A: Datasheet

Algorithm: 3divi_4

Developer: 3Divi

Submission Date: 2018_06_19

Template size: 4096 bytes

Template time (2.5 percentile): 489 msec

Template time (median): 614 msec

Template time (97.5 percentile): 838 msec

Investigation:

Frontal mugshot ranking 157 (out of 265) -- FNIR(1600000, 0, 1) = 0.0175 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 159 (out of 227) -- FNIR(1600000, 0, 1) = 0.0621 vs. lowest 0.0062 from sensetime_005

Immigration visa-border ranking 90 (out of 148) -- FNIR(1600000, 0, 1) = 0.0354 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 94 (out of 145) -- FNIR(1600000, 0, 1) = 0.2788 vs. lowest 0.0568 from hr_000

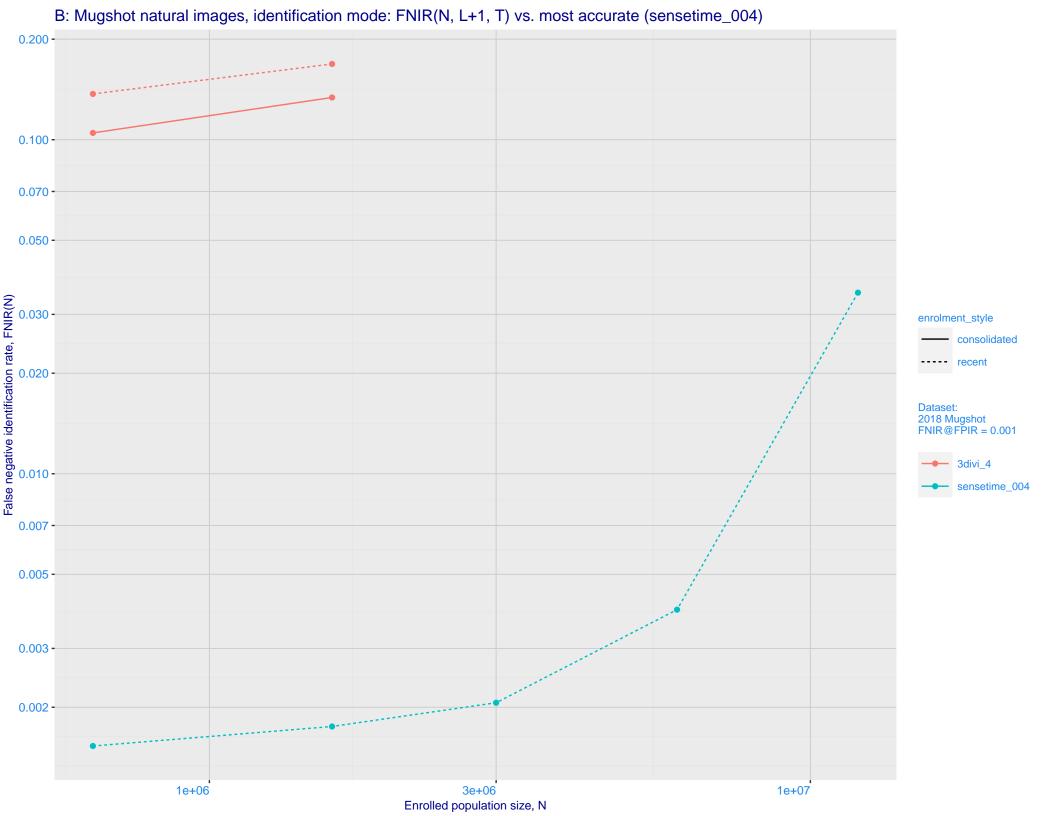
Identification:

