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 174 (out of 259) -- FNIR(1600000, 0, 1) = 0.0306 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 169 (out of 221) -- FNIR(1600000, 0, 1) = 0.0896 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 157 (out of 190) — FNIR(1600000, 0, 1) = 0.9662 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 117 (out of 142) -- FNIR(1600000, 0, 1) = 0.3159 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 92 (out of 139) -- FNIR(1600000, 0, 1) = 0.2900 vs. lowest 0.0694 from cib_000

Identification:

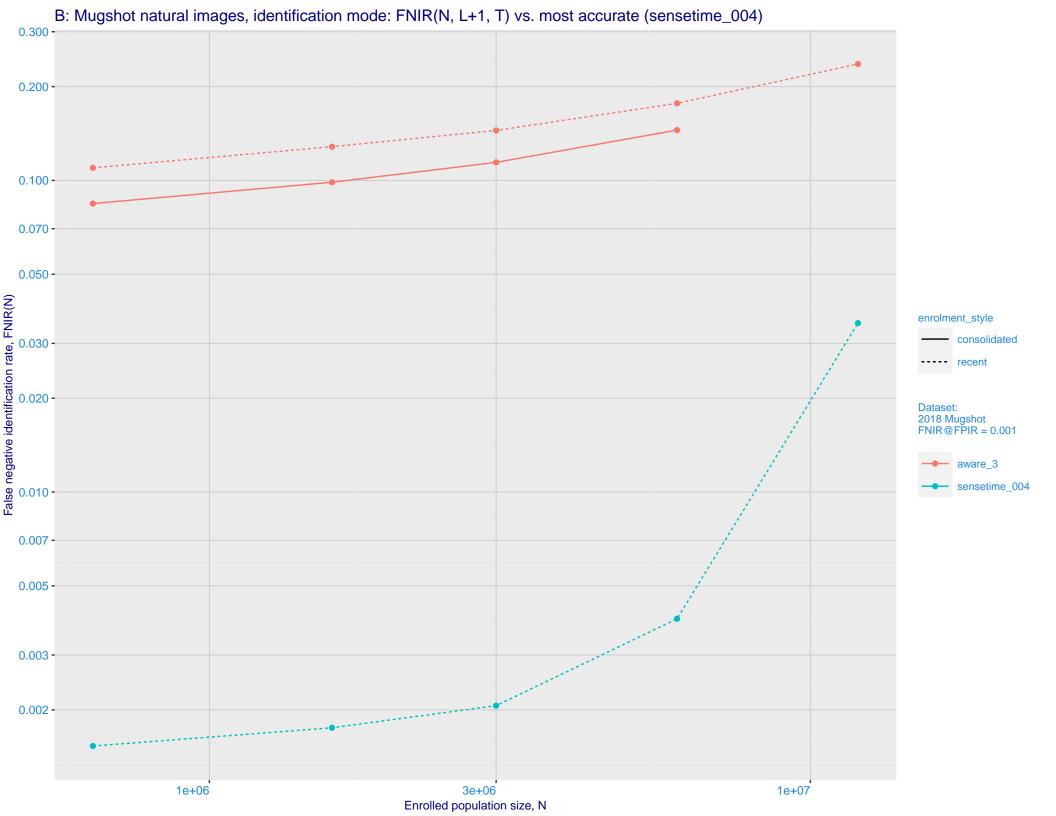
Frontal mugshot ranking 146 (out of 259) -- FNIR(1600000, T, L+1) = 0.1283, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 152 (out of 219) -- FNIR(1600000, T, L+1) = 0.2983, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

