A: Datasheet

Algorithm: ayonix_1

Developer: Ayonix

Submission Date: 2018_10_29

Template size: 1036 bytes

Template time (2.5 percentile): 10 msec

Template time (median): 12 msec

Template time (97.5 percentile): 14 msec

Investigation:

Frontal mugshot ranking 252 (out of 265) -- FNIR(1600000, 0, 1) = 0.3414 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 215 (out of 227) -- FNIR(1600000, 0, 1) = 0.5270 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 188 (out of 196) — FNIR(1600000, 0, 1) = 0.9927 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 140 (out of 148) -- FNIR(1600000, 0, 1) = 0.9939 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 132 (out of 145) — FNIR(1600000, 0, 1) = 0.7784 vs. lowest 0.0568 from hr_000

Identification:

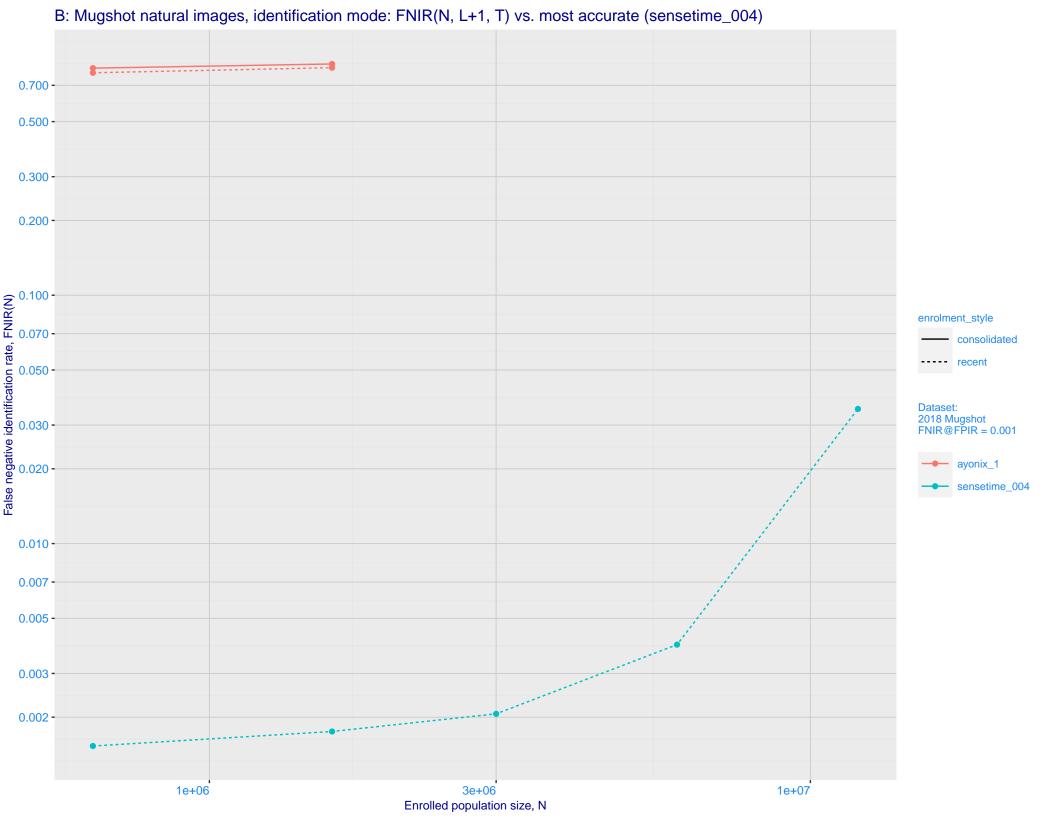
Frontal mugshot ranking 246 (out of 265) -- FNIR(1600000, T, L+1) = 0.8241, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