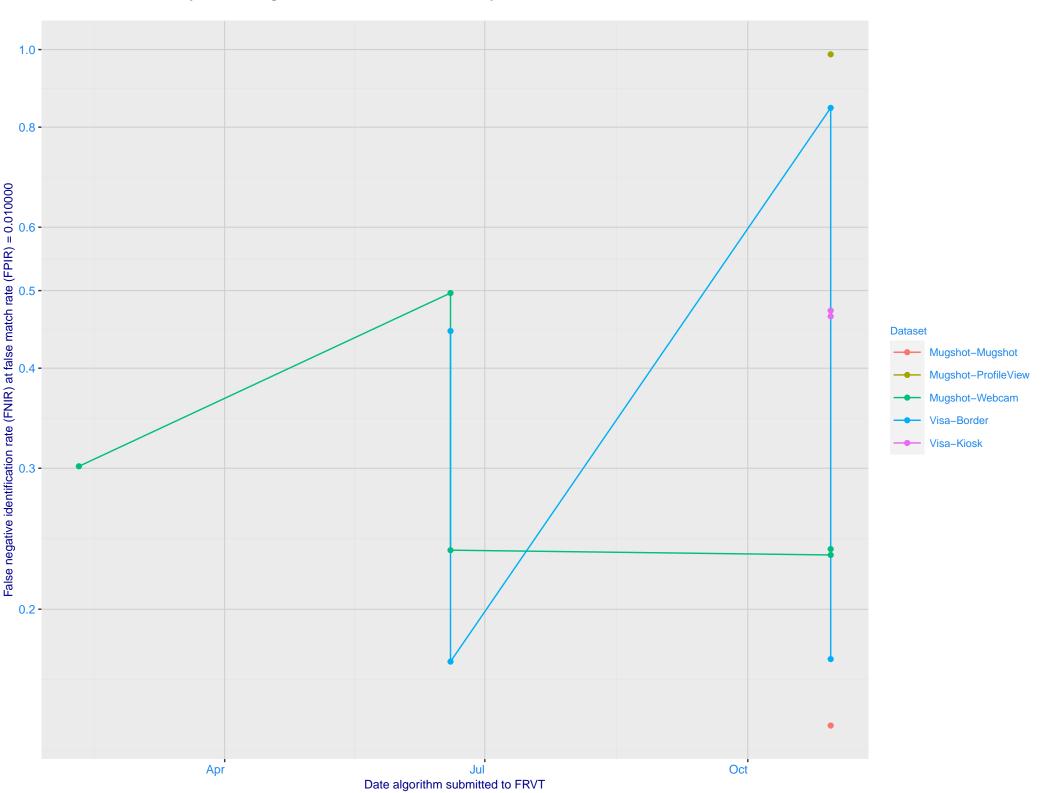
Frontal mugshot ranking 168 (out of 265) -- FNIR(1600000, T, L+1) = 0.1686, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 167 (out of 225) -- FNIR(1600000, T, L+1) = 0.3426, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Immigration visa-border ranking 91 (out of 146) -- FNIR(1600000, T, L+1) = 0.2776, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 72 (out of 141) -- FNIR(1600000, T, L+1) = 0.6075, 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) 0.002 - 0.000 - 0.500 - 0.500 - 0.200 - 0. 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

