A: Datasheet

Algorithm: alchera_0

Developer: Alchera Inc

Submission Date: 2018_06_30

Template size: 2048 bytes

Template time (2.5 percentile): 253 msec

Template time (median): 260 msec

Template time (97.5 percentile): 289 msec

Investigation:

Frontal mugshot ranking 147 (out of 259) -- FNIR(1600000, 0, 1) = 0.0161 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 139 (out of 221) -- FNIR(1600000, 0, 1) = 0.0467 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 105 (out of 190) — FNIR(1600000, 0, 1) = 0.8704 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 85 (out of 142) -- FNIR(1600000, 0, 1) = 0.0464 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 93 (out of 139) -- FNIR(1600000, 0, 1) = 0.2923 vs. lowest 0.0694 from cib_000

Identification:

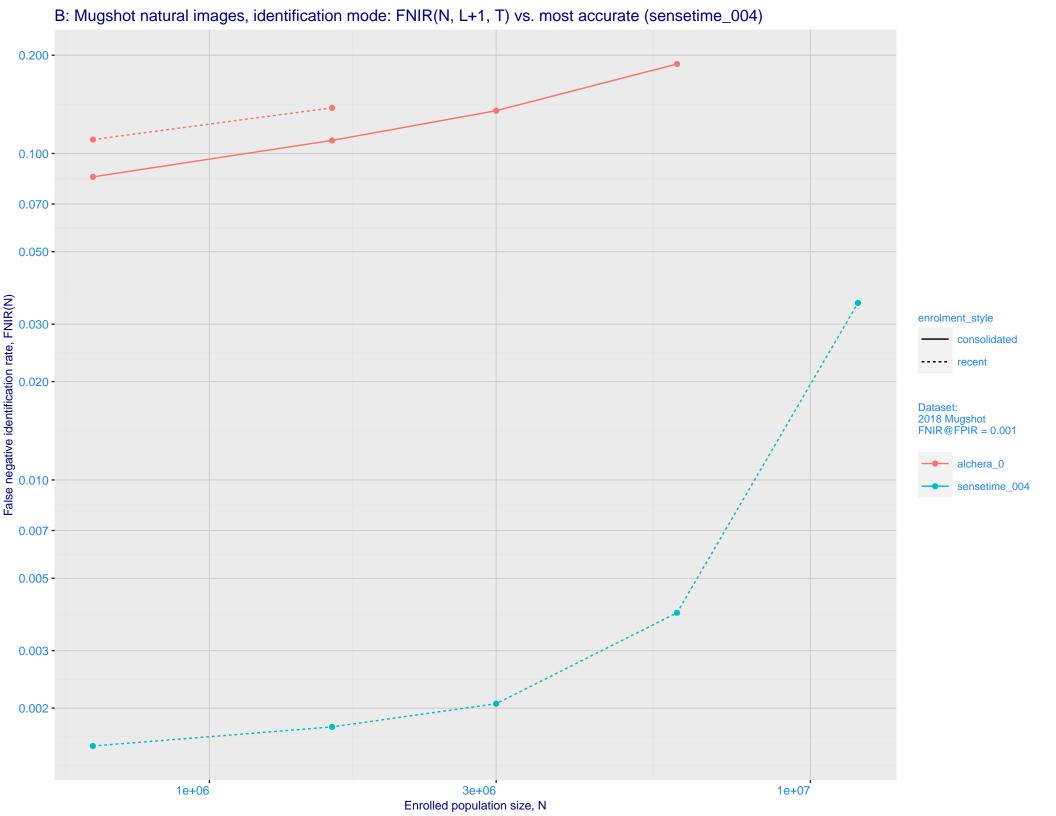
Frontal mugshot ranking 148 (out of 259) -- FNIR(1600000, T, L+1) = 0.1380, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

