A: Datasheet

Algorithm: microsoft_6

Developer: Microsoft

Submission Date: 2018_10_29

Template size: 1024 bytes

Template time (2.5 percentile): 649 msec

Template time (median): 672 msec

Template time (97.5 percentile): 978 msec

Investigation:

Frontal mugshot ranking 29 (out of 265) — FNIR(1600000, 0, 1) = 0.0020 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 23 (out of 227) -- FNIR(1600000, 0, 1) = 0.0114 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 16 (out of 196) -- FNIR(1600000, 0, 1) = 0.1503 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 24 (out of 148) -- FNIR(1600000, 0, 1) = 0.0037 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 26 (out of 145) -- FNIR(1600000, 0, 1) = 0.1004 vs. lowest 0.0568 from hr_000

Identification:

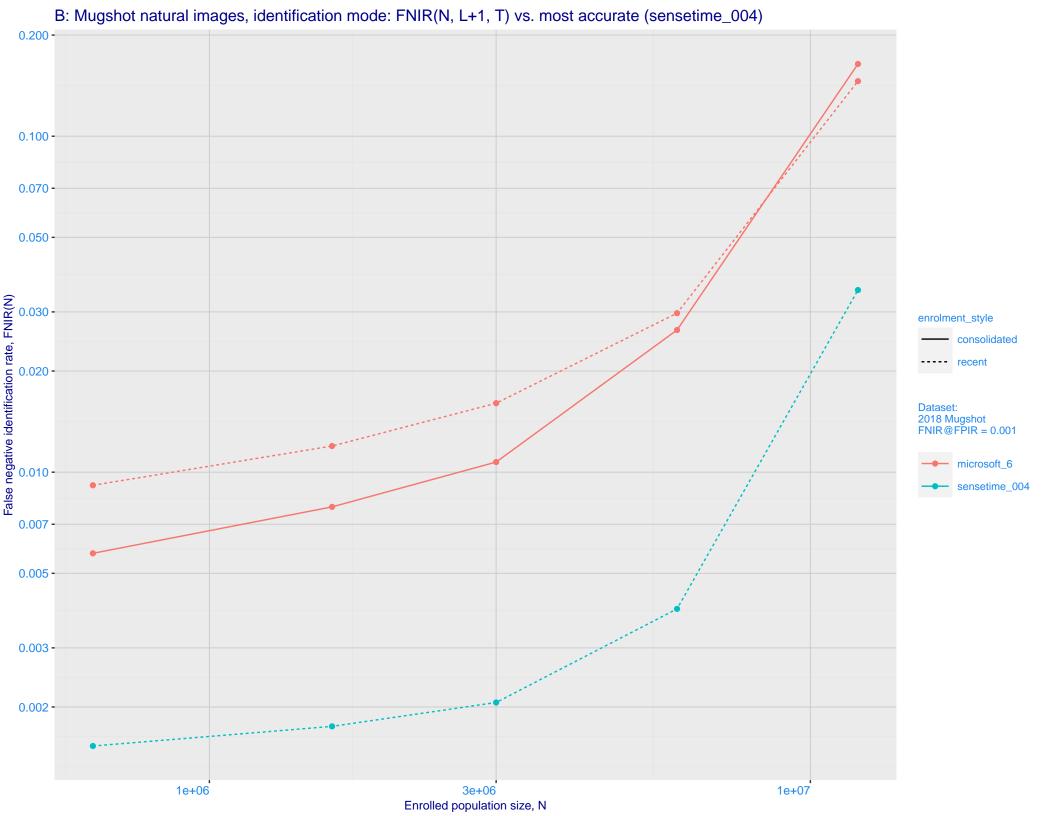
Frontal mugshot ranking 18 (out of 265) -- FNIR(1600000, T, L+1) = 0.0120, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

