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 246 (out of 259) -- FNIR(1600000, 0, 1) = 0.3414 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 209 (out of 221) -- FNIR(1600000, 0, 1) = 0.5270 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 182 (out of 190) -- FNIR(1600000, 0, 1) = 0.9927 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 134 (out of 142) -- FNIR(1600000, 0, 1) = 0.9939 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 126 (out of 139) -- FNIR(1600000, 0, 1) = 0.7784 vs. lowest 0.0694 from cib_000

Identification:

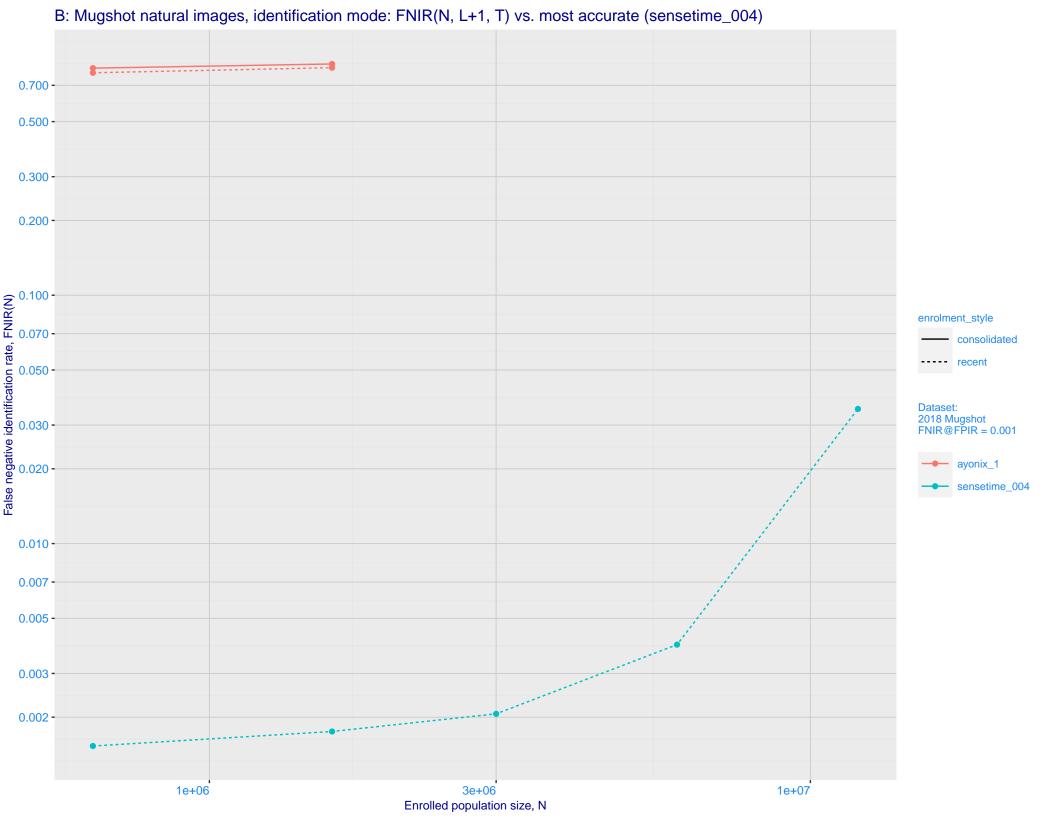
Frontal mugshot ranking 240 (out of 259) -- FNIR(1600000, T, L+1) = 0.8241, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

