A: Datasheet

Algorithm: ntechlab_008

Developer: N-Tech Lab

Submission Date: 2020_01_06

Template size: 1300 bytes

Template time (2.5 percentile): 552 msec

Template time (median): 554 msec

Template time (97.5 percentile): 603 msec

Investigation:

Frontal mugshot ranking 20 (out of 265) -- FNIR(1600000, 0, 1) = 0.0017 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 14 (out of 227) -- FNIR(1600000, 0, 1) = 0.0096 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 17 (out of 196) -- FNIR(1600000, 0, 1) = 0.1570 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 18 (out of 148) -- FNIR(1600000, 0, 1) = 0.0034 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 14 (out of 145) -- FNIR(1600000, 0, 1) = 0.0837 vs. lowest 0.0568 from hr_000

Identification:

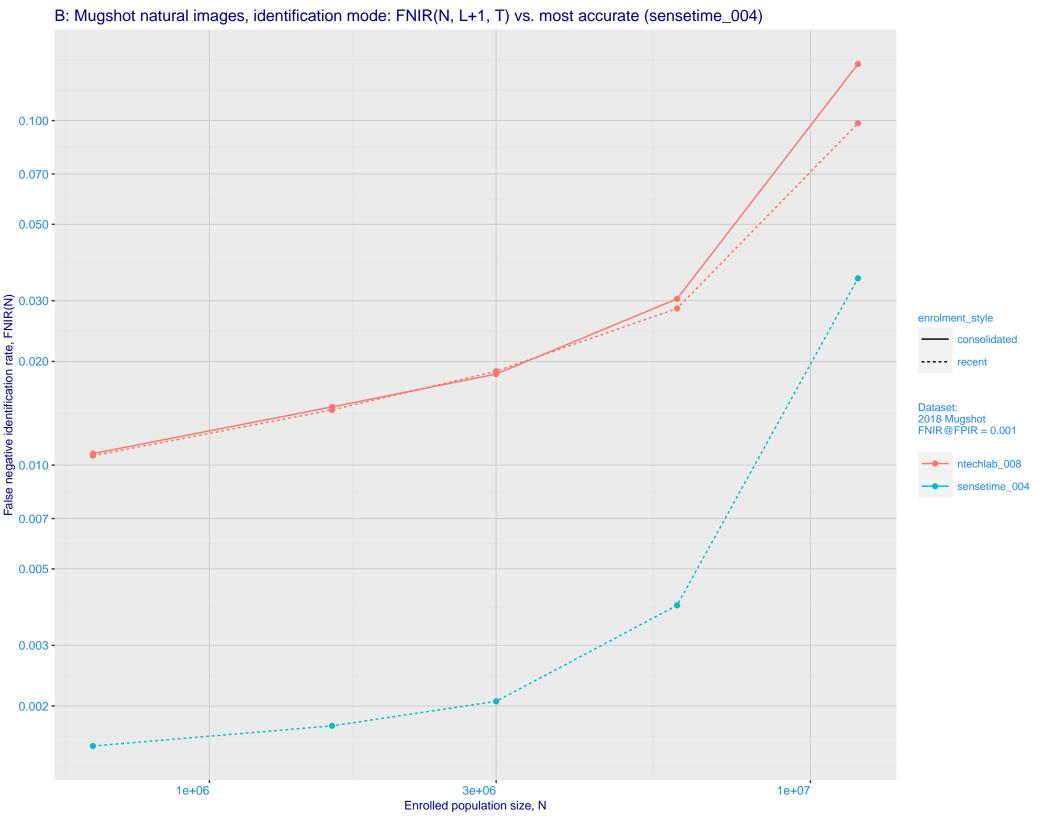
Frontal mugshot ranking 23 (out of 265) -- FNIR(1600000, T, L+1) = 0.0145, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