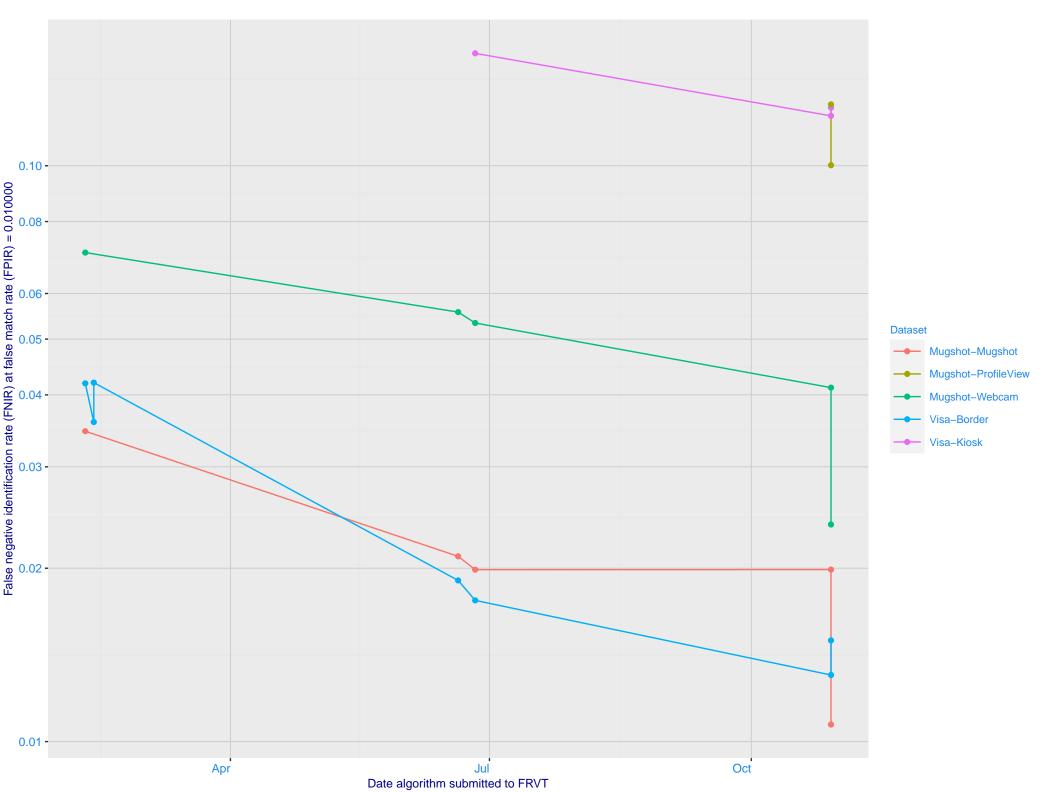
Mugshot webcam ranking 18 (out of 225) -- FNIR(1600000, T, L+1) = 0.0366, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 4 (out of 195) -- FNIR(1600000, T, L+1) = 0.3864, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 30 (out of 146) -- FNIR(1600000, T, L+1) = 0.0317, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 19 (out of 141) -- FNIR(1600000, T, L+1) = 0.1853, FPIR=0.001000 vs. lowest 0.0996 from hr_000

