A: Datasheet

Algorithm: aware_3

Developer: Aware

Submission Date: 2018_06_22

Template size: 2076 bytes

Template time (2.5 percentile): 676 msec

Template time (median): 701 msec

Template time (97.5 percentile): 869 msec

Investigation:

Frontal mugshot ranking 193 (out of 279) -- FNIR(1600000, 0, 1) = 0.0306 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 187 (out of 241) -- FNIR(1600000, 0, 1) = 0.0896 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 177 (out of 210) — FNIR(1600000, 0, 1) = 0.9662 vs. lowest 0.0587 from xforwardai_002

Immigration visa-border ranking 141 (out of 168) -- FNIR(1600000, 0, 1) = 0.3159 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 115 (out of 165) -- FNIR(1600000, 0, 1) = 0.2900 vs. lowest 0.0568 from cloudwalk_hr_000

Identification:

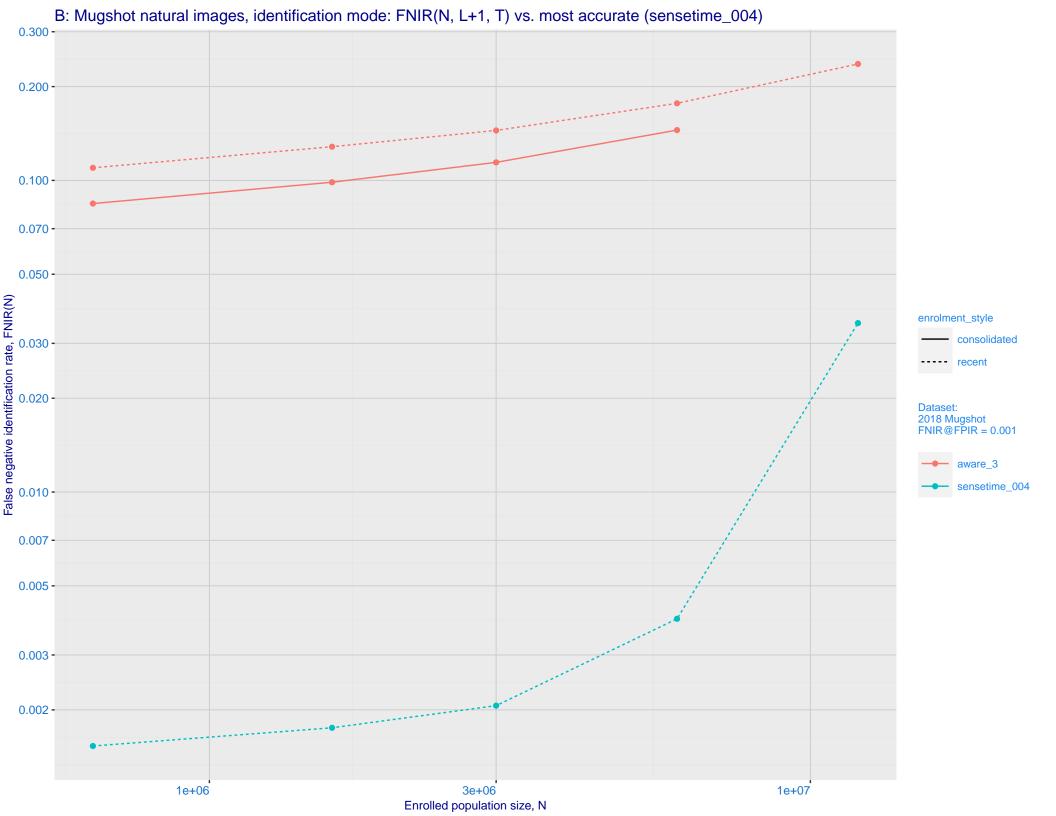
Frontal mugshot ranking 164 (out of 279) -- FNIR(1600000, T, L+1) = 0.1283, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 168 (out of 236) -- FNIR(1600000, T, L+1) = 0.2983, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