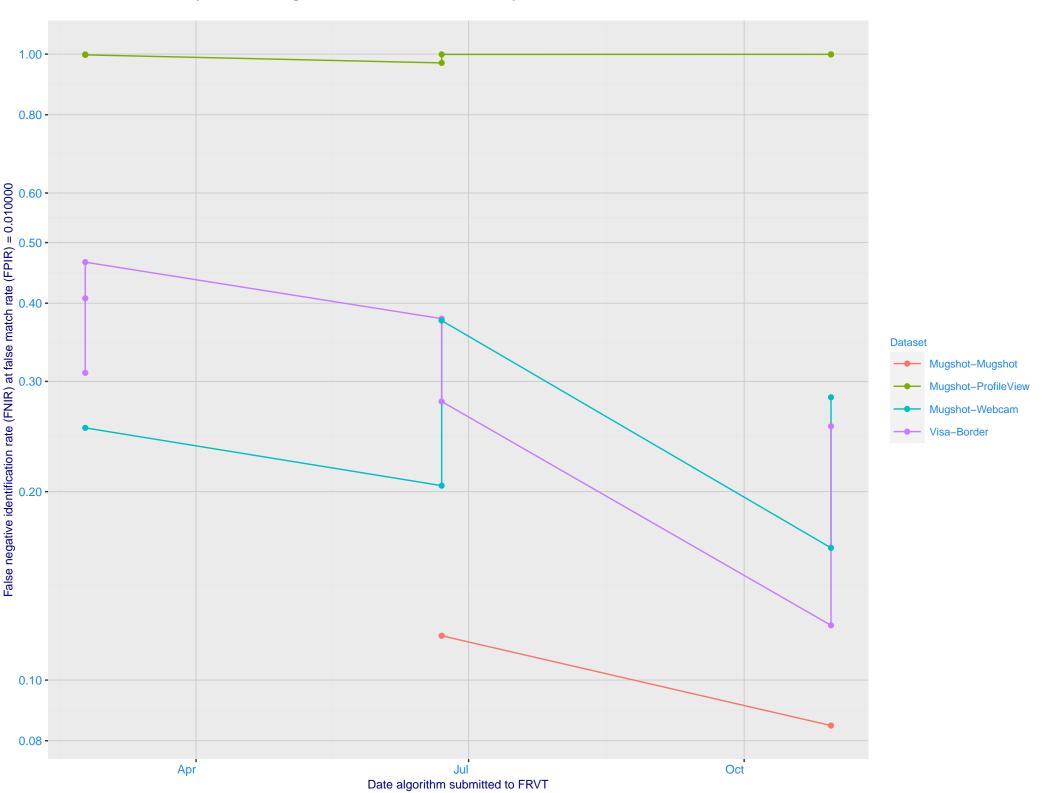
Mugshot profile ranking 64 (out of 189) -- FNIR(1600000, T, L+1) = 0.9838, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 94 (out of 139) -- FNIR(1600000, T, L+1) = 0.4284, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 62 (out of 134) -- FNIR(1600000, T, L+1) = 0.5310, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



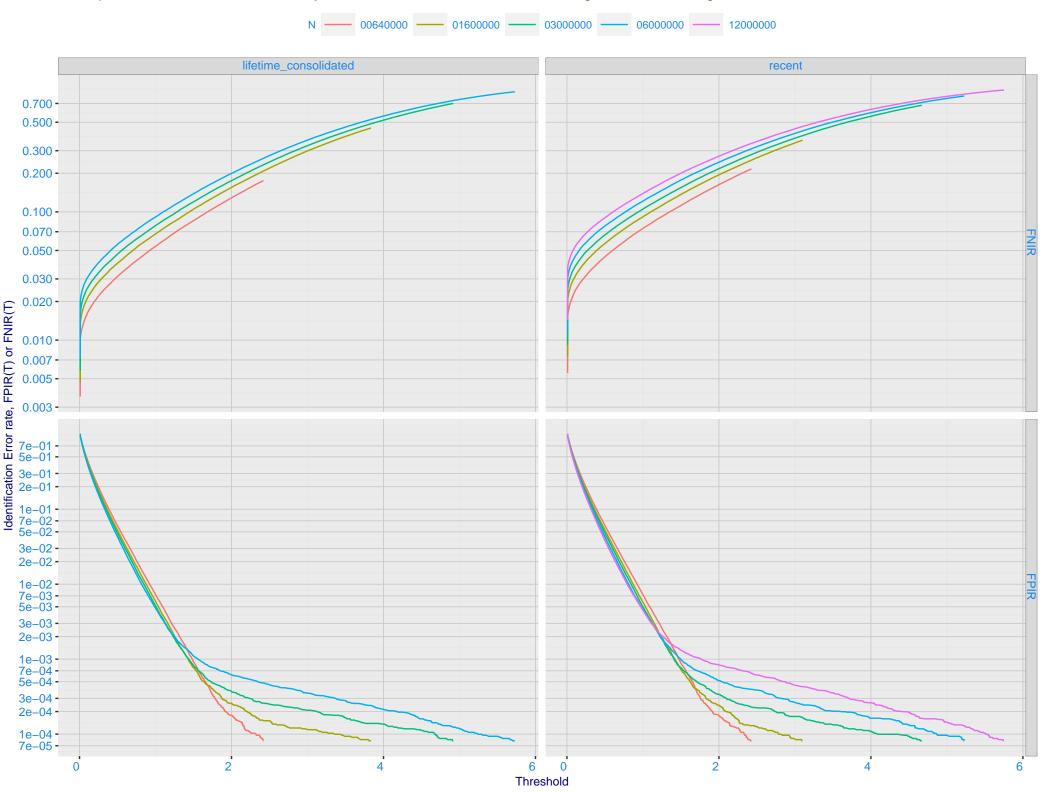
C: Evolution of accuracy for AWARE algorithms on three datasets 2018 – present



