A: Datasheet

Algorithm: microsoft_5

Developer: Microsoft

Submission Date: 2018_10_29

Template size: 1024 bytes

Template time (2.5 percentile): 637 msec

Template time (median): 659 msec

Template time (97.5 percentile): 900 msec

Investigation:

Frontal mugshot ranking 24 (out of 259) -- FNIR(1600000, 0, 1) = 0.0019 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 18 (out of 221) -- FNIR(1600000, 0, 1) = 0.0109 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 11 (out of 190) -- FNIR(1600000, 0, 1) = 0.1438 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 12 (out of 142) -- FNIR(1600000, 0, 1) = 0.0030 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 20 (out of 139) -- FNIR(1600000, 0, 1) = 0.0987 vs. lowest 0.0694 from cib_000

Identification:

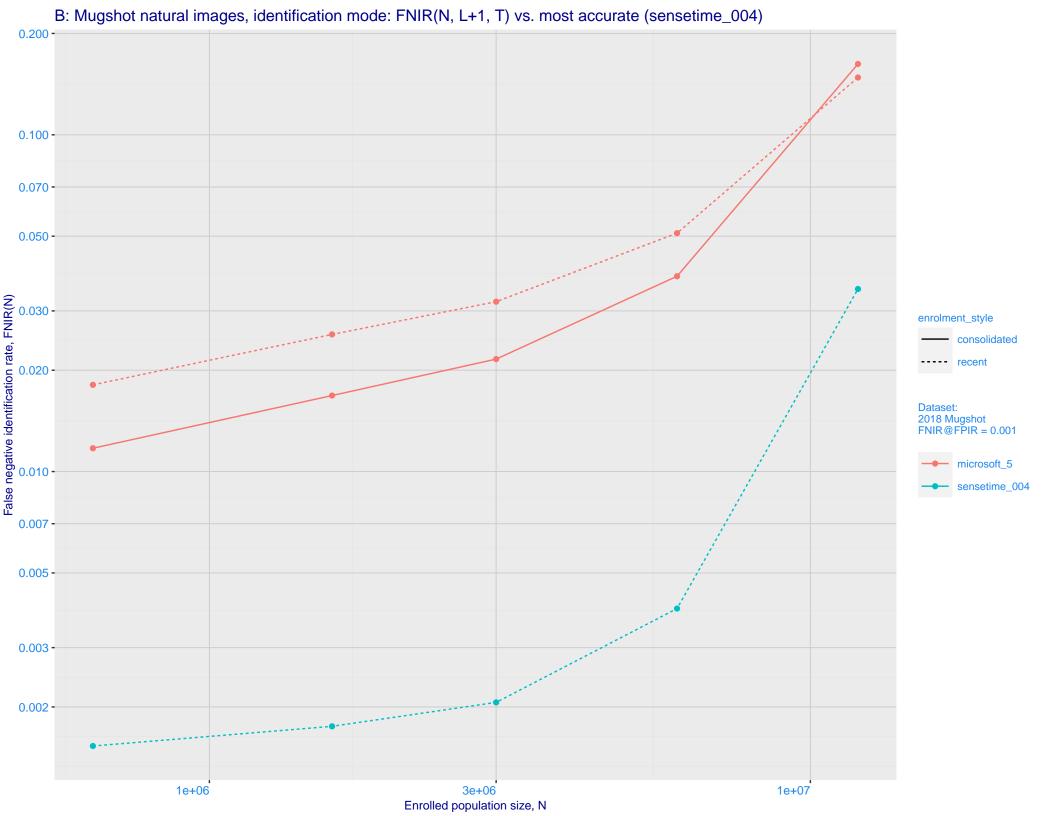
Frontal mugshot ranking 42 (out of 259) -- FNIR(1600000, T, L+1) = 0.0255, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