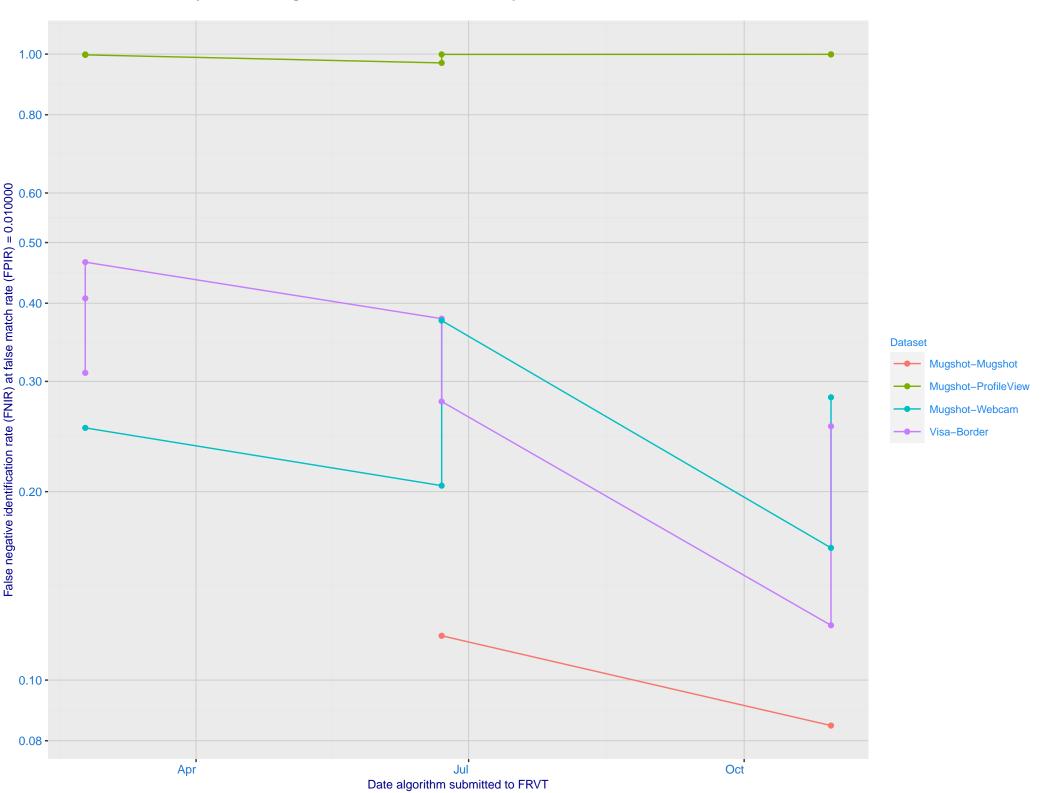
Mugshot profile ranking 73 (out of 209) — FNIR(1600000, T, L+1) = 0.9838, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 117 (out of 167) -- FNIR(1600000, T, L+1) = 0.4284, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa-kiosk ranking 78 (out of 162) — FNIR(1600000, T, L+1) = 0.5310, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk_hr_000



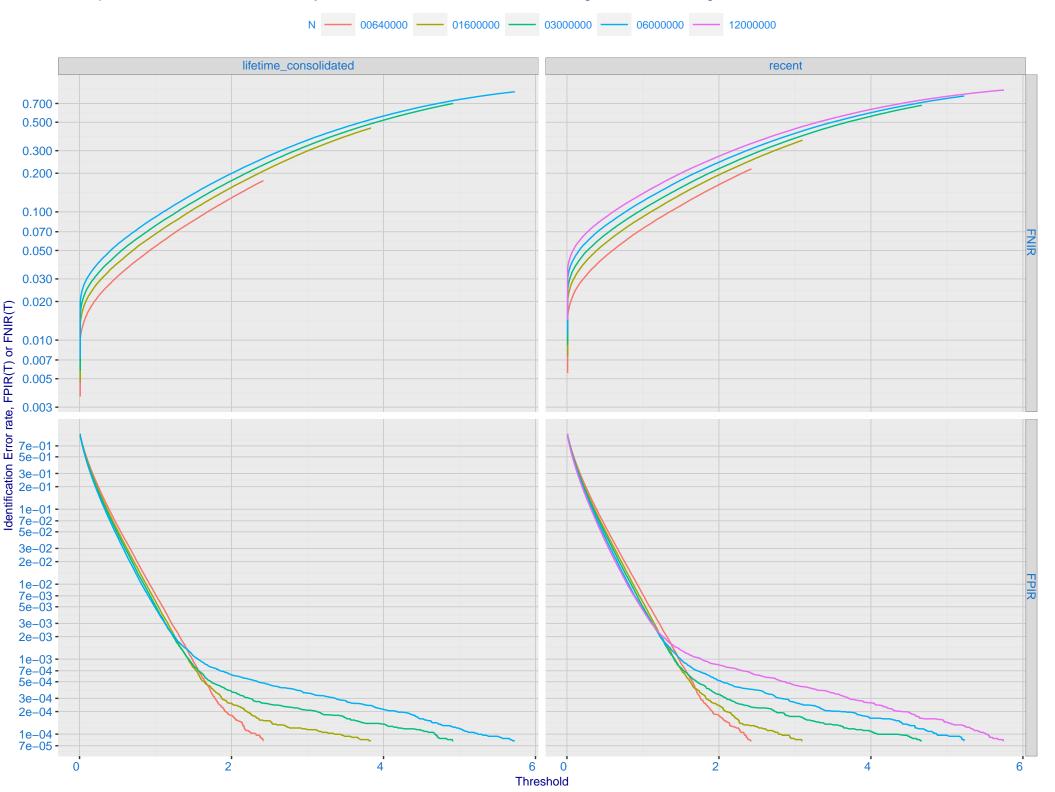
C: Evolution of accuracy for AWARE algorithms on three datasets 2018 – present