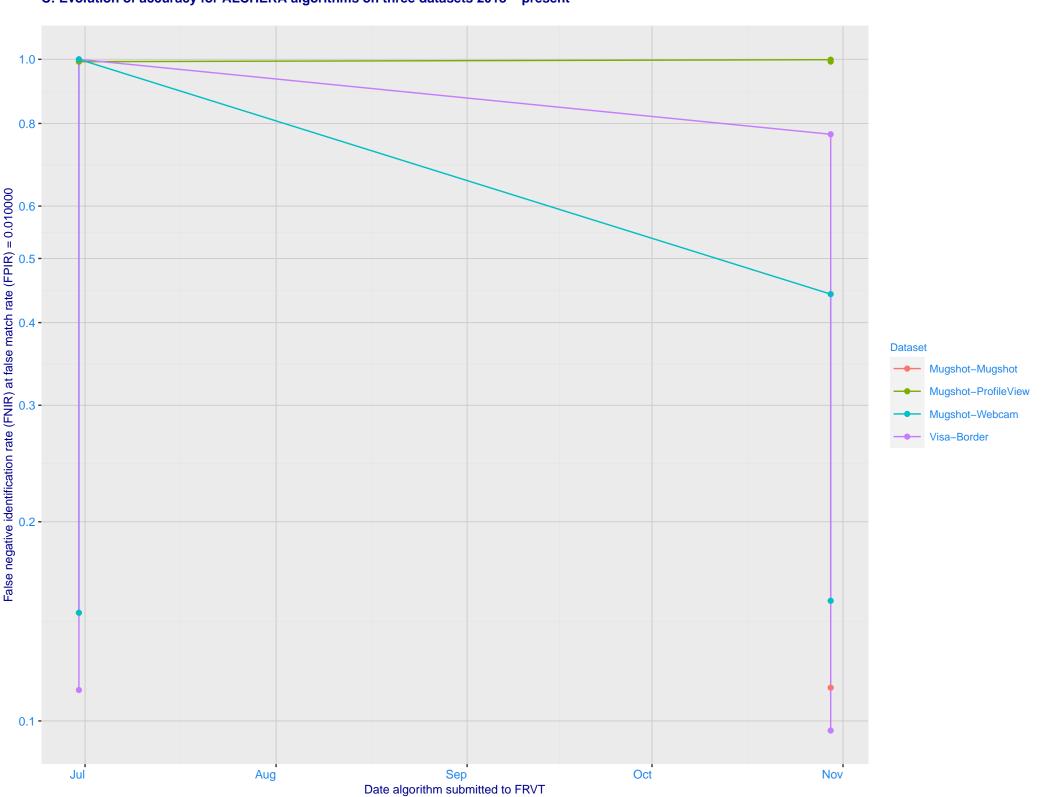
Mugshot webcam ranking 124 (out of 219) -- FNIR(1600000, T, L+1) = 0.2164, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 120 (out of 189) -- FNIR(1600000, T, L+1) = 0.9986, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 78 (out of 139) -- FNIR(1600000, T, L+1) = 0.1766, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 82 (out of 134) -- FNIR(1600000, T, L+1) = 0.8038, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005

