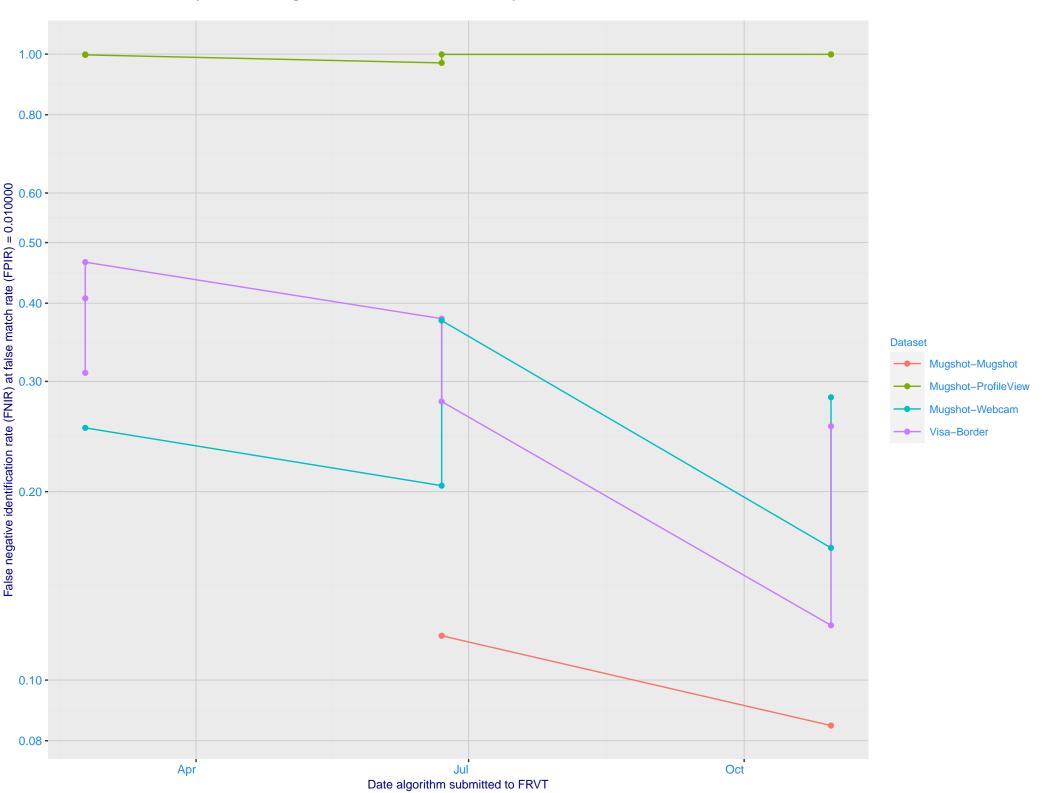
Mugshot profile ranking 146 (out of 195) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 95 (out of 146) -- FNIR(1600000, T, L+1) = 0.3680, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 83 (out of 141) -- FNIR(1600000, T, L+1) = 0.7488, FPIR=0.001000 vs. lowest 0.0996 from hr_000



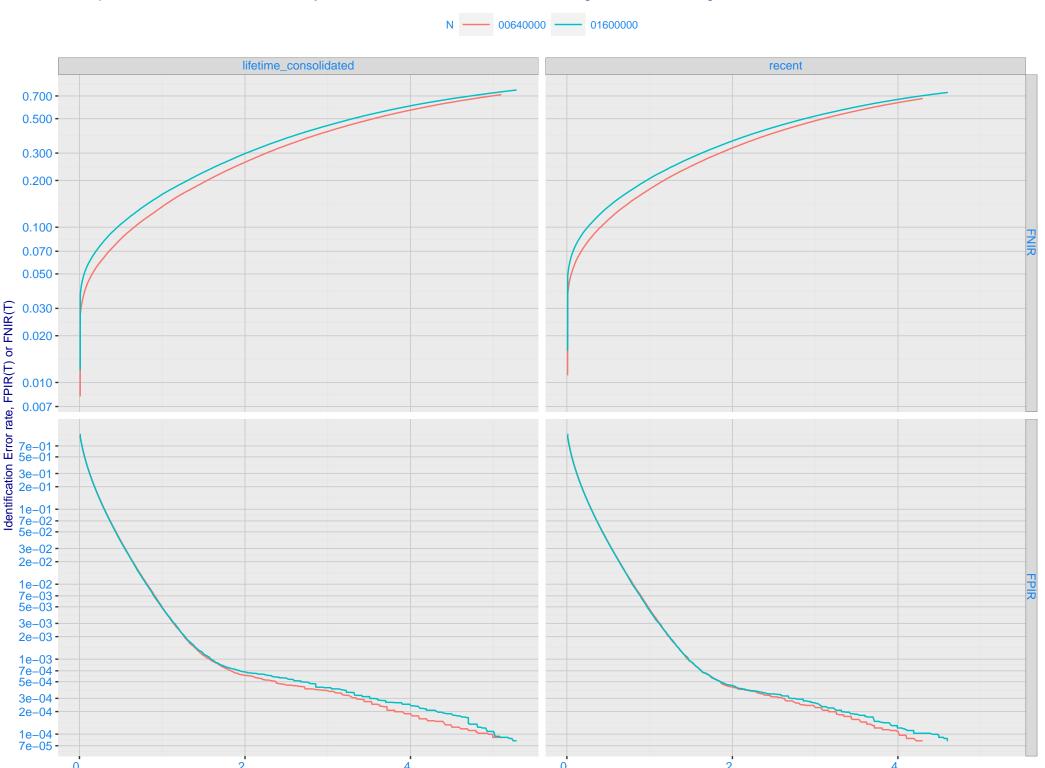
C: Evolution of accuracy for AWARE algorithms on three datasets 2018 – present



