A: Datasheet

Algorithm: 3divi_3

Developer: 3Divi

Submission Date: 2018_06_19

Template size: 512 bytes

Template time (2.5 percentile): 486 msec

Template time (median): 610 msec

Template time (97.5 percentile): 826 msec

Investigation:

Frontal mugshot ranking 210 (out of 259) -- FNIR(1600000, 0, 1) = 0.0833 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 186 (out of 221) -- FNIR(1600000, 0, 1) = 0.2060 vs. lowest 0.0062 from sensetime_005

Immigration visa-border ranking 103 (out of 142) -- FNIR(1600000, 0, 1) = 0.1407 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 111 (out of 139) -- FNIR(1600000, 0, 1) = 0.4742 vs. lowest 0.0694 from cib_000

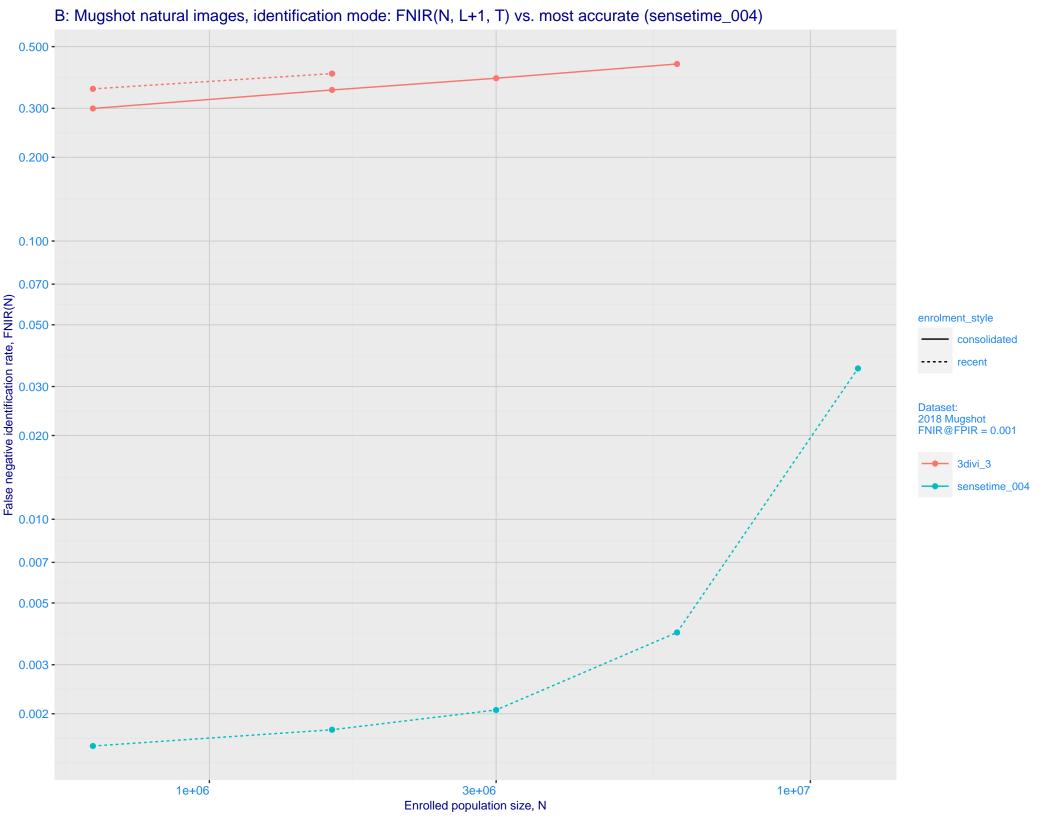
Identification:

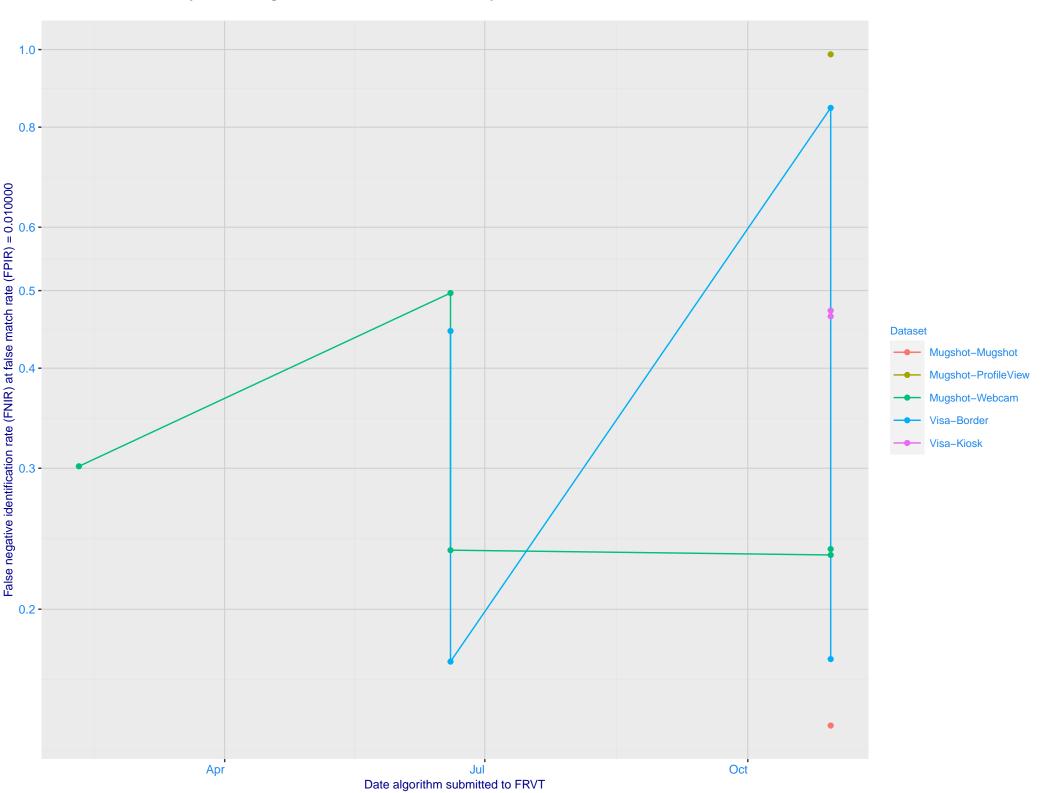
Frontal mugshot ranking 204 (out of 259) -- FNIR(1600000, T, L+1) = 0.3999, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 185 (out of 219) -- FNIR(1600000, T, L+1) = 0.6257, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Immigration visa-border ranking 102 (out of 139) -- FNIR(1600000, T, L+1) = 0.6066, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 86 (out of 134) -- FNIR(1600000, T, L+1) = 0.8221, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005