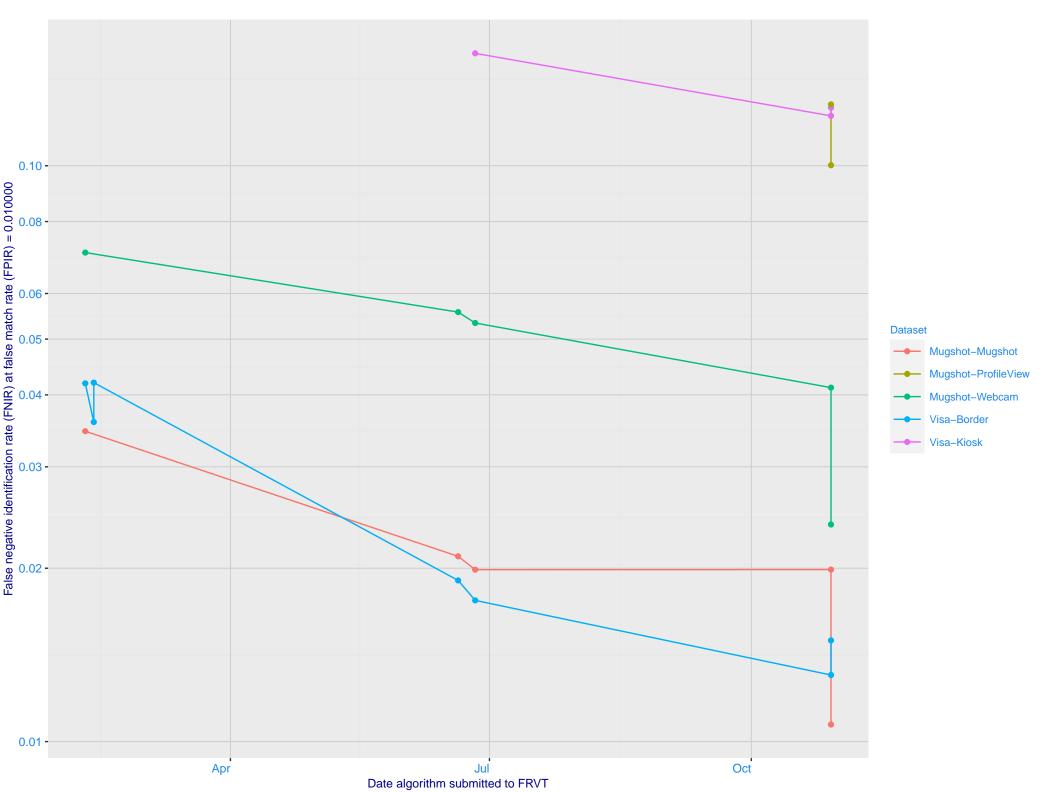
Mugshot webcam ranking 34 (out of 219) -- FNIR(1600000, T, L+1) = 0.0704, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 10 (out of 189) -- FNIR(1600000, T, L+1) = 0.5867, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 19 (out of 139) -- FNIR(1600000, T, L+1) = 0.0268, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 12 (out of 134) -- FNIR(1600000, T, L+1) = 0.1809, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005