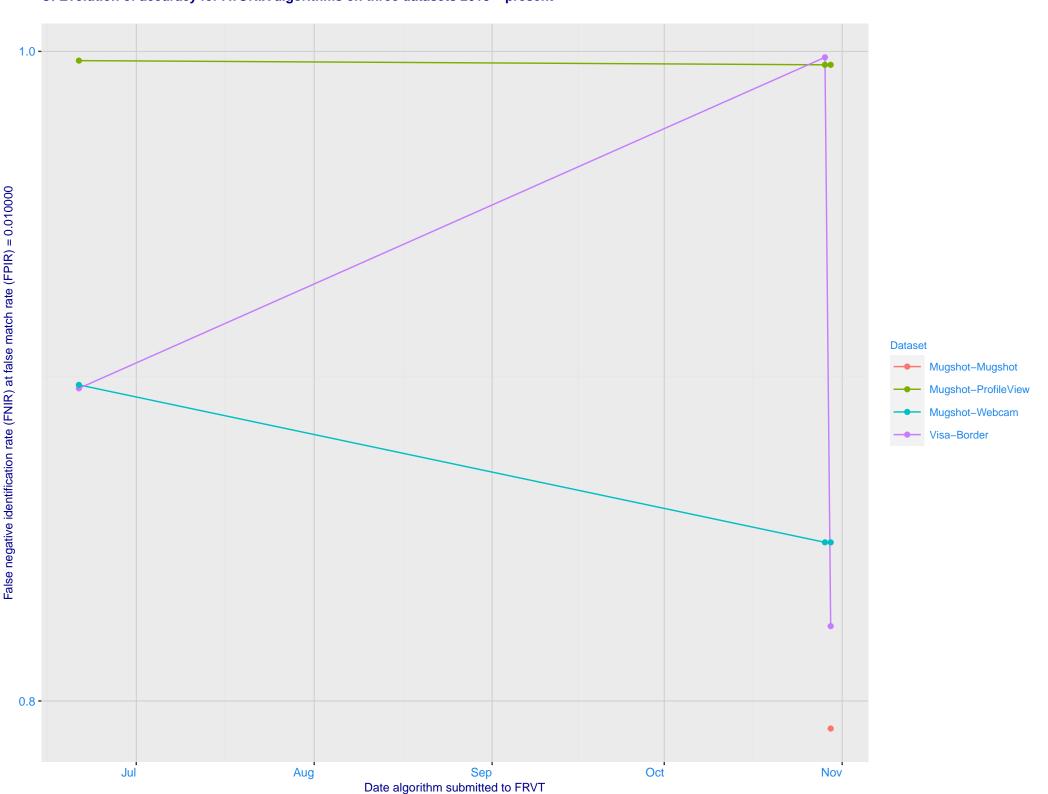
Mugshot webcam ranking 208 (out of 225) -- FNIR(1600000, T, L+1) = 0.9201, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 142 (out of 195) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 136 (out of 146) -- FNIR(1600000, T, L+1) = 0.9989, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 114 (out of 141) -- FNIR(1600000, T, L+1) = 0.9691, FPIR=0.001000 vs. lowest 0.0996 from hr_000