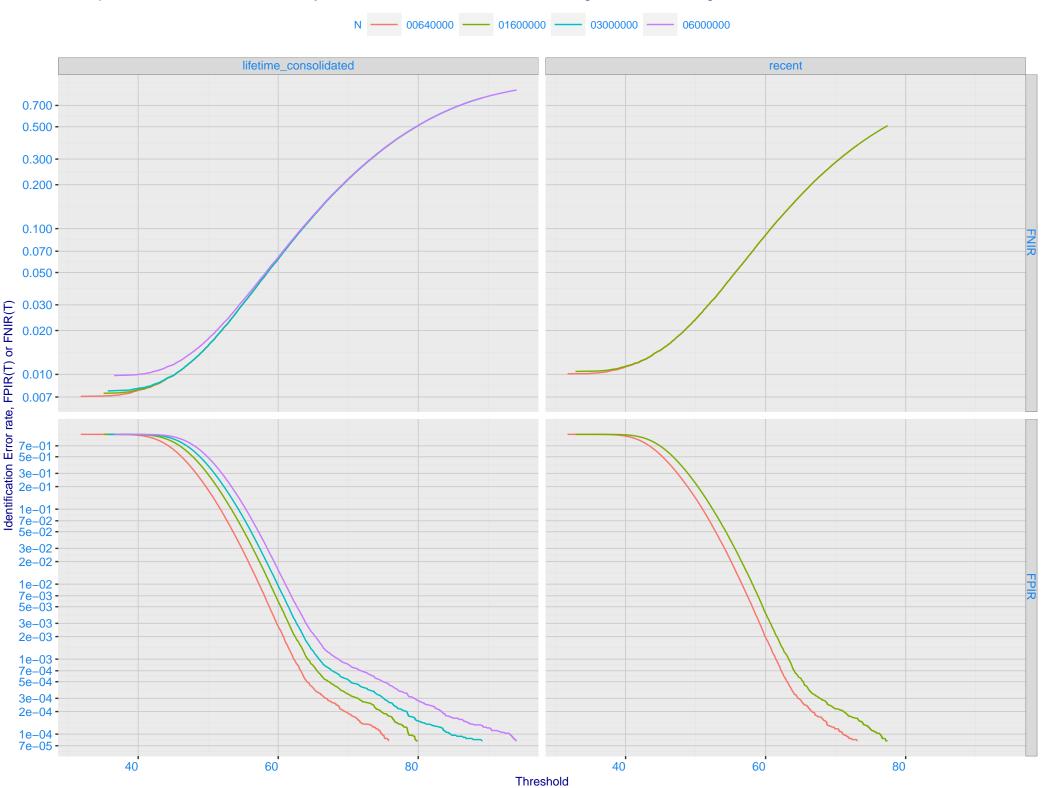




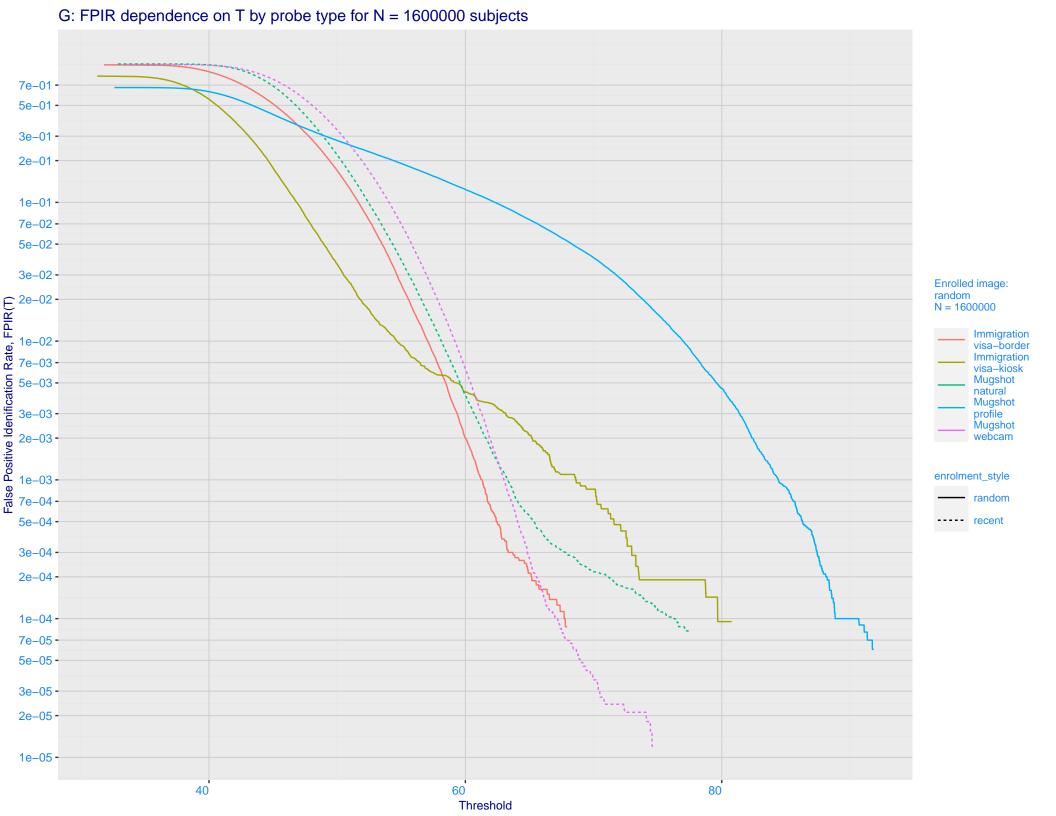
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