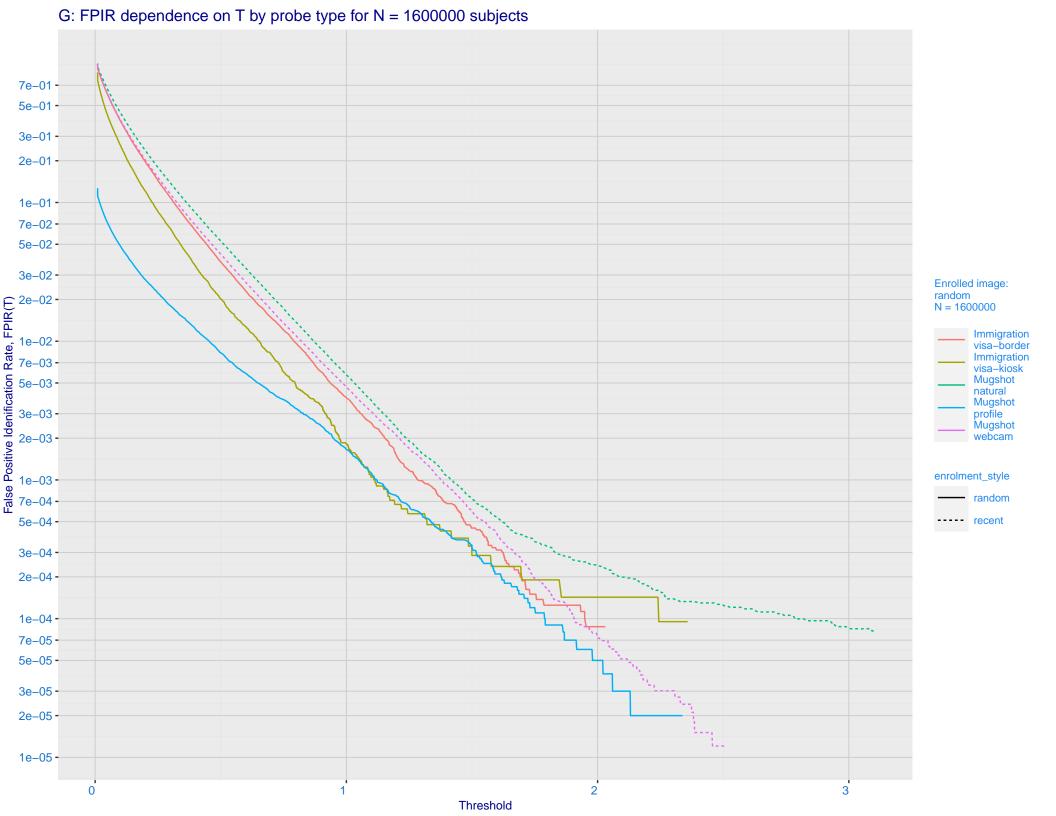
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.002 - 0.0001 - 0.700 - 0.500 - 0.200 - 0 enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

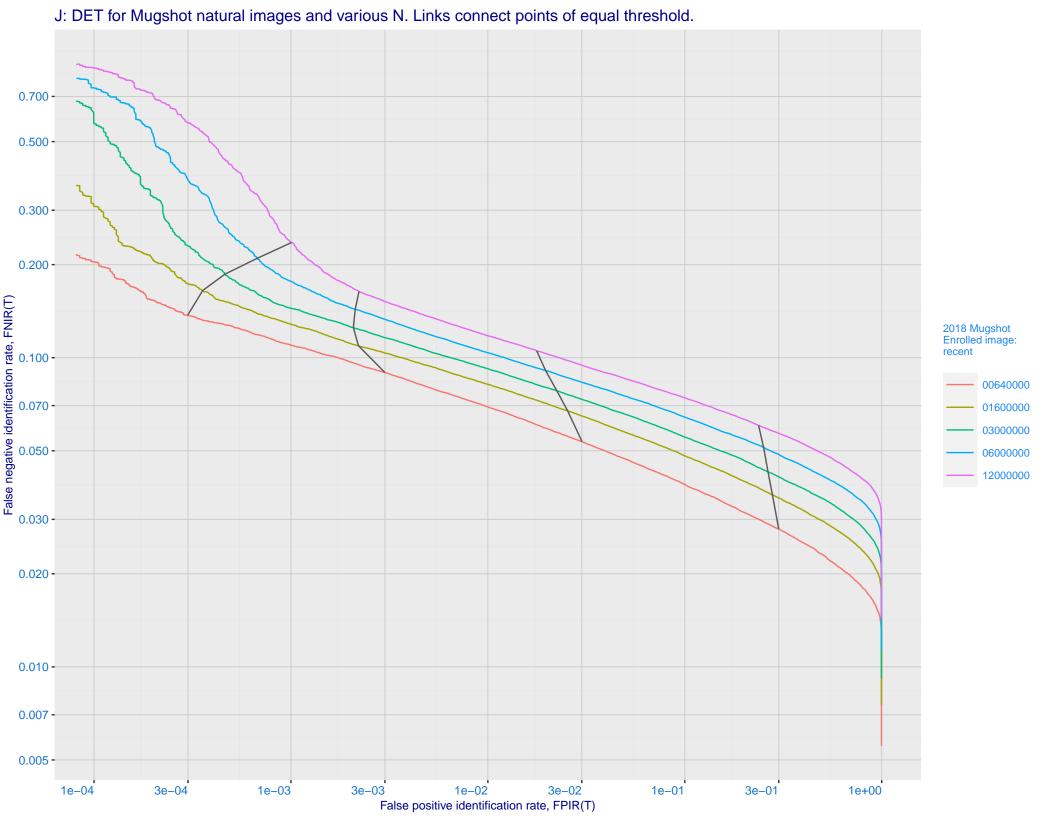
False positive identification rate, FPIR(T)