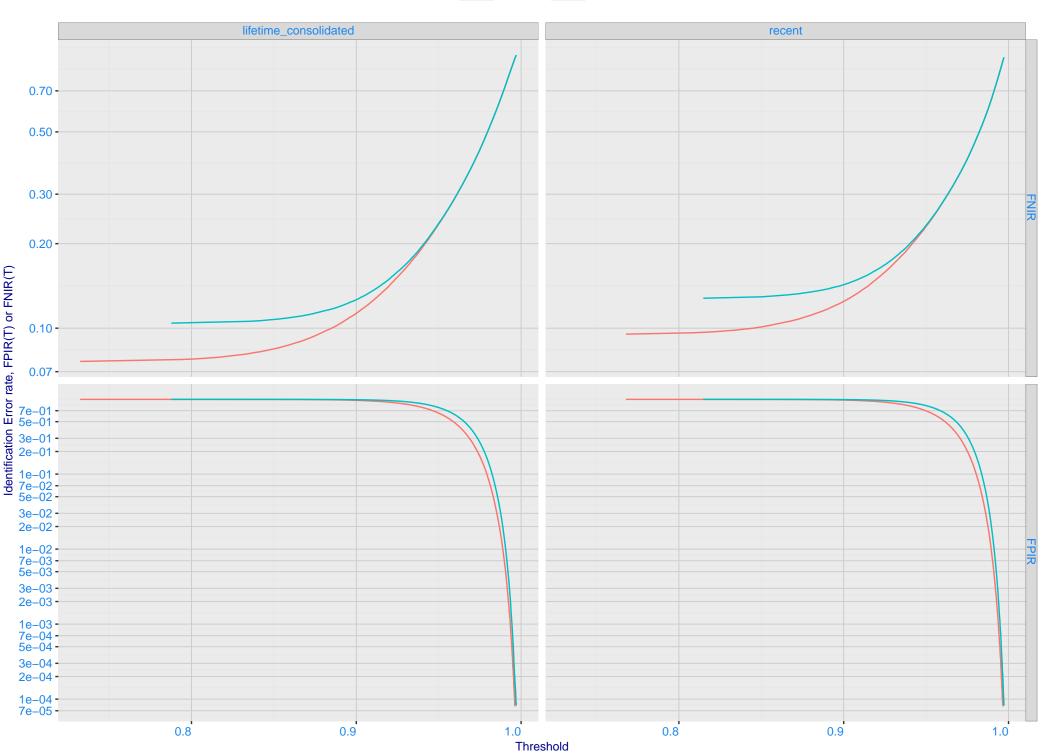


D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

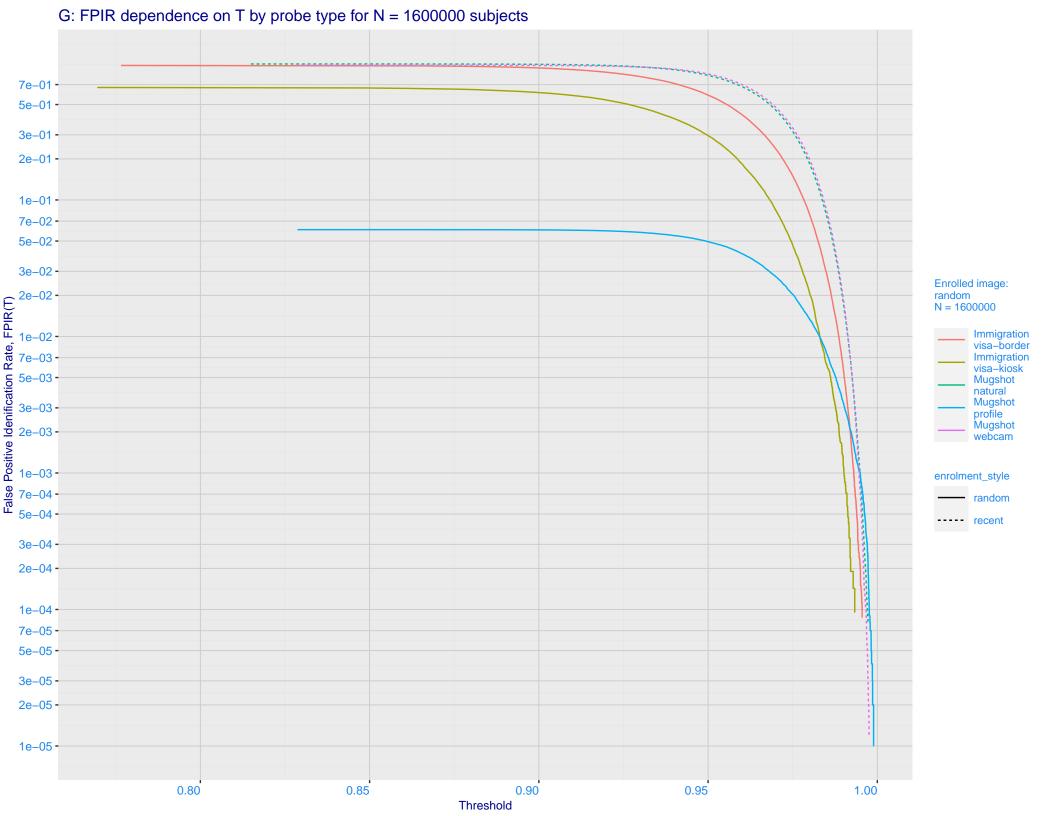
False positive identification rate, FPIR(T)