2.50

2.75

3.00

3.25

3.50

2.50

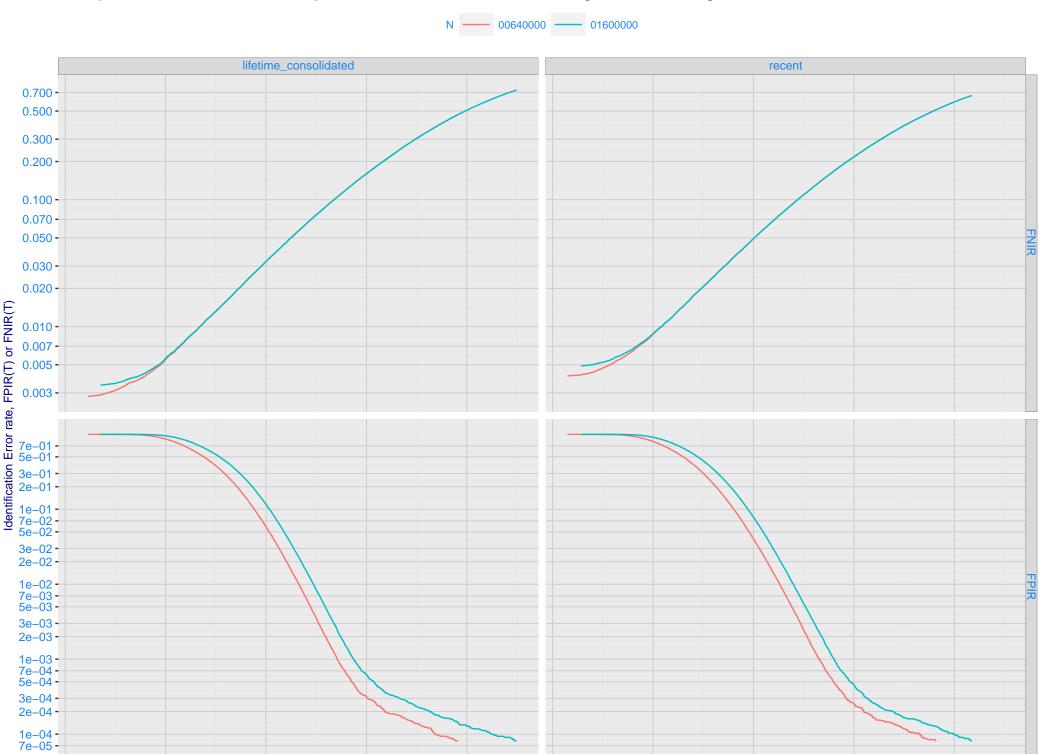
Threshold

2.75

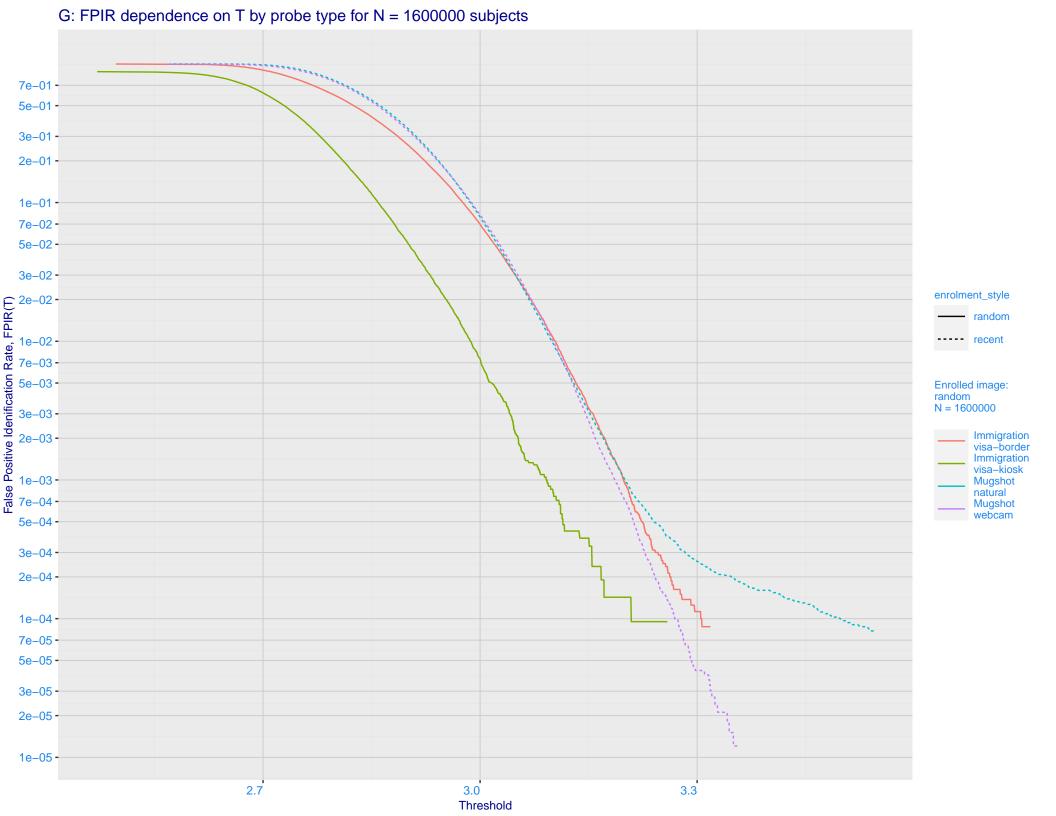
3.00

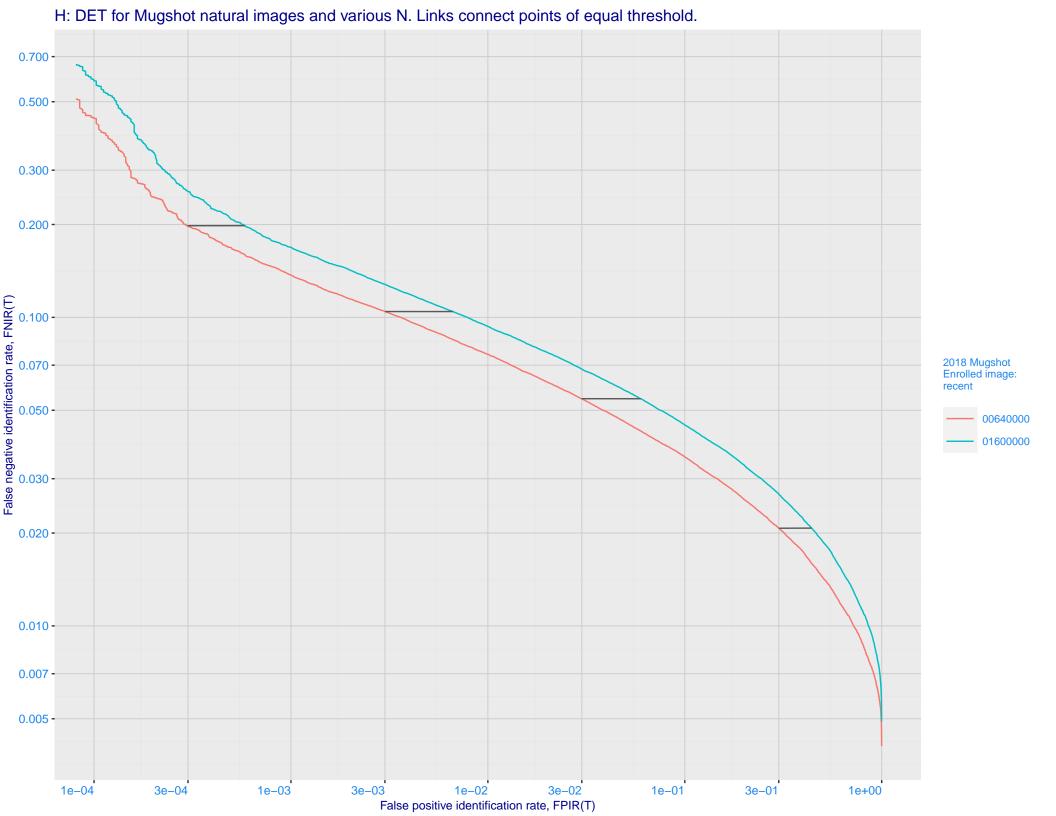
3.25

3.50