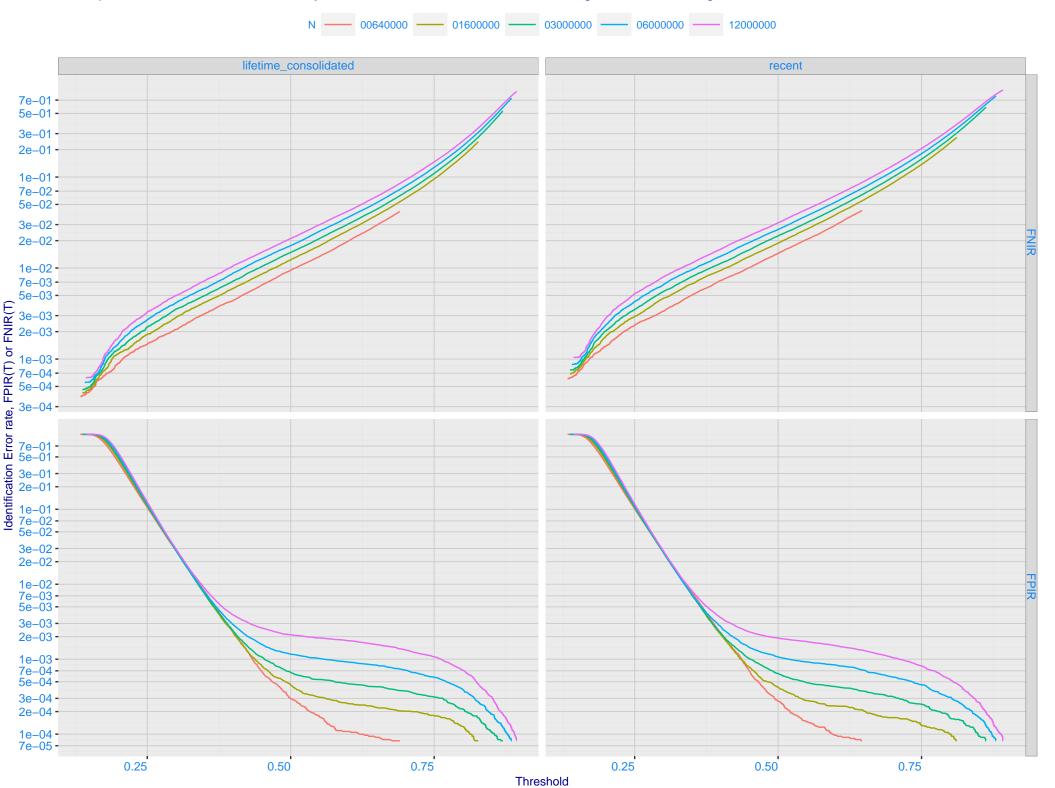




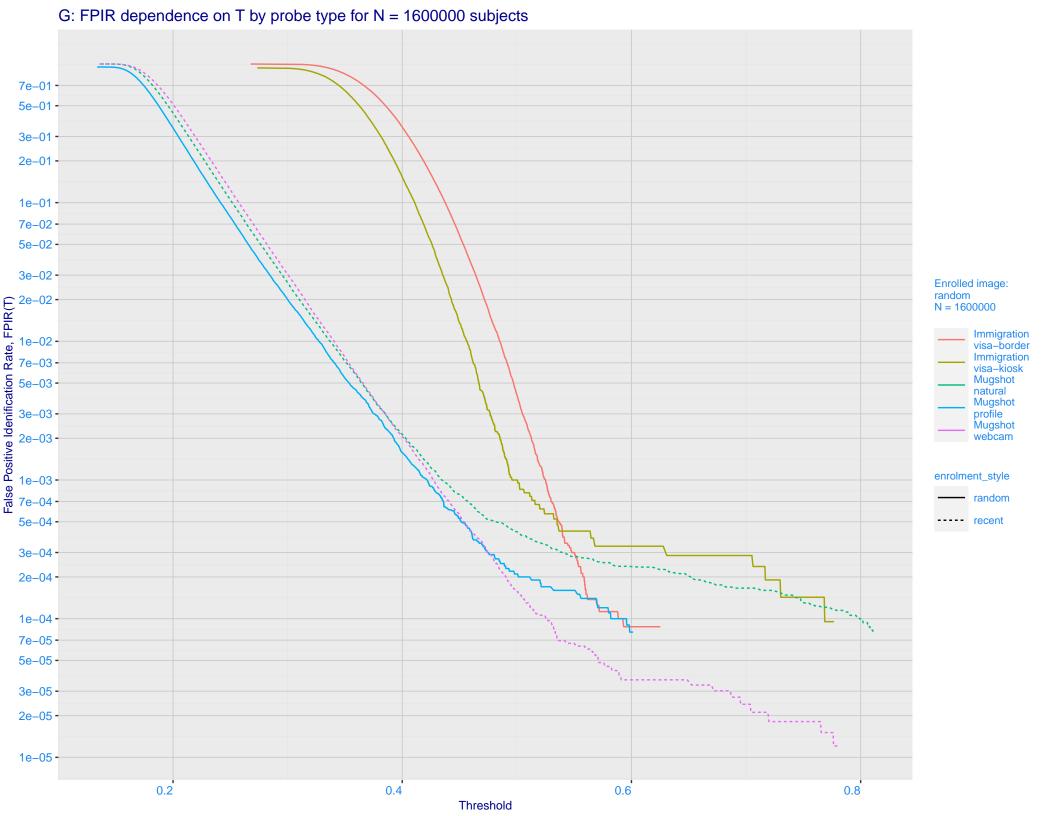
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0. enrolment_style 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 -1e-03e-04e-03e-03e-03e-03e-01e+001e-03e-01e