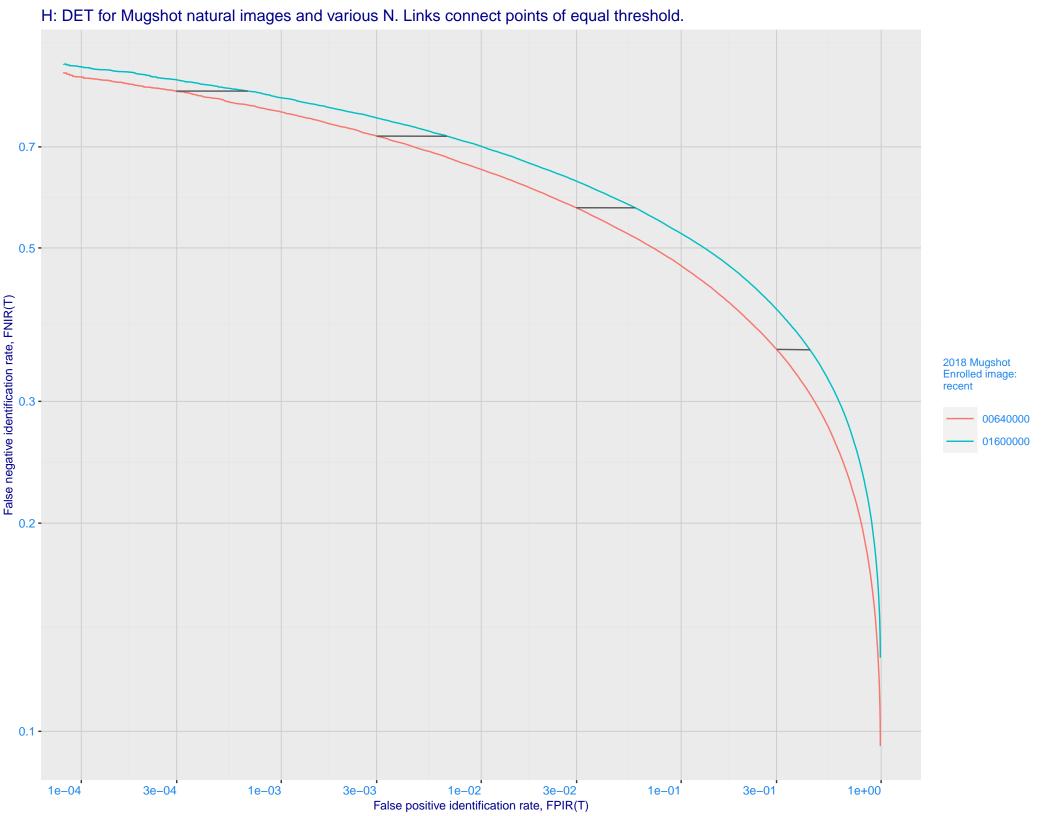
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images





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 -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)

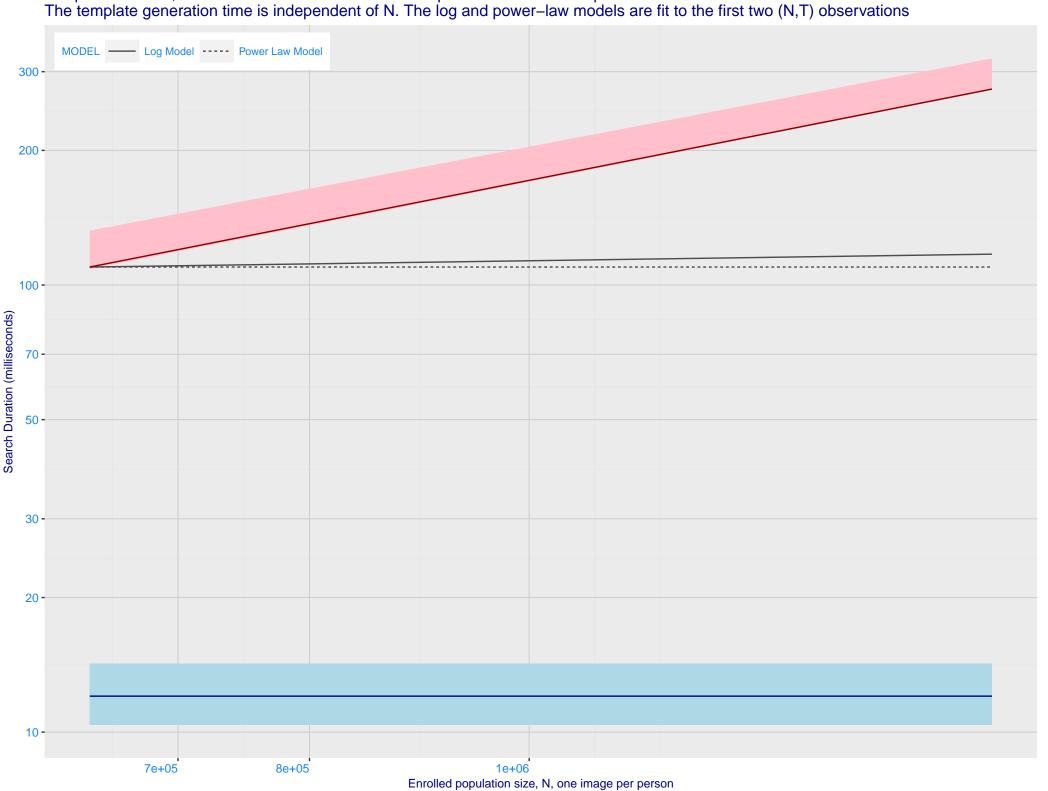




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.300 - 0.200 enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 ayonix_1 sensetime_005 0.100 -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 ayonix_1 sensetime_005 0.700 -0.500 -0.300 -0.200 -0.100 enrolment_style Ealse negative identification rate, FNIR(N) 0.000 - 0. lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.007 -0.005 -0.003 -0.002 -0.001 -10 30 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