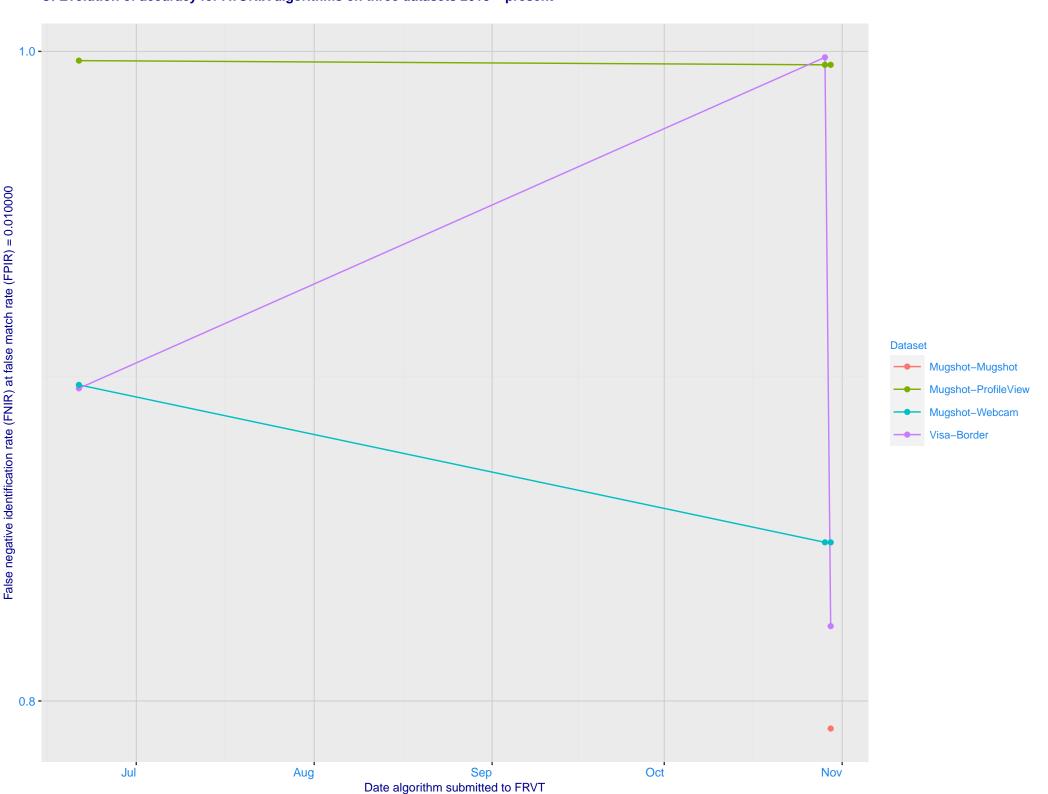
Mugshot webcam ranking 202 (out of 219) -- FNIR(1600000, T, L+1) = 0.9201, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 138 (out of 189) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 129 (out of 139) -- FNIR(1600000, T, L+1) = 0.9989, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 108 (out of 134) -- FNIR(1600000, T, L+1) = 0.9691, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