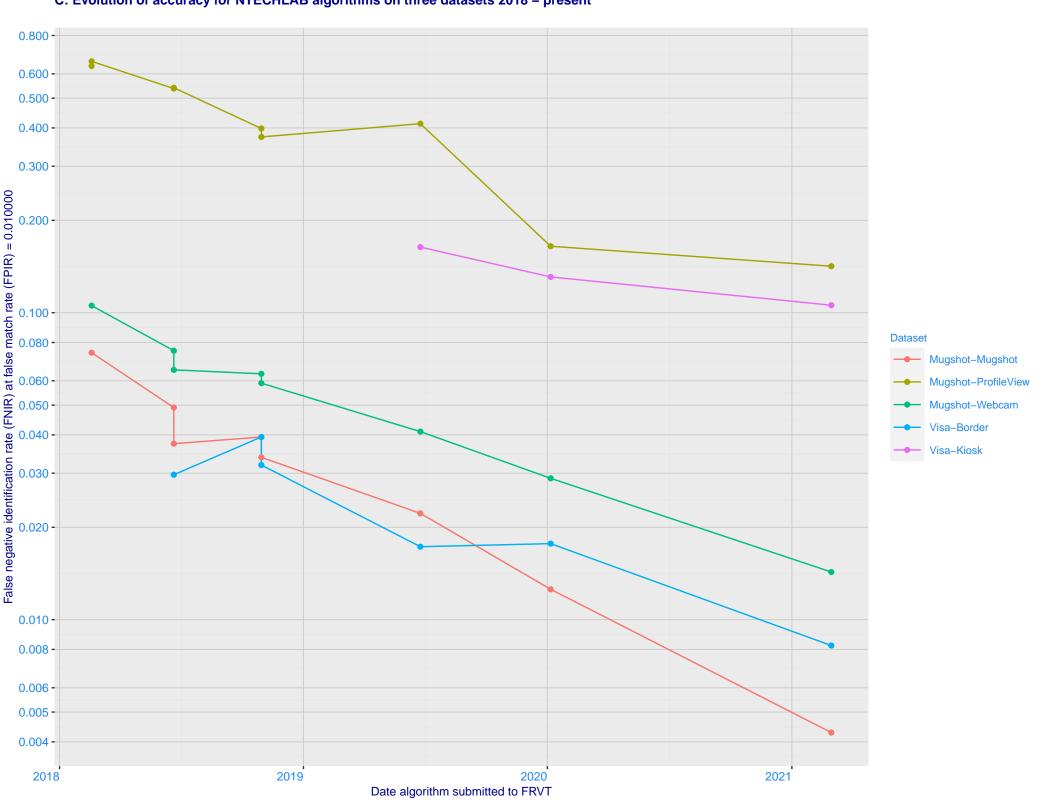
Mugshot webcam ranking 22 (out of 225) -- FNIR(1600000, T, L+1) = 0.0454, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 10 (out of 195) -- FNIR(1600000, T, L+1) = 0.5290, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 34 (out of 146) -- FNIR(1600000, T, L+1) = 0.0333, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 17 (out of 141) — FNIR(1600000, T, L+1) = 0.1833, FPIR=0.001000 vs. lowest 0.0996 from hr_000