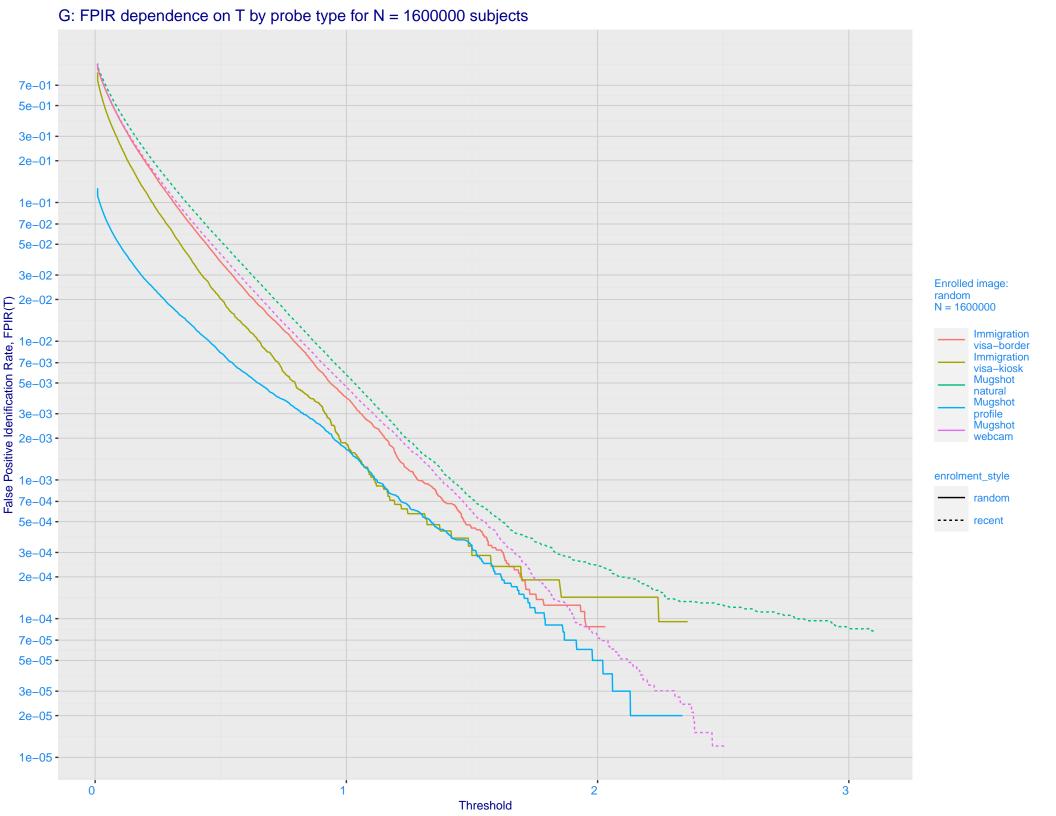
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.002 - 0.0001 - 0.700 - 0.500 - 0.200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