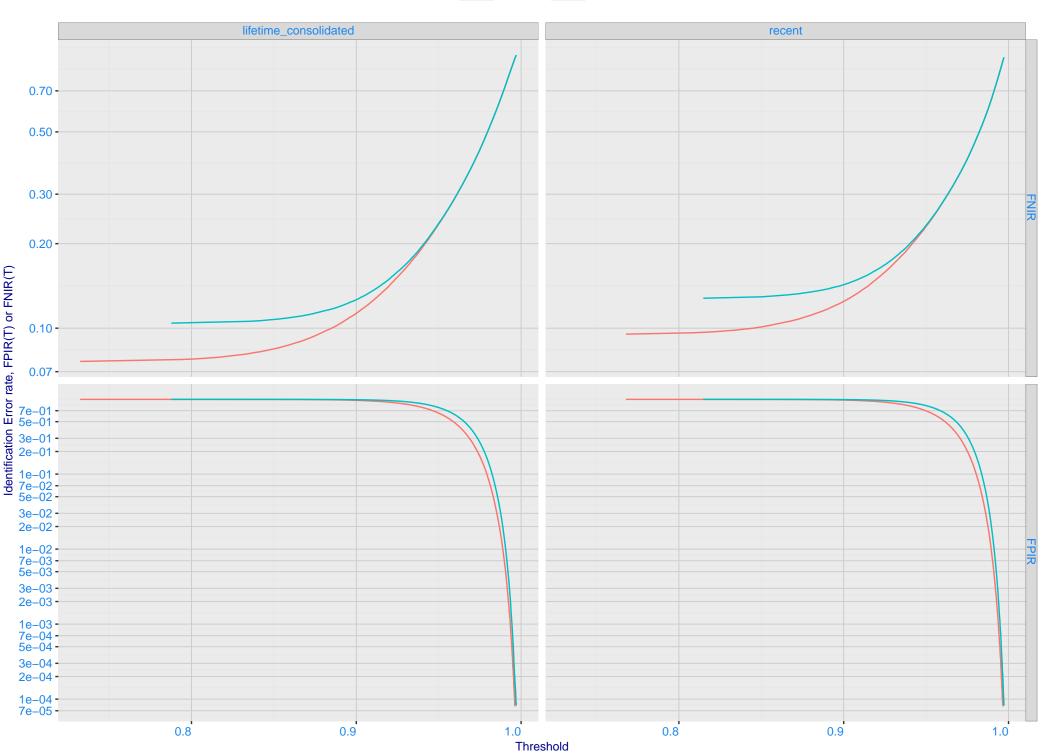


D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

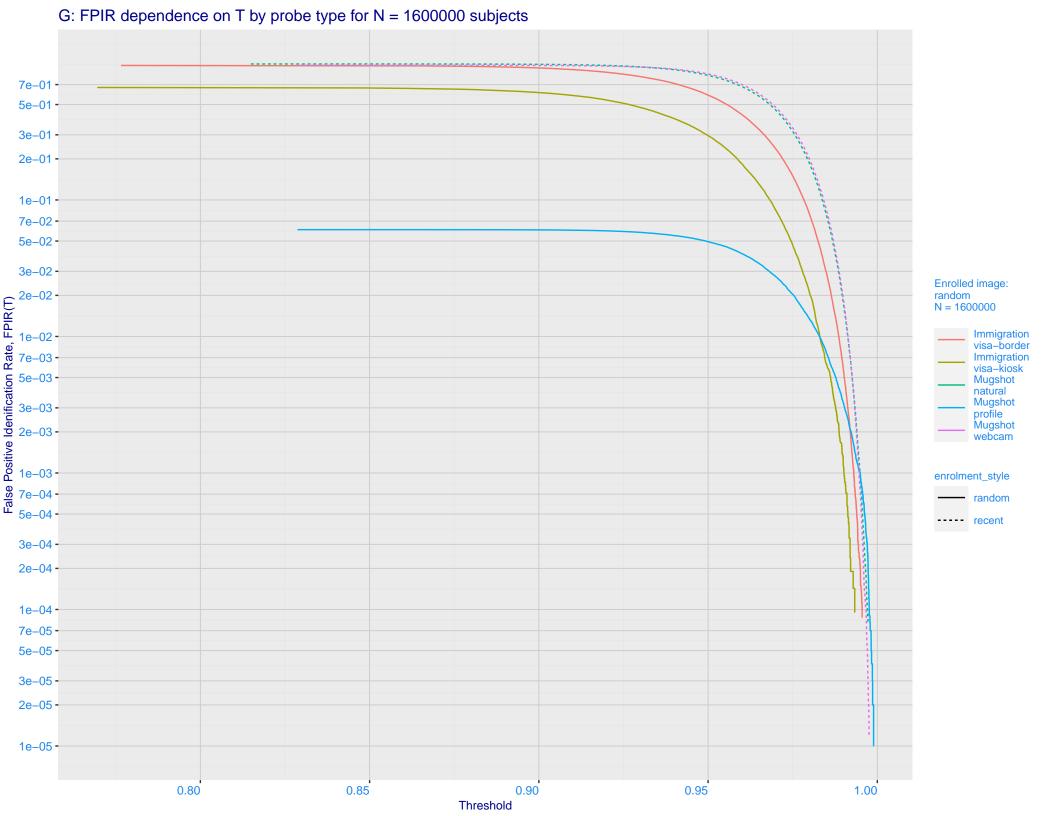
False positive identification rate, FPIR(T)