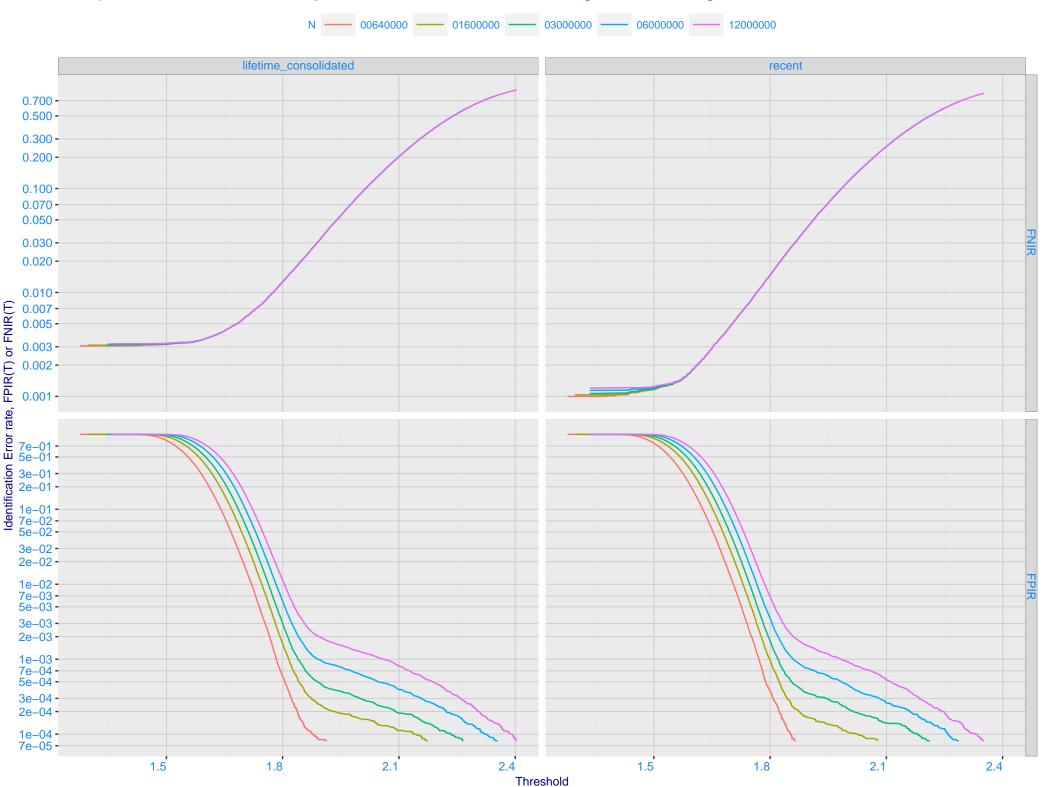




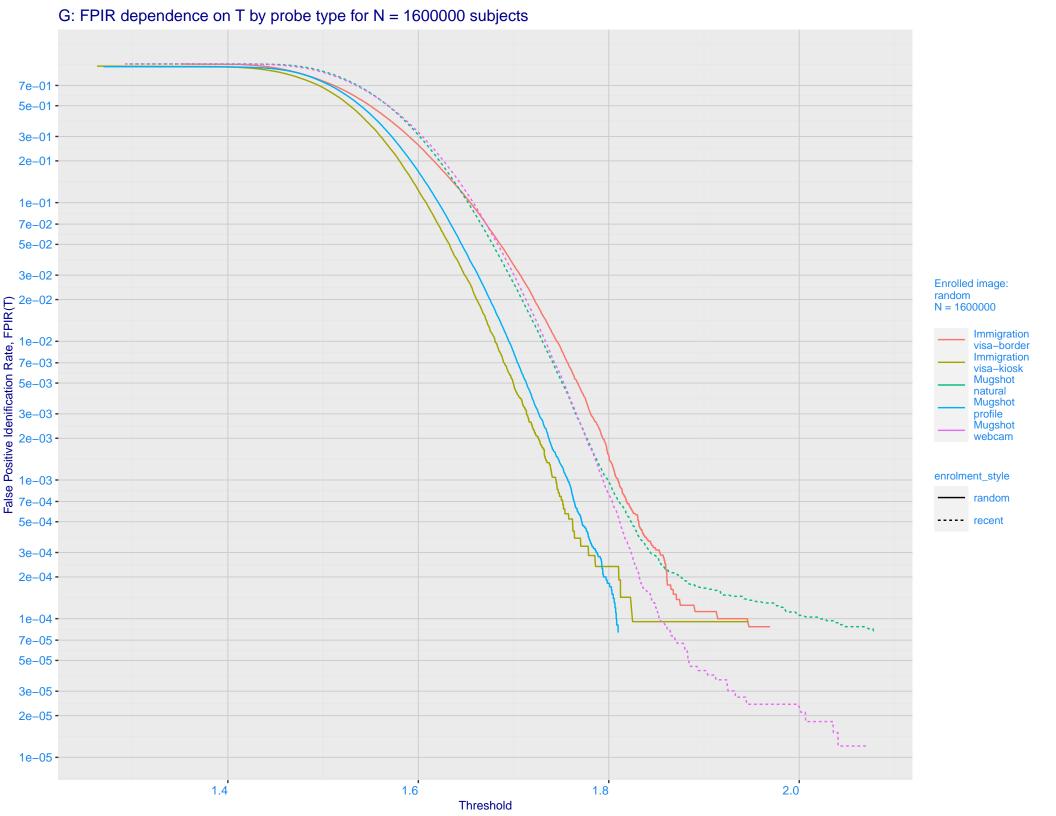
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200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