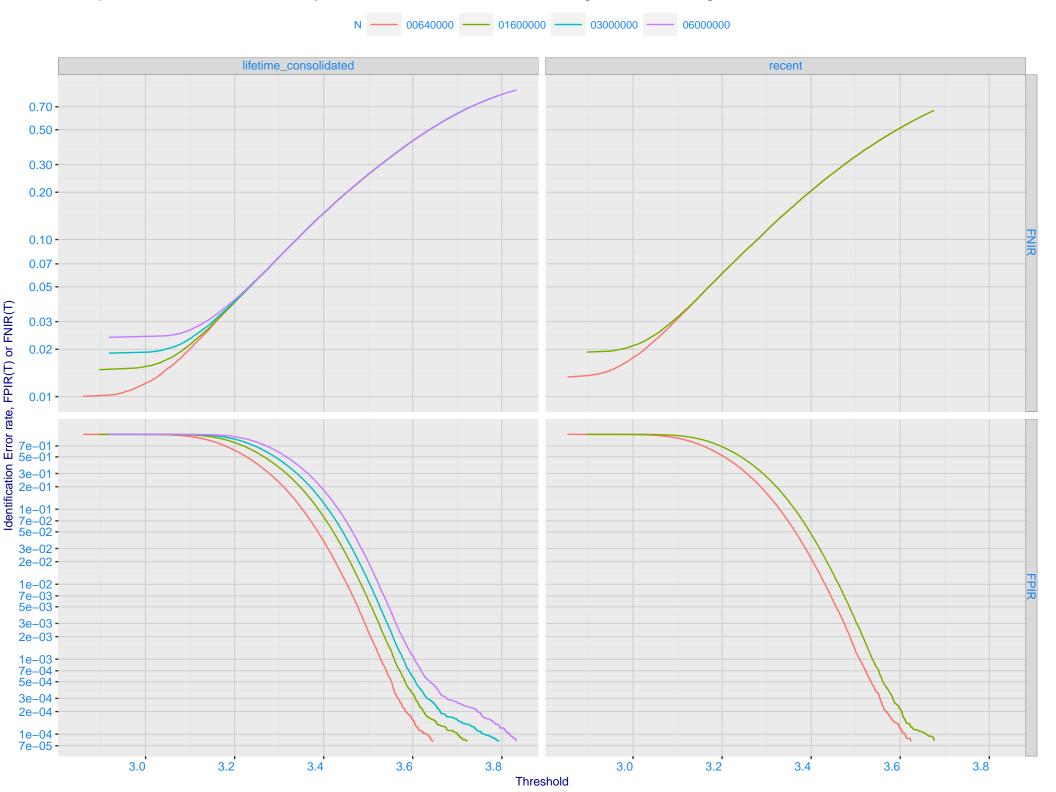




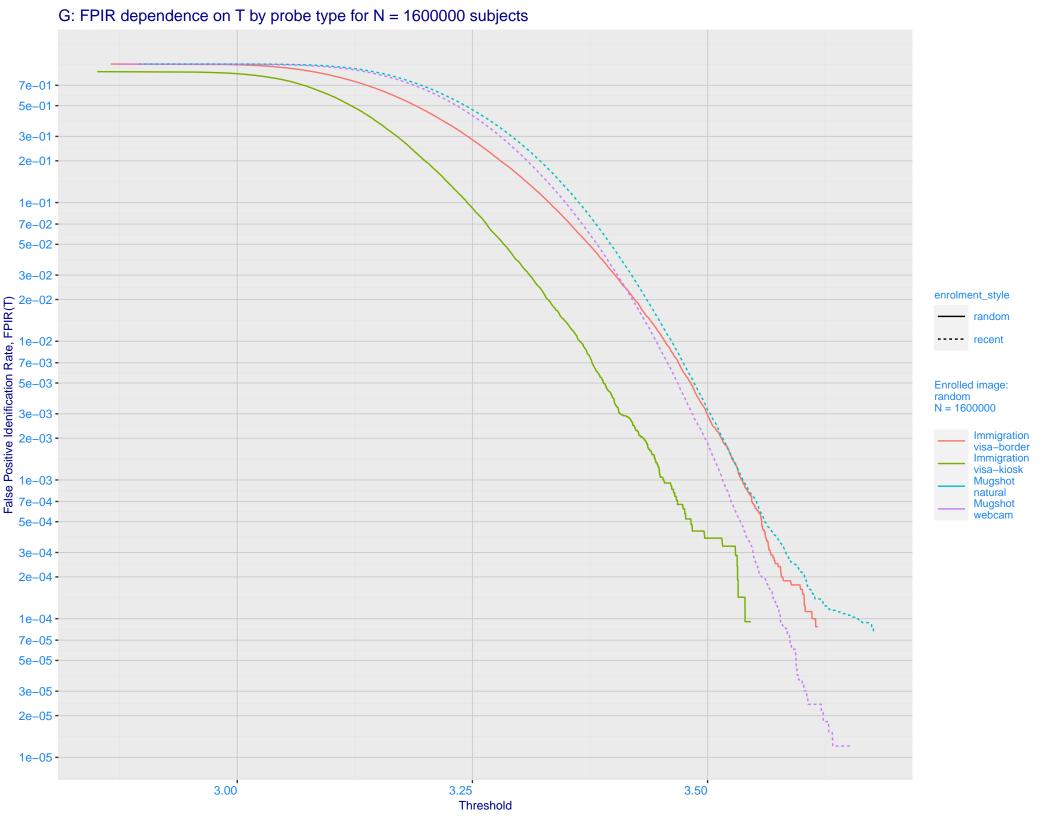
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.002 - 0.001 - 0.200 - 0.300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

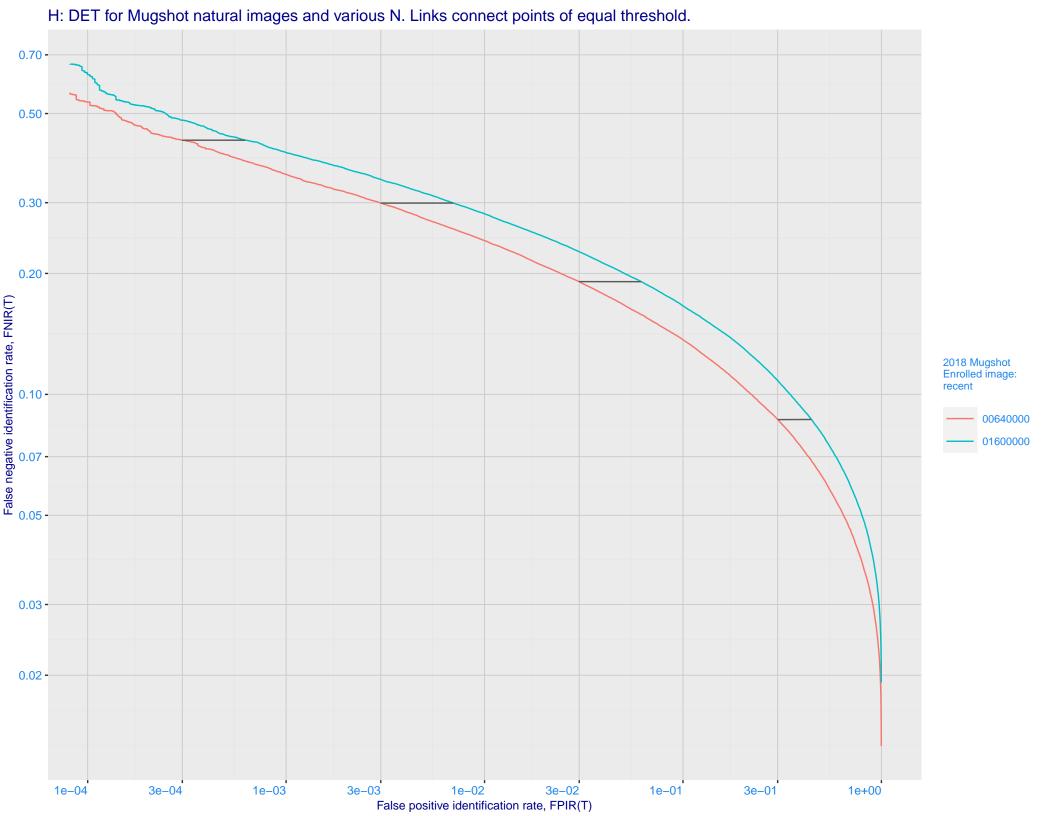
False positive identification rate, FPIR(T)