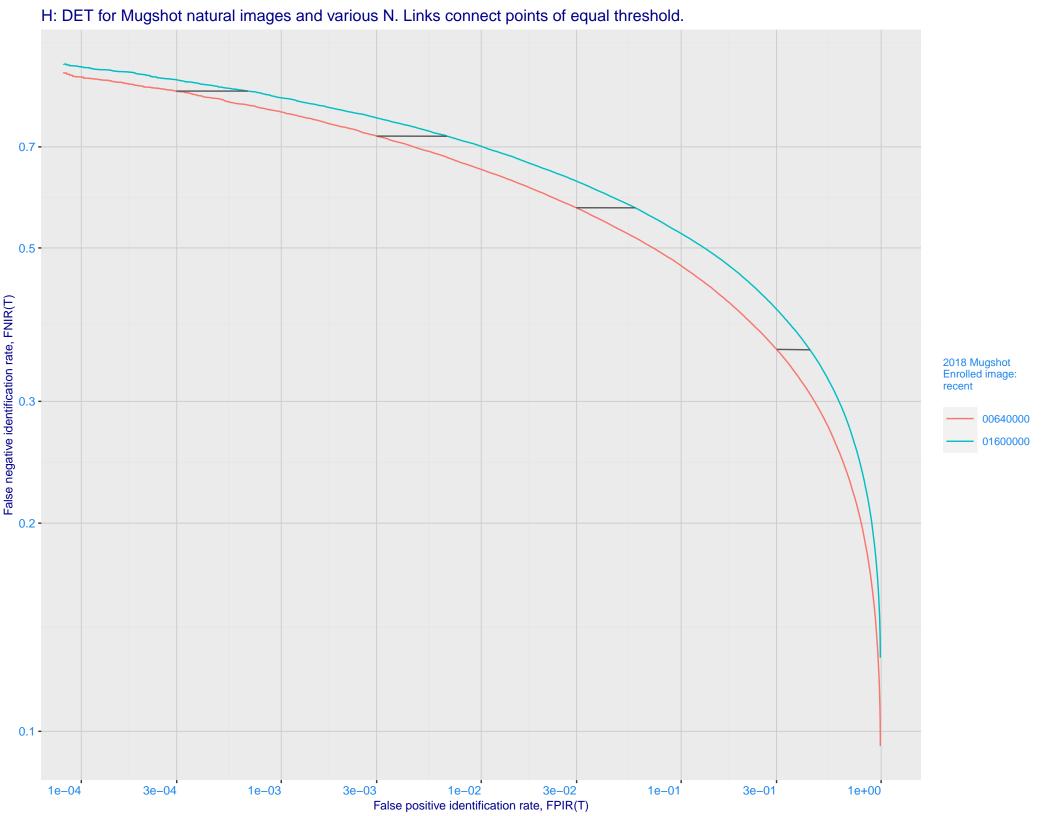
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images





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)

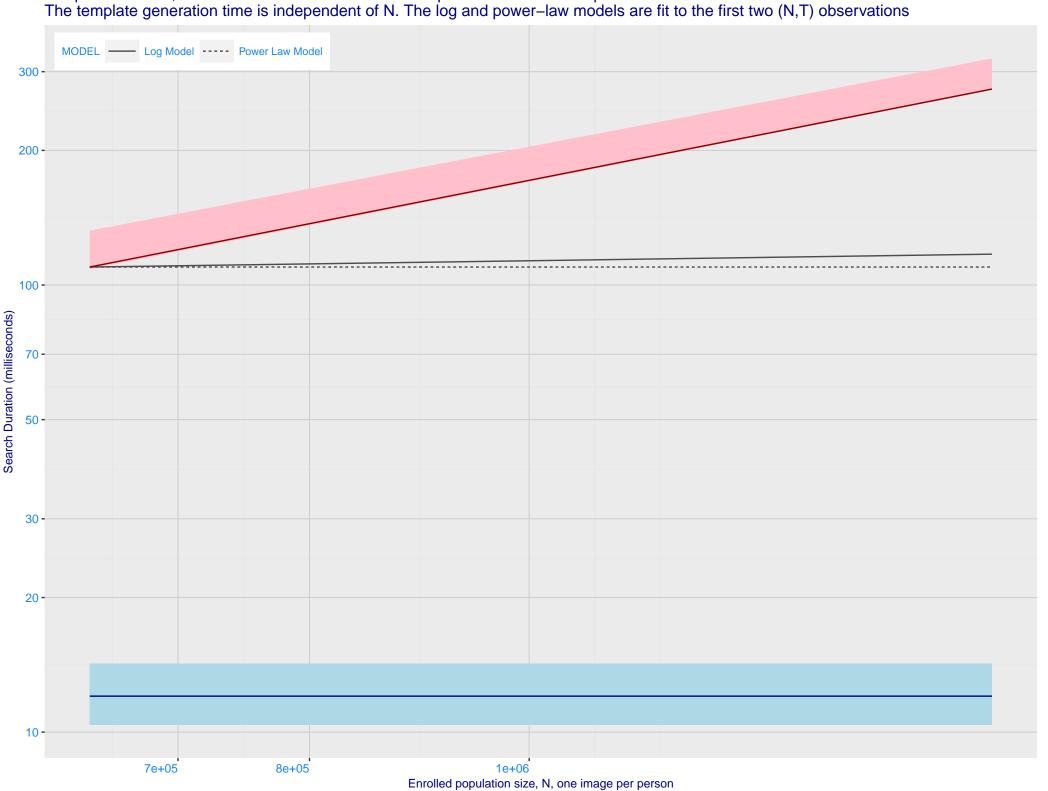




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.300 - 0.200 enrolment_style consolidated ---- random --- 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