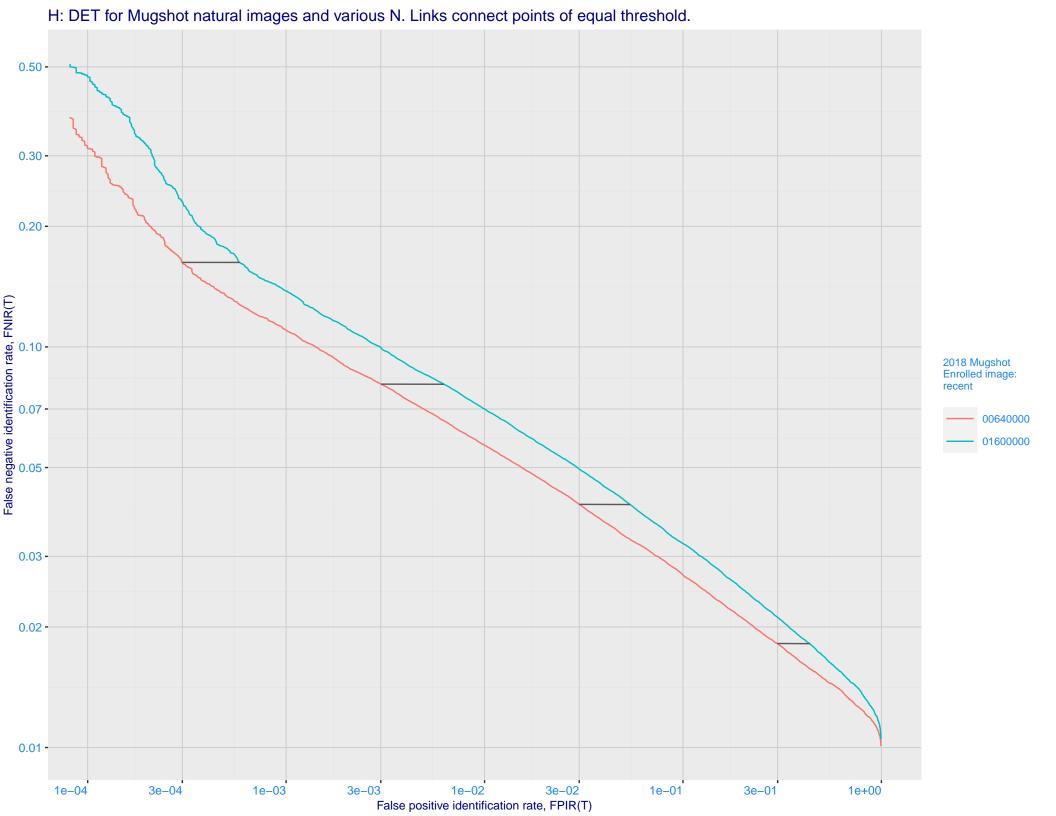
False positive identification rate, FPIR(T)

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 -Selectivity. SEL(T) 5e-02 - 5e-02 - 5e-02 - 1e-02 - 1 **Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 1e-02 -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)

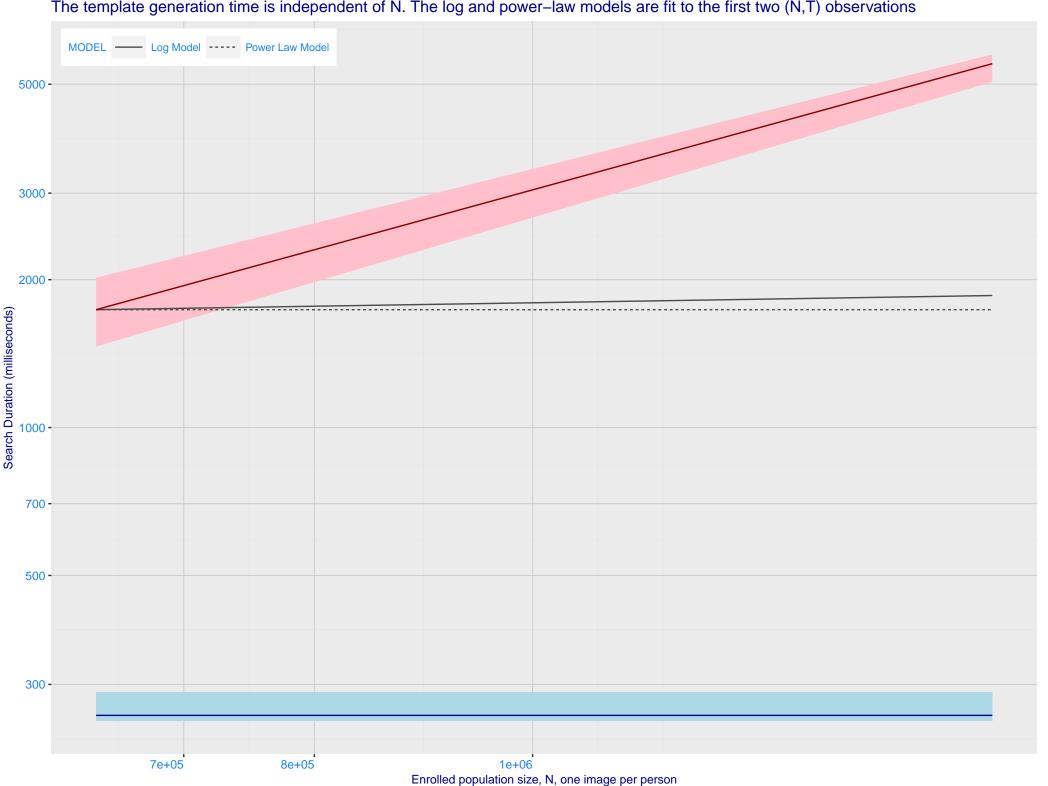




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.300 - 0.100 - 0.070 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 alchera_0 sensetime_005 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 alchera_0 sensetime_005 0.300 -0.200 -0.100 -0.070 -0.050 enrolment_style False negative identification rate, FNIR(N) 0.030 - 0.000 - 0. 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