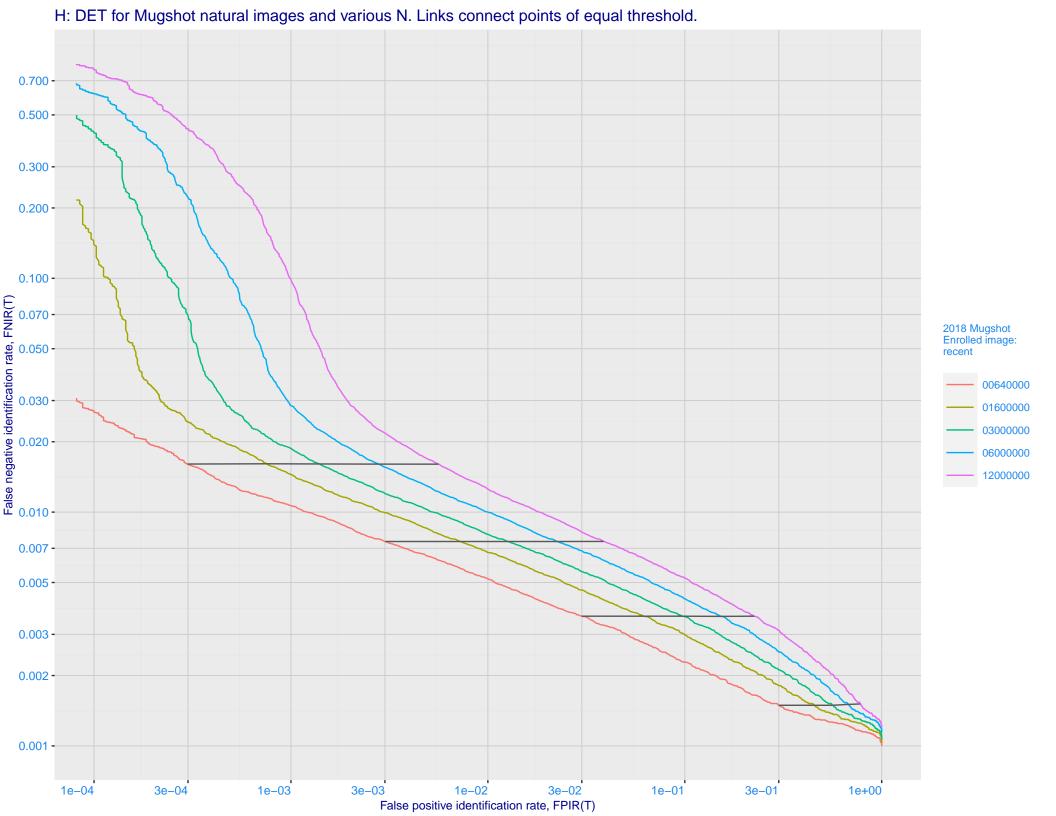
False positive identification rate, FPIR(T)

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)

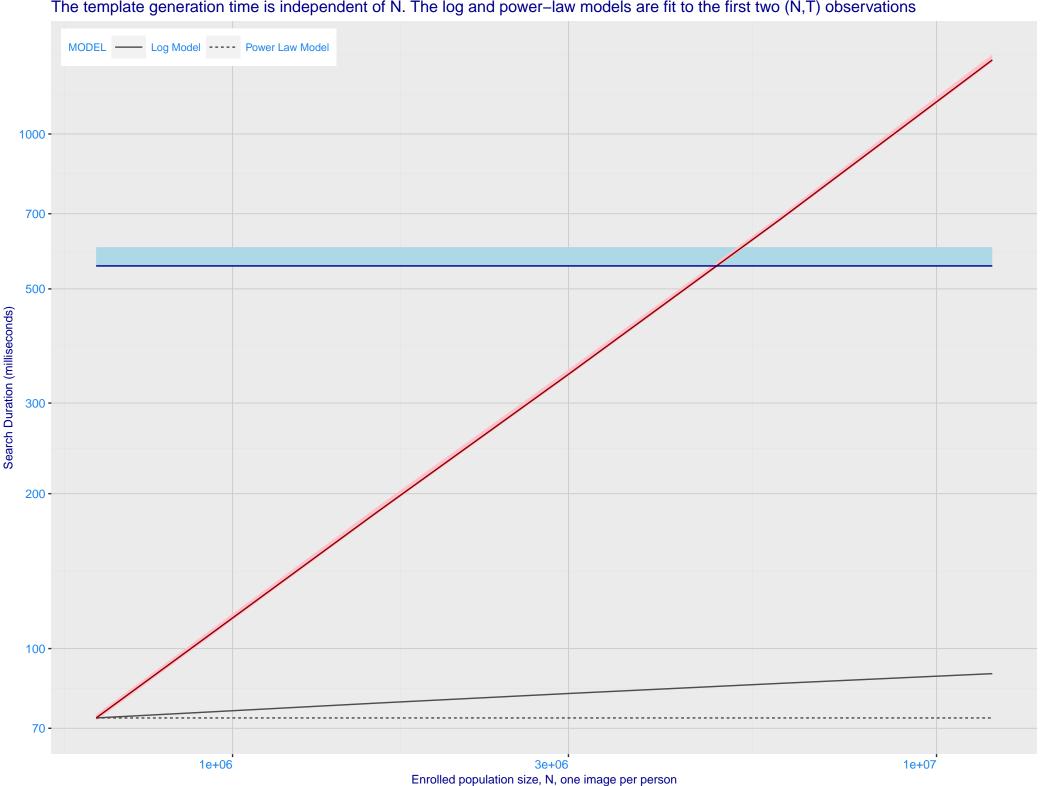




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -• 0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 ntechlab_008 - sensetime_005 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 ntechlab_008 sensetime_005 0.100 -0.070 -0.050 -0.030 -0.020 enrolment_style False negative identification rate, FNIR(N) lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 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