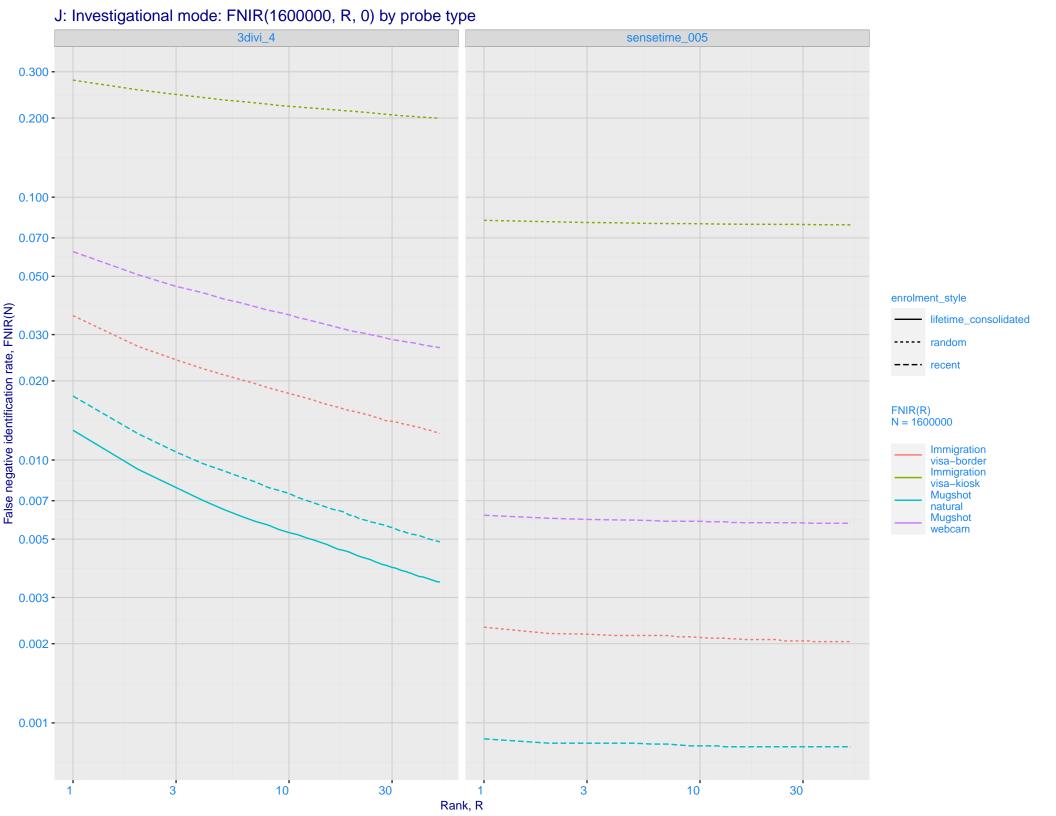


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 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)

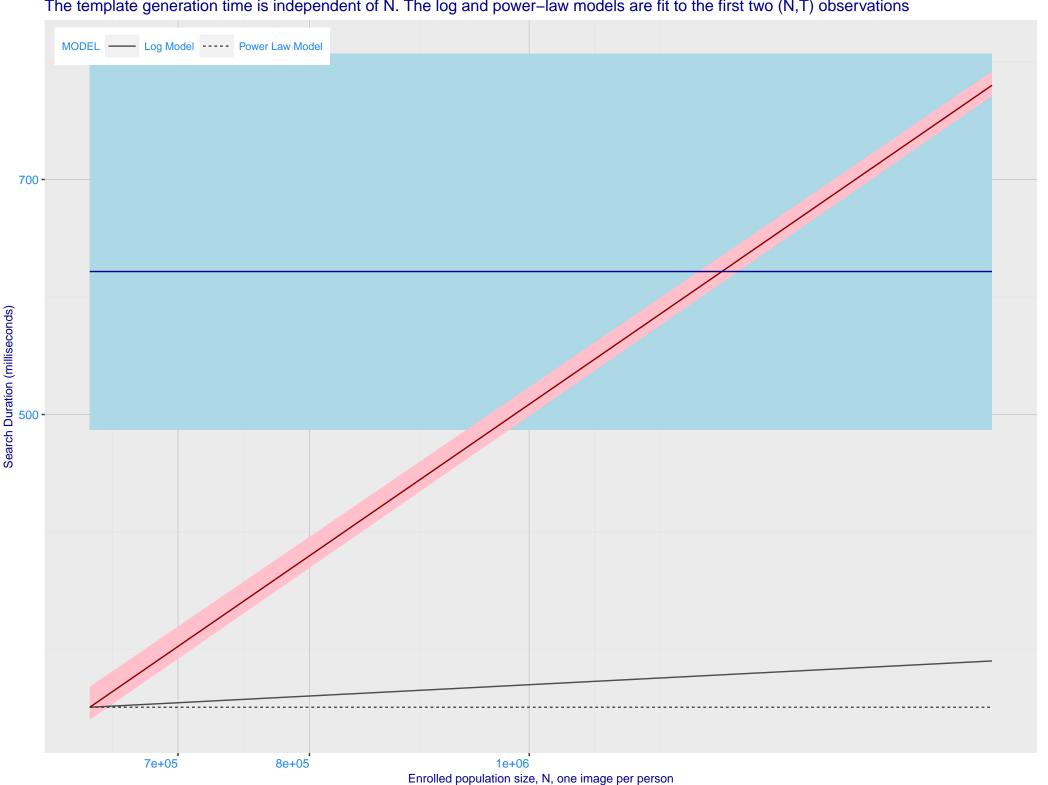




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.300 - 0.100 - 0.070 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 --- 3divi_4 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



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