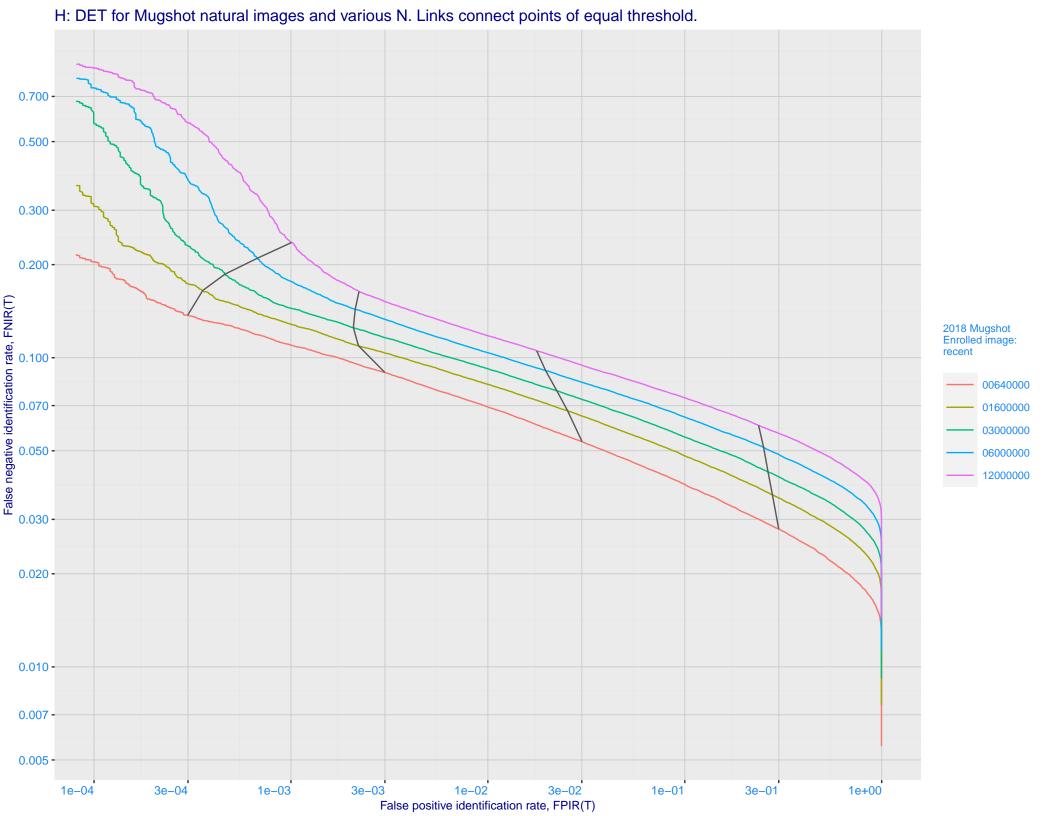
False positive identification rate, FPIR(T)

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

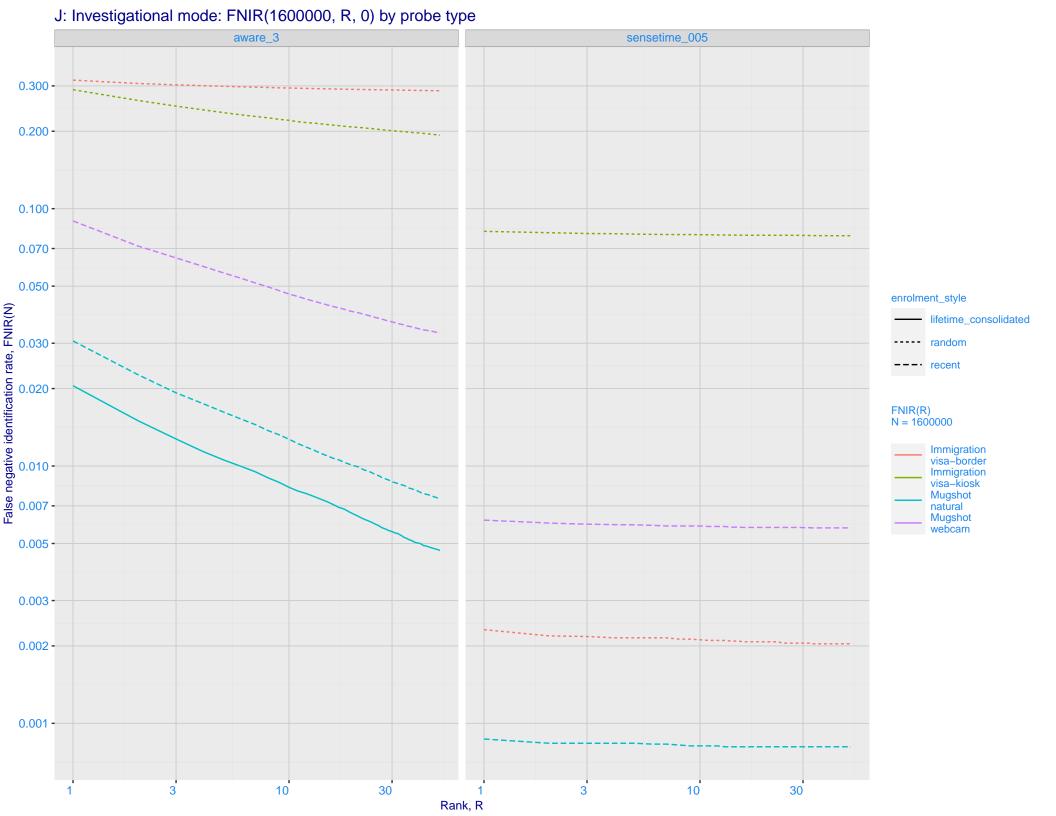


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 - 5e-02 - 3e-02 - 2e-02 - 1e-02 - 7-00 **Enrolled images:** recent N = 1600000 Mugshot natural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





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 - 0.300 - 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



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)

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