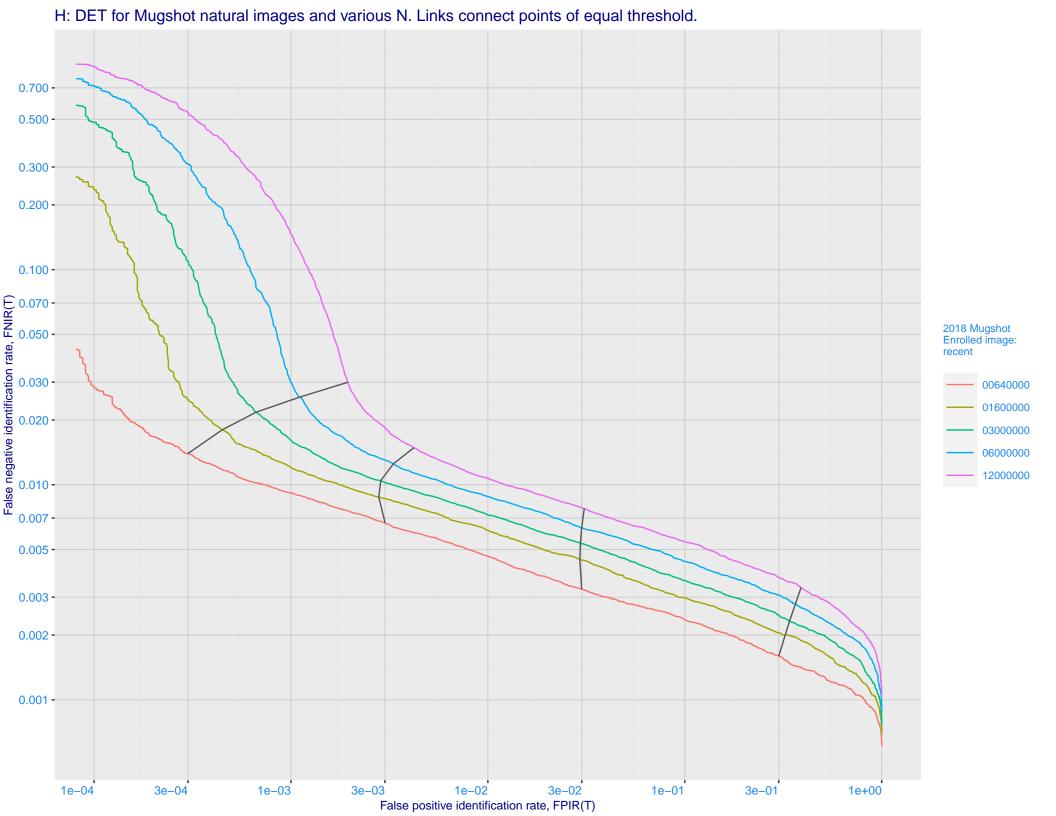
False positive identification rate, FPIR(T)

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-02 1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

