A: Datasheet

Algorithm: microsoft_0

Developer: Microsoft

Submission Date: 2018_01_30

Template size: 512 bytes

Template time (2.5 percentile): 274 msec

Template time (median): 281 msec

Template time (97.5 percentile): 297 msec

Investigation:

Frontal mugshot ranking 65 (out of 265) -- FNIR(1600000, 0, 1) = 0.0038 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 77 (out of 227) -- FNIR(1600000, 0, 1) = 0.0206 vs. lowest 0.0062 from sensetime_005

Immigration visa-border ranking 61 (out of 148) -- FNIR(1600000, 0, 1) = 0.0101 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 62 (out of 145) -- FNIR(1600000, 0, 1) = 0.1422 vs. lowest 0.0568 from hr_000

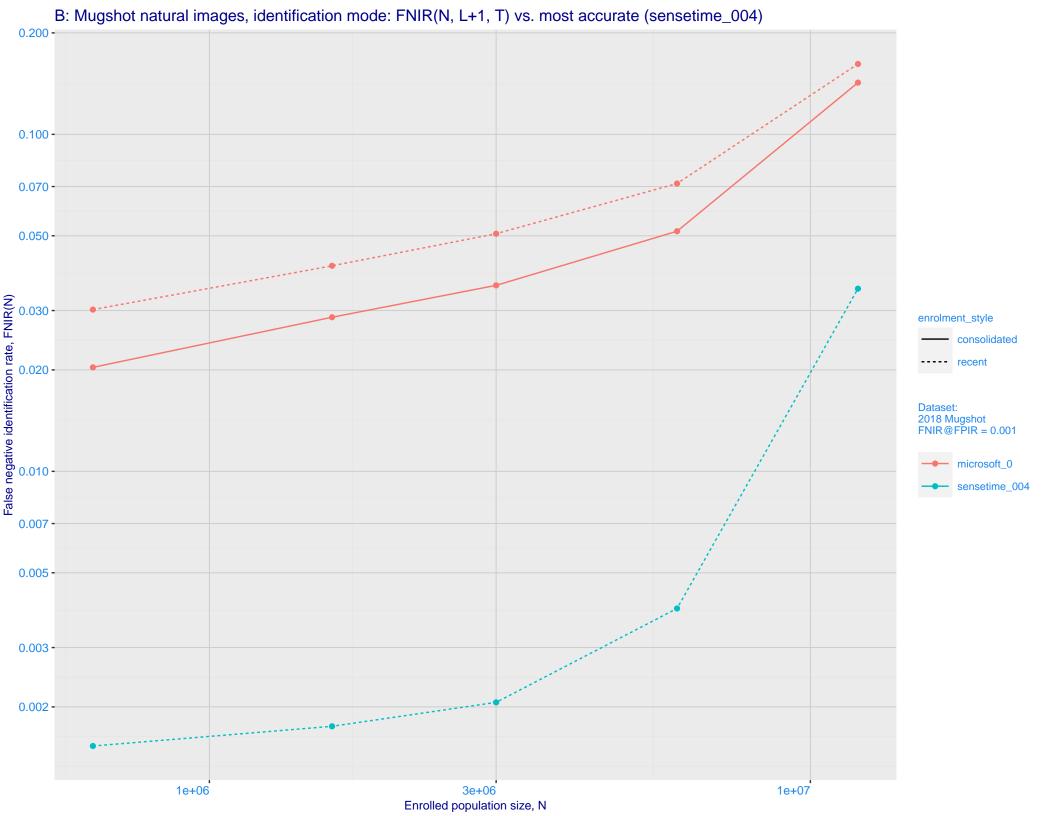
Identification:

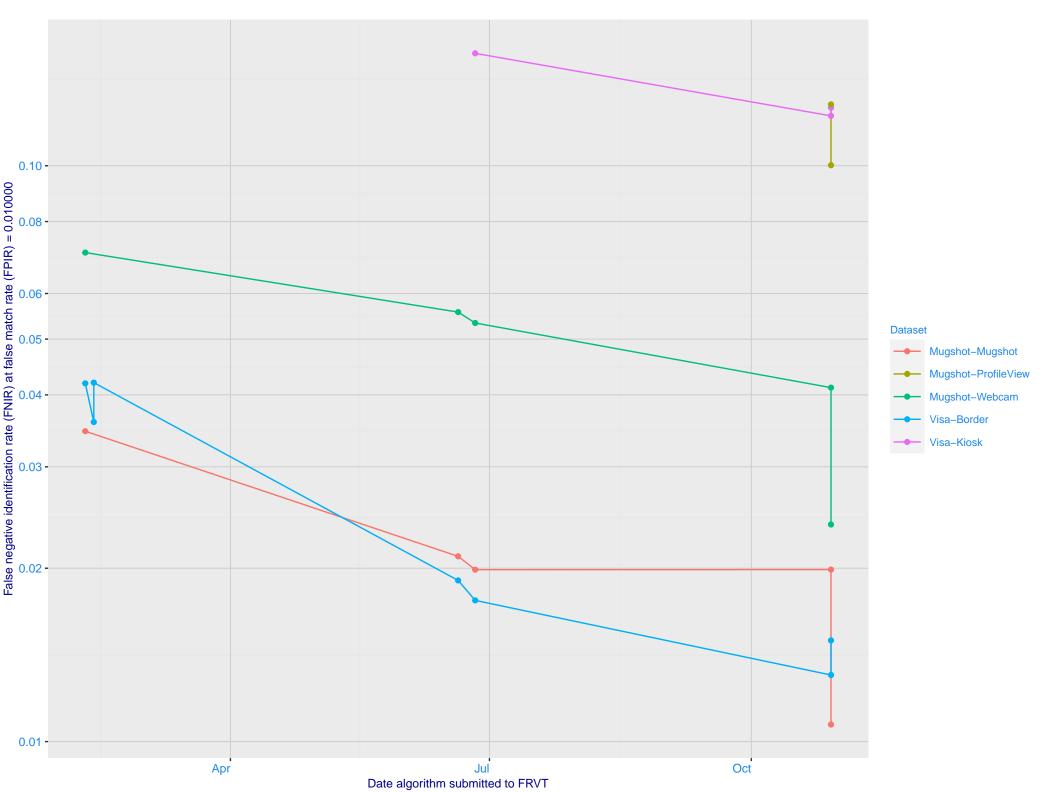
Frontal mugshot ranking 63 (out of 265) -- FNIR(1600000, T, L+1) = 0.0407, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 77 (out of 225) -- FNIR(1600000, T, L+1) = 0.1145, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Immigration visa-border ranking 62 (out of 146) -- FNIR(1600000, T, L+1) = 0.0774, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 38 (out of 141) -- FNIR(1600000, T, L+1) = 0.2998, FPIR=0.001000 vs. lowest 0.0996 from hr_000