E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

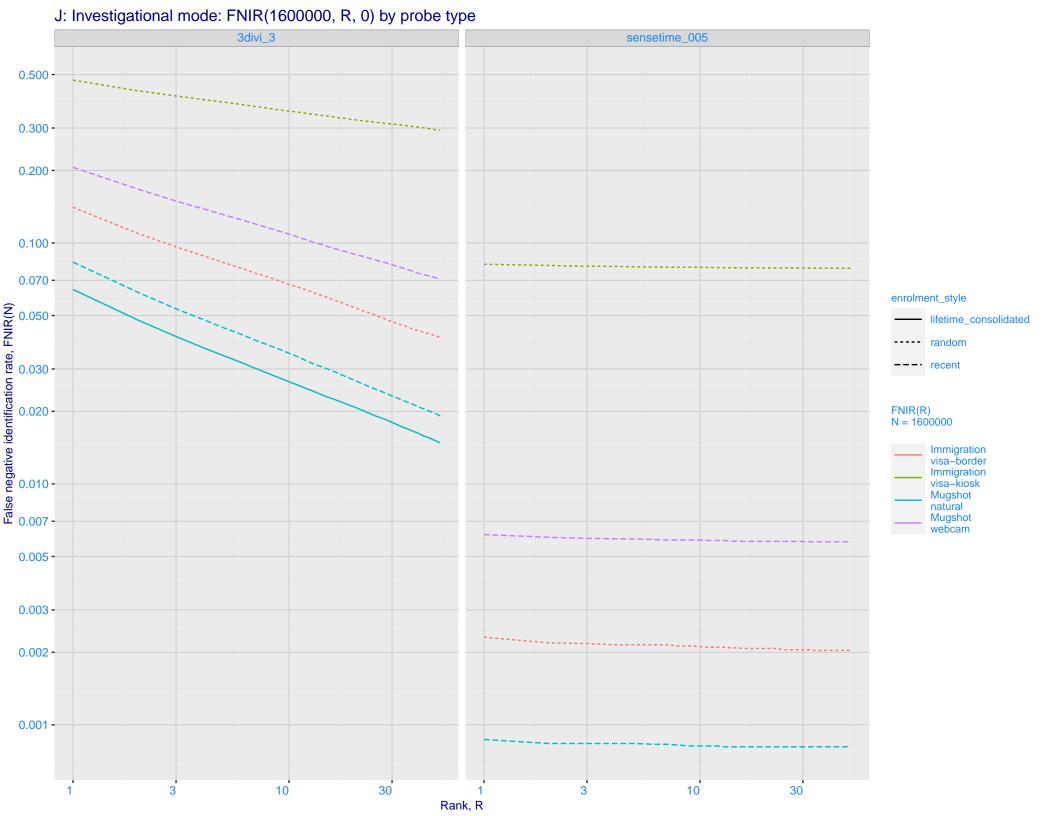


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 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 0.500 -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(N) 0.003 - 0.001 - 0.500 - 0.200 - 0.100 - 0. enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 --- 3divi_3 sensetime_005 0.070 -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 Log Model
 Power Law Model 700 -500 -300 -200 -100 -70 -50 -30 -

1e+06

Enrolled population size, N, one image per person

Search Duration (milliseconds)

7e+05

8e+05

M: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing