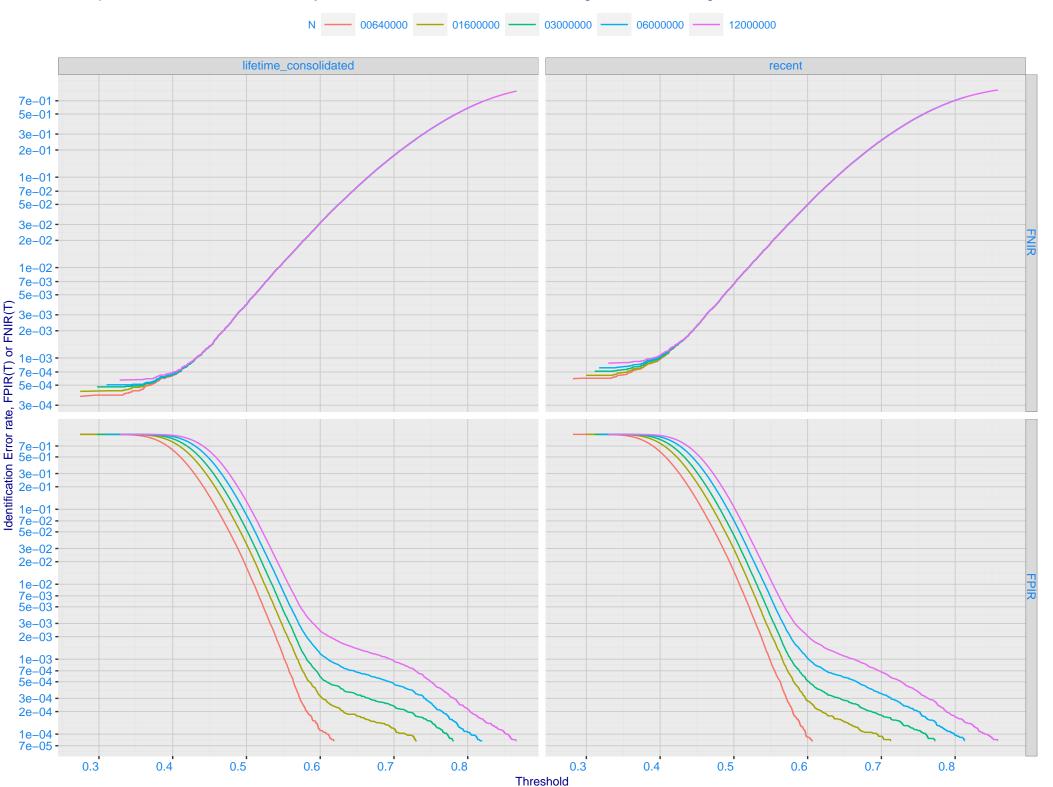




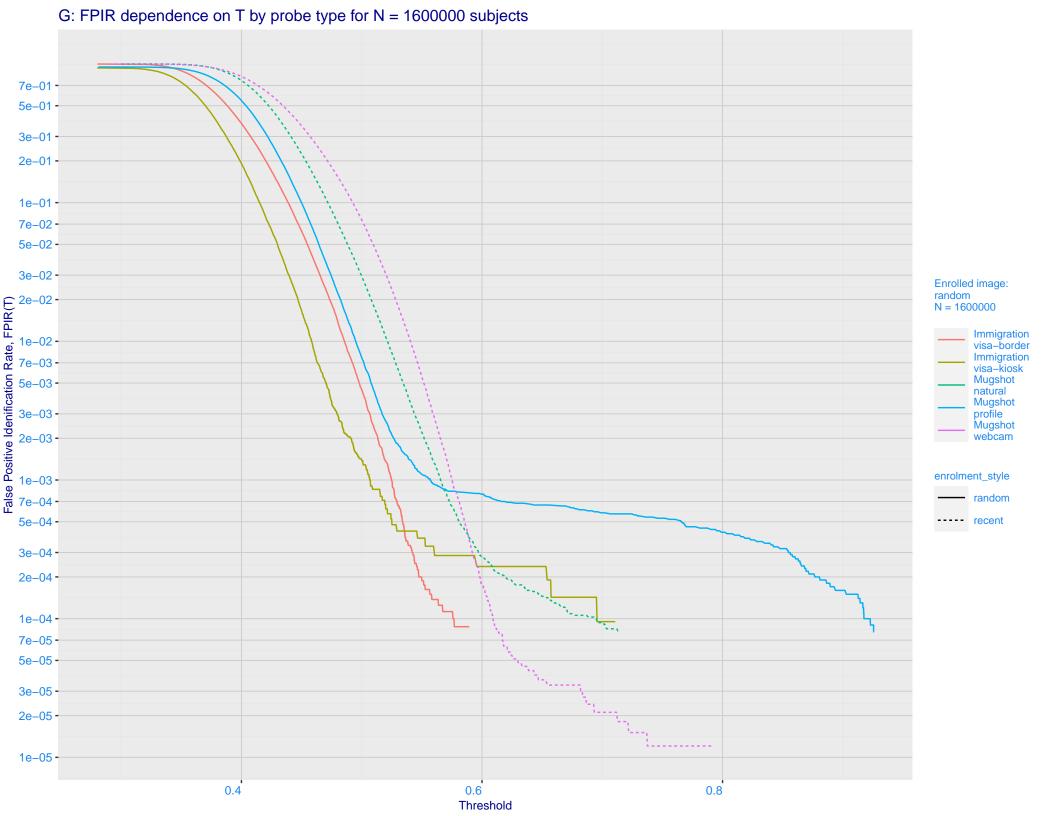
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(T) 0.003 - 0.001 - 0.001 - 0.000 - 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 -