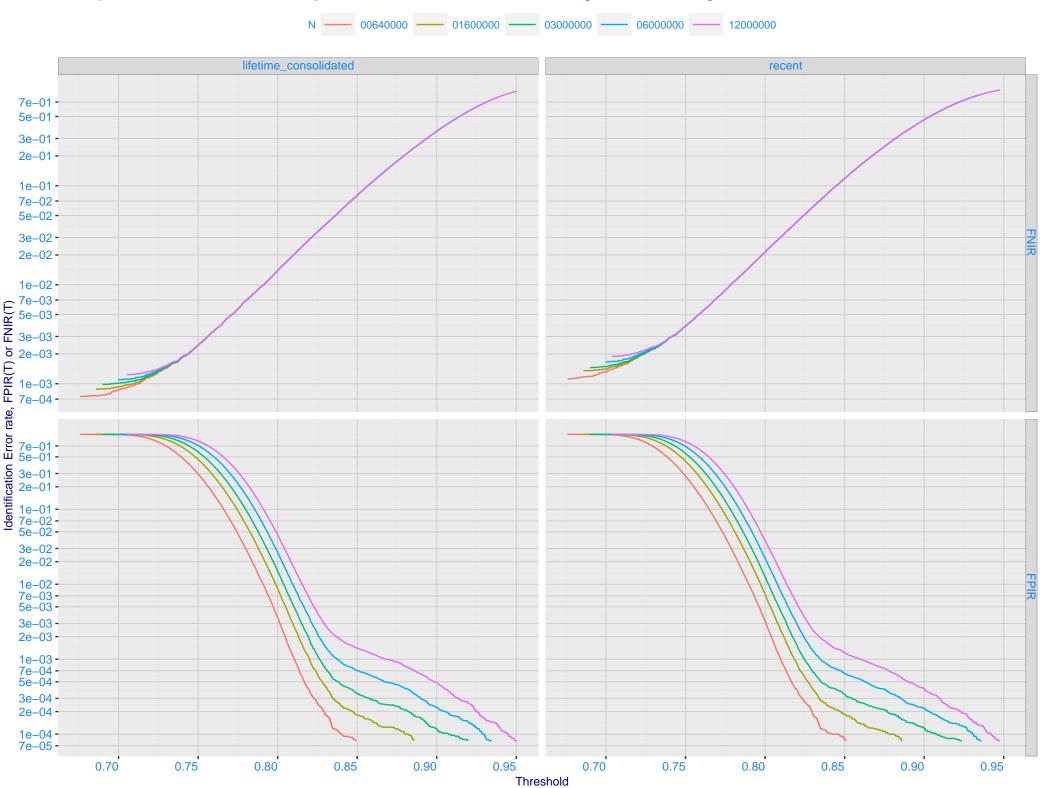




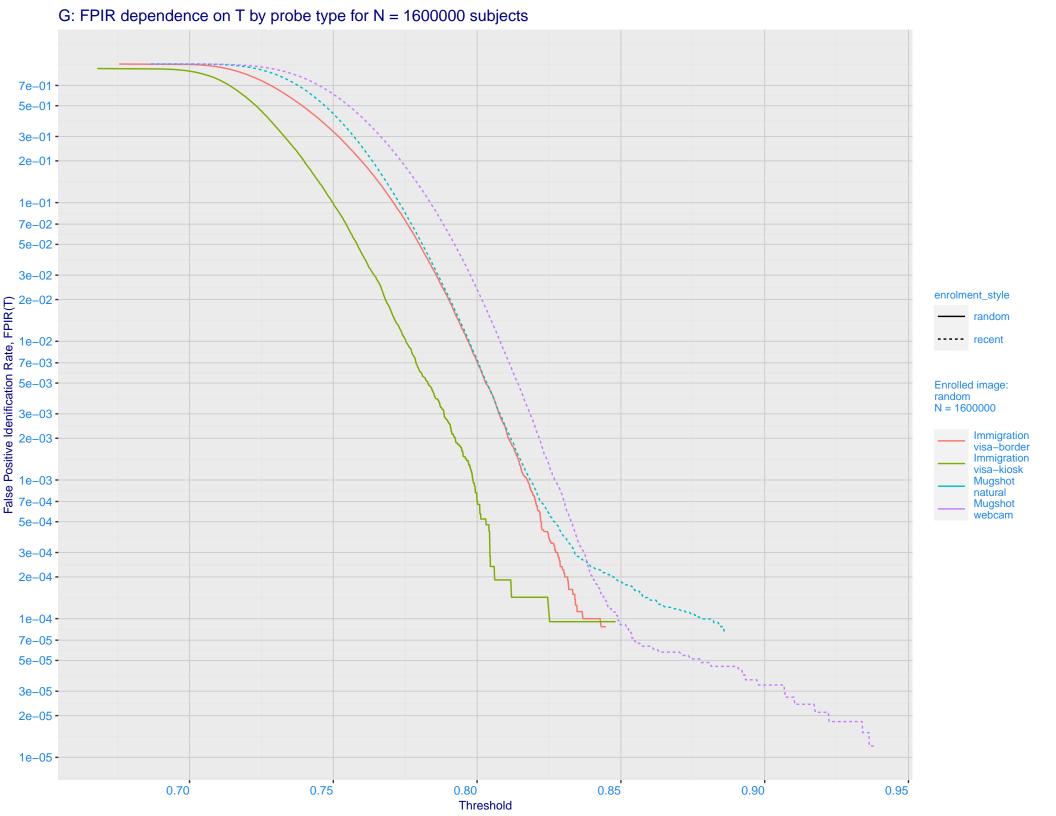
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200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