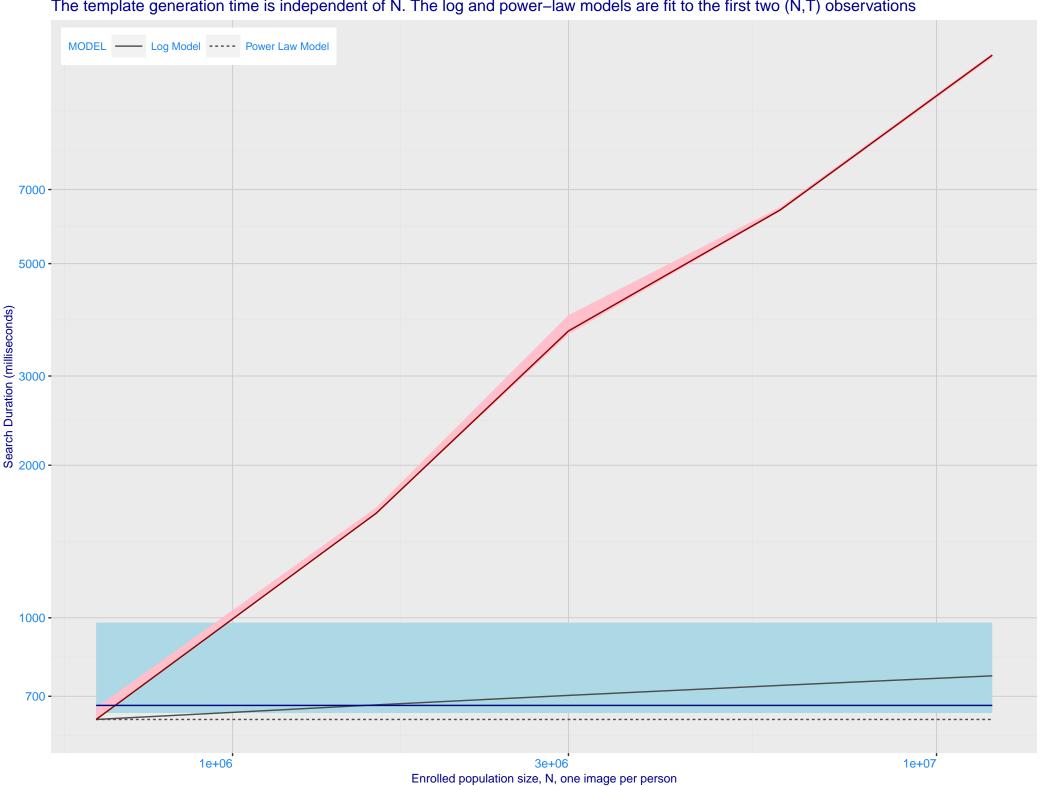


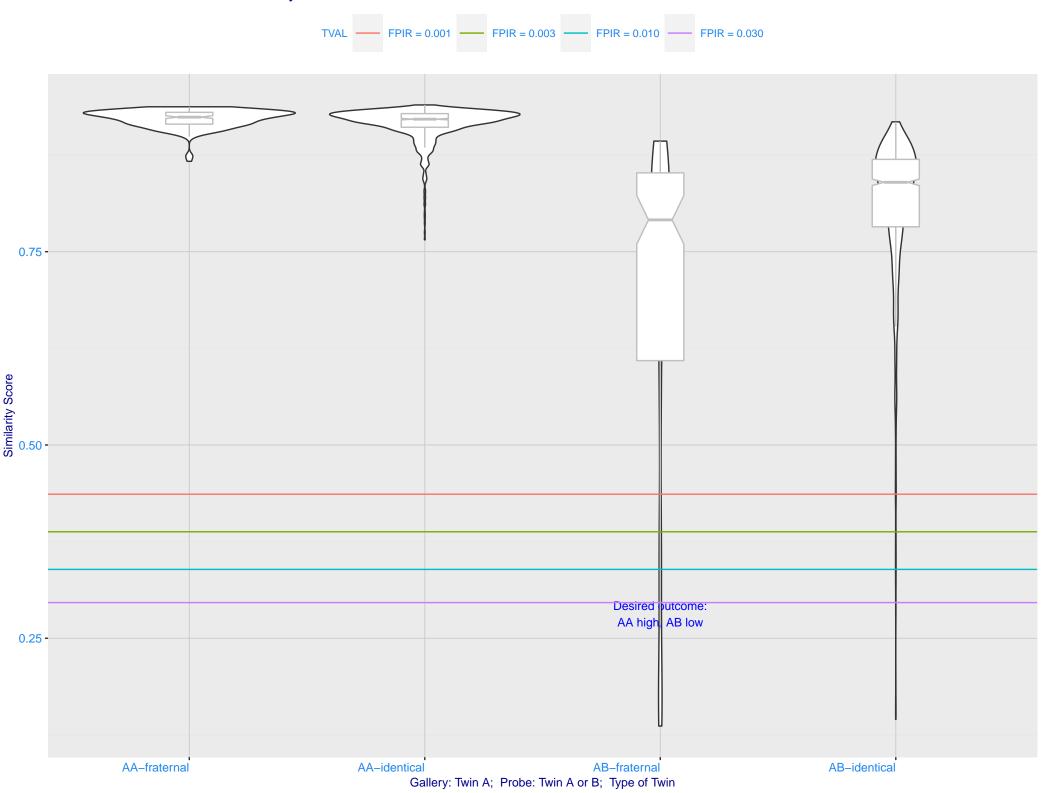


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -• 0.003 - (N) 0.002 - 0.001 - 0.001 - 0.000 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 microsoft_6 sensetime_005 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 microsoft_6 sensetime_005 0.100 -0.070 -0.050 -0.030 -0.020 enrolment_style False negative identification rate, FNIR(N) - 0.000 - 0.003 - lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 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