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

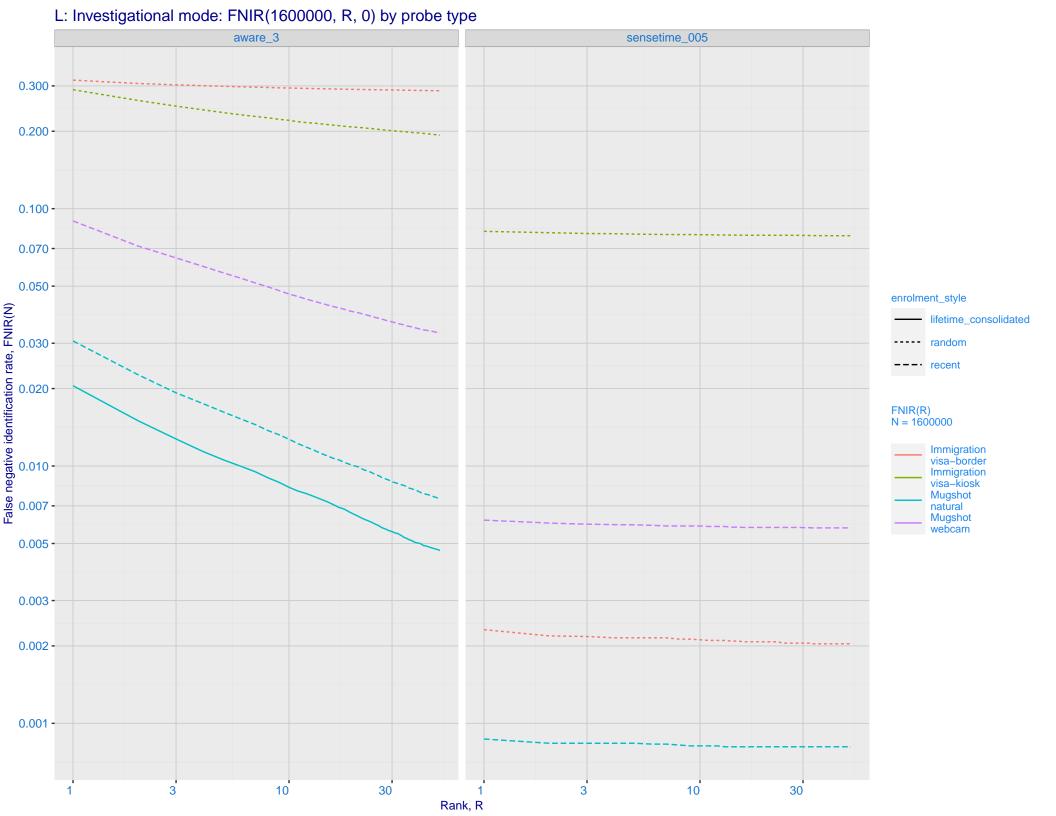


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 - 5e-02 - 3e-02 - 2e-02 - 1e-02 - 7-00 **Enrolled images:** recent N = 1600000 Mugshot natural 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 0.300 -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 - 0.300 - 0.100 - 0.700 - 0. enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 aware_3 sensetime_005 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 5000 -- Log Model ---- Power Law Model 3000 -2000 -1000 700 -1e+06 2e+06 3e+06 Enrolled population size, N, one image per person

Search Duration (milliseconds)

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