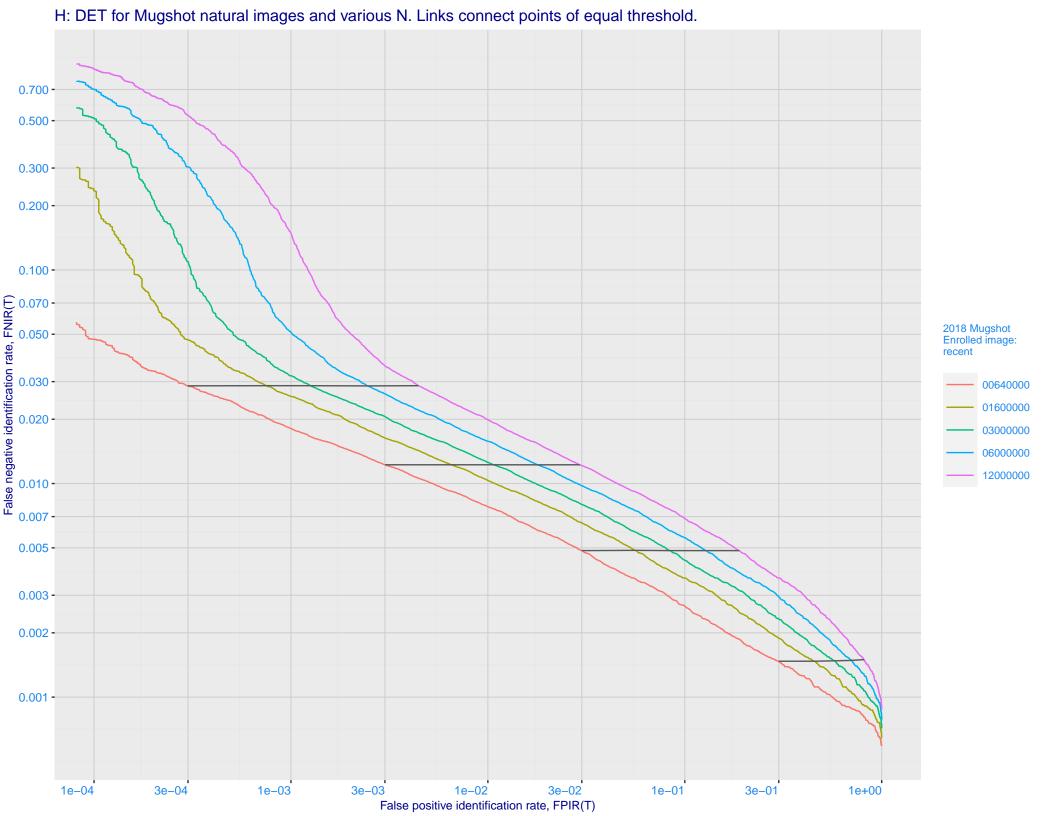
False positive identification rate, FPIR(T)

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 -Selectivity Selectivity 77 | 1e-01 - 75 | 5e-02 - 75 | 5e **Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 2e-02 -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 -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)

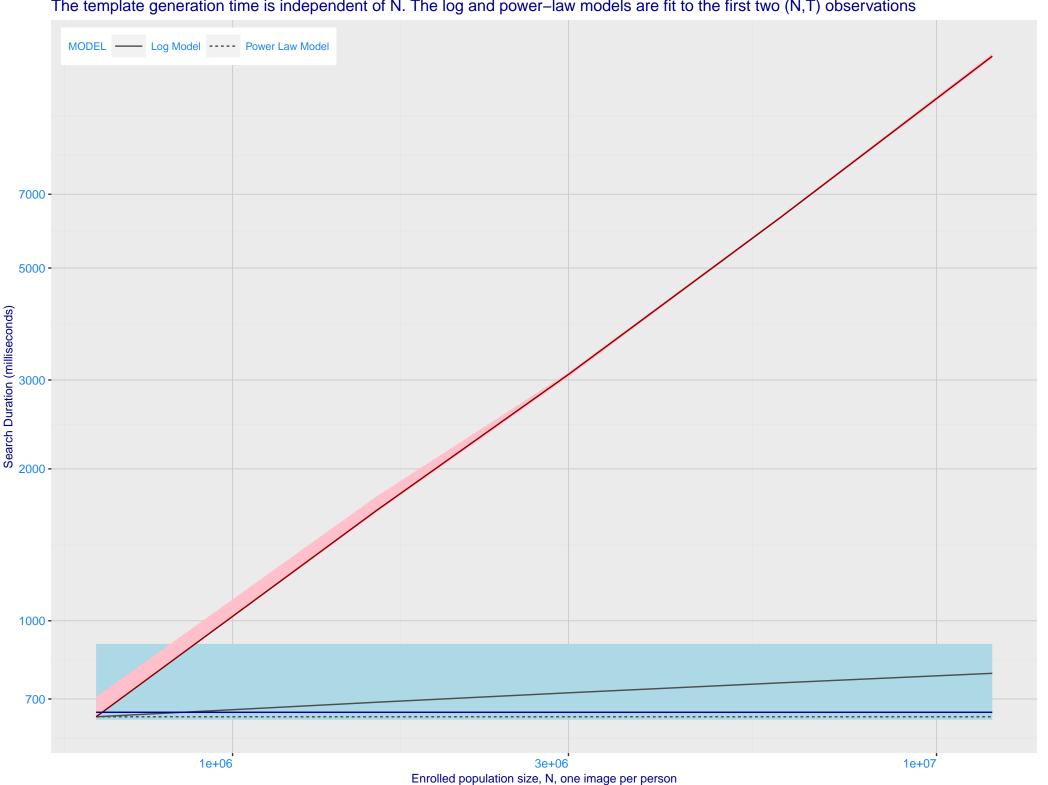




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. FNIR@Rank = 1 microsoft_5 sensetime_005 Mugshot webcam Mugshot natural enrolment_style consolidated ---- random --- recent 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_5 sensetime_005 0.100 -0.070 -0.050 -0.030 -0.020 enrolment_style False negative identification rate, FNIR(N) - 0.000 - 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