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 -

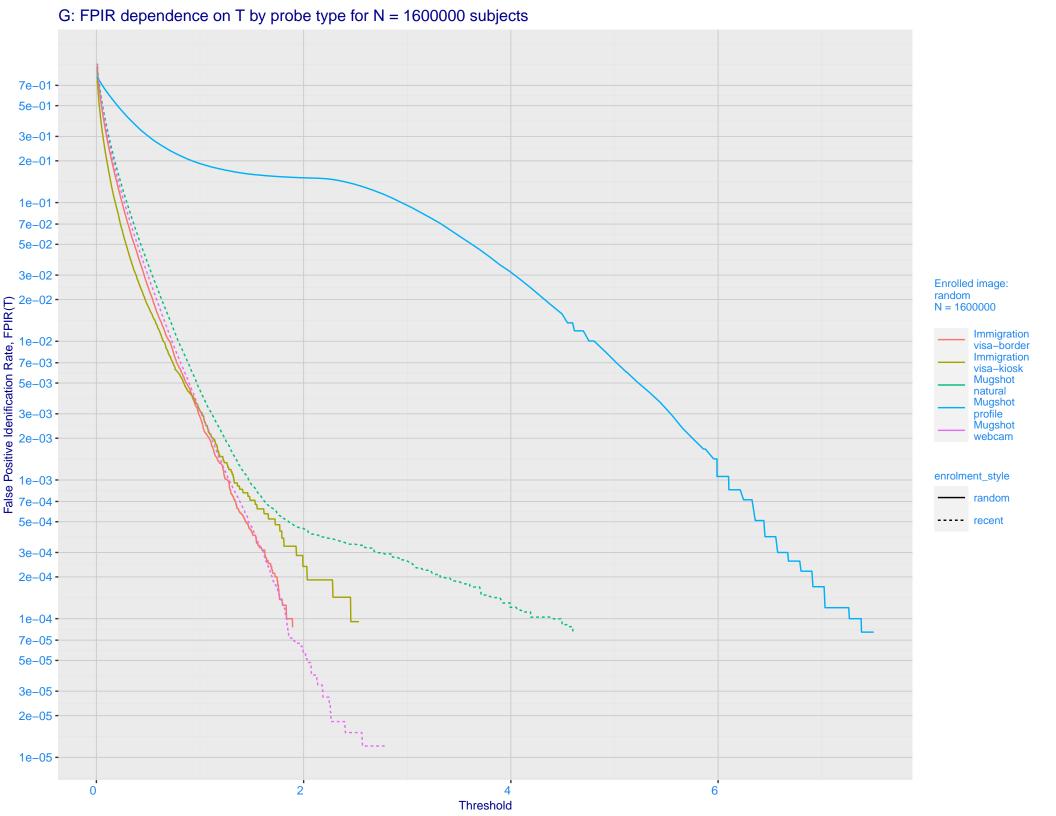
False positive identification rate, FPIR(T)