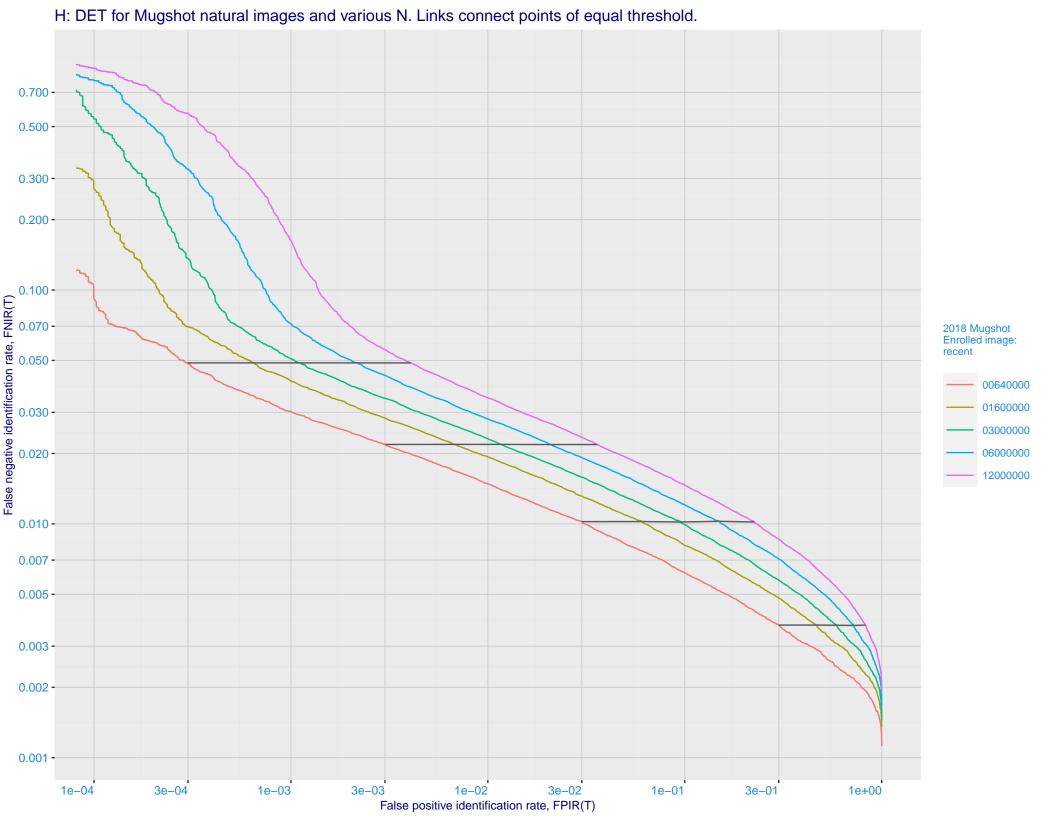
False positive identification rate, FPIR(T)

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 - 2e-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)

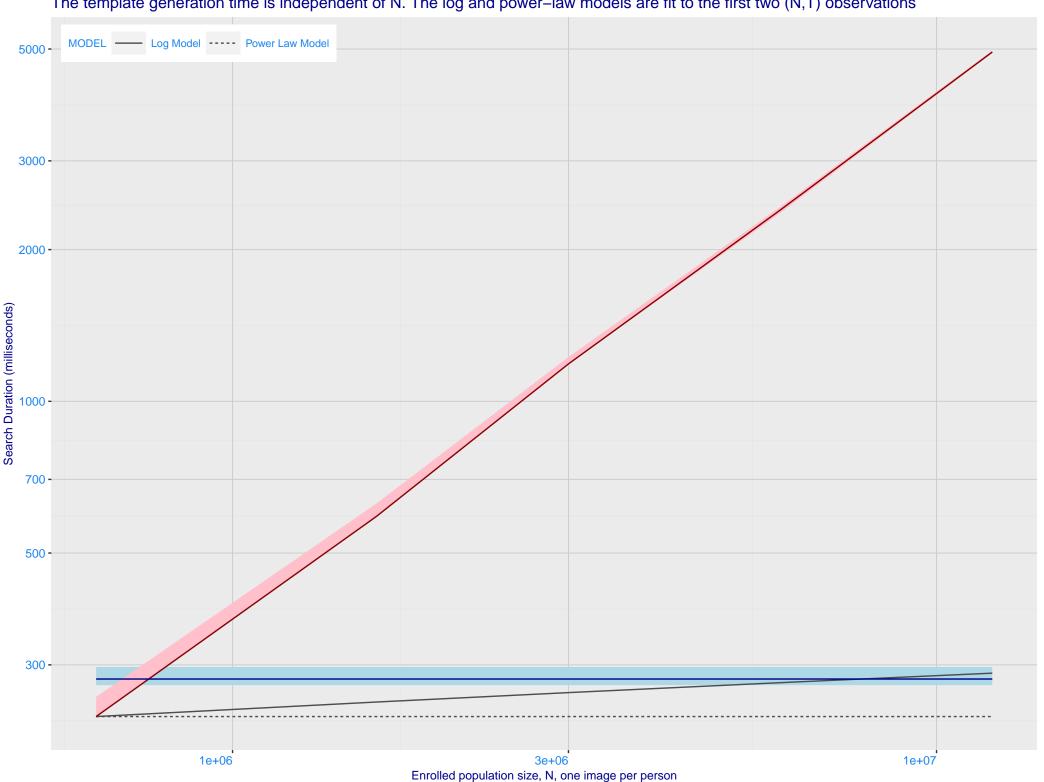




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 FNIR@Rank = 1 microsoft_0 sensetime_005 Mugshot webcam Mugshot natural enrolment_style consolidated ---- random --- recent 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_0 sensetime_005 0.100 -0.070 -0.050 -0.030 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 0.003 -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