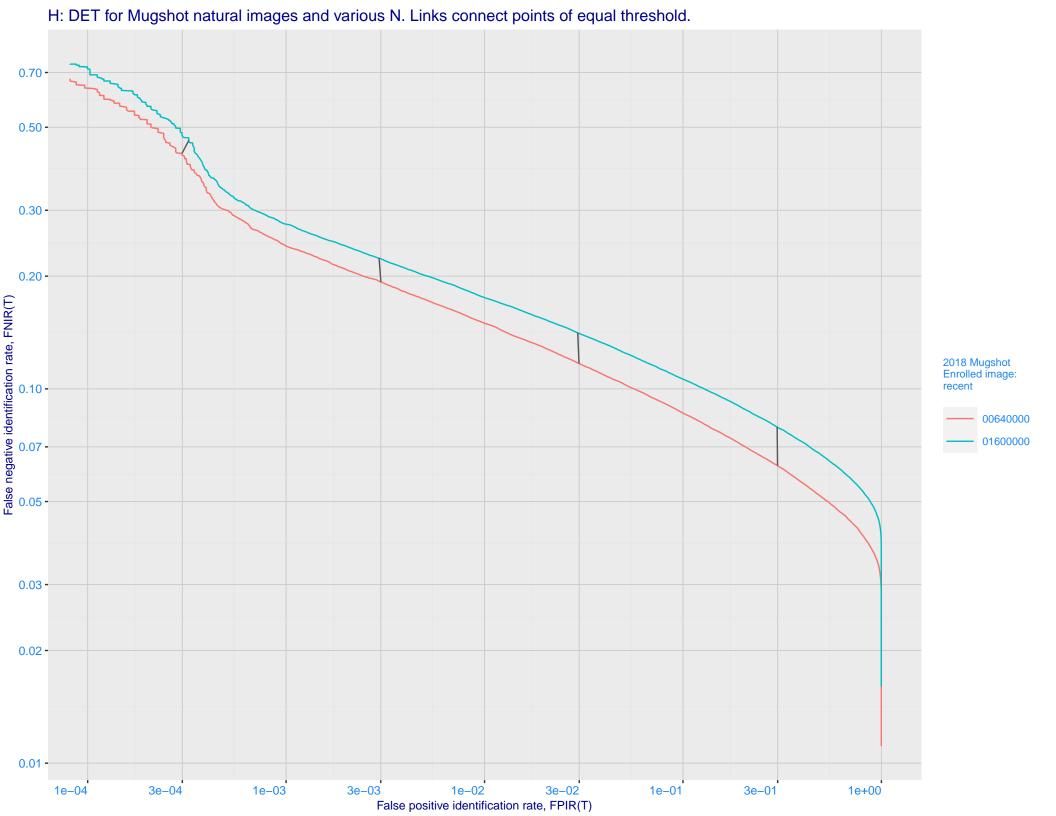
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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)

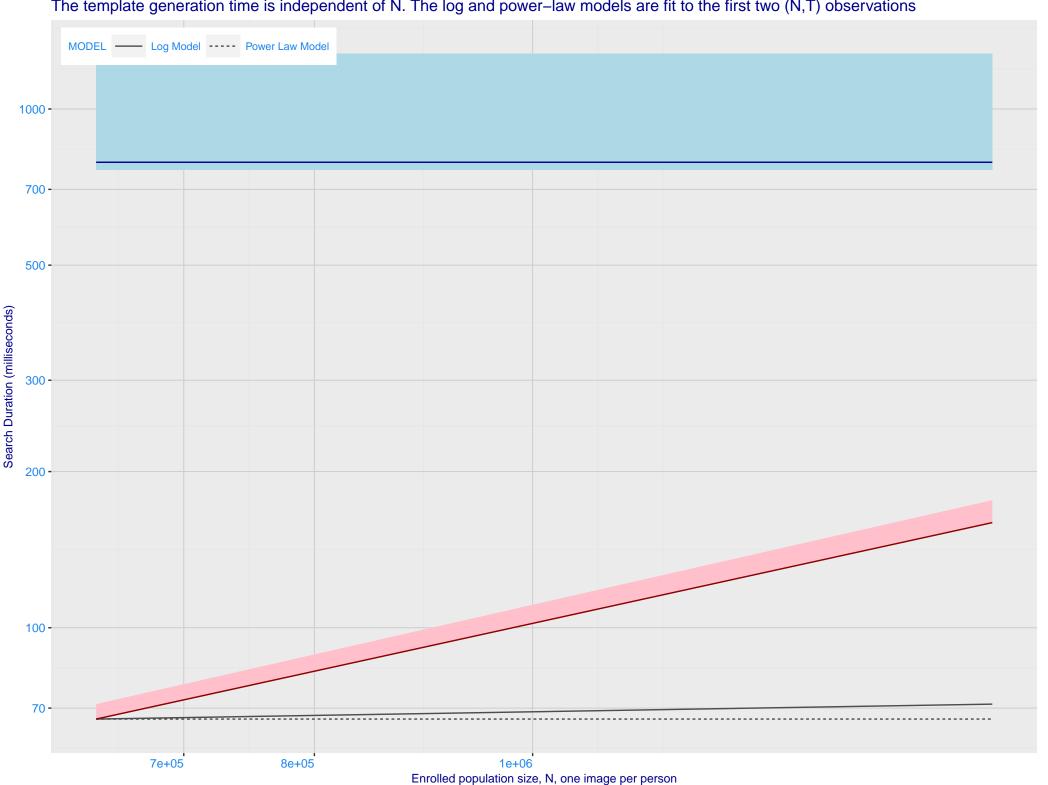




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.500 -• 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.500 - 0.200 - 0.100 - 0. FNIR@Rank = 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

