A: Datasheet

Algorithm: megvii_1

Developer: Megvii/Face++

Submission Date: 2018_10_28

Template size: 4096 bytes

Template time (2.5 percentile): 630 msec

Template time (median): 631 msec

Template time (97.5 percentile): 690 msec

Investigation:

Frontal mugshot ranking 134 (out of 259) -- FNIR(1600000, 0, 1) = 0.0118 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 54 (out of 221) -- FNIR(1600000, 0, 1) = 0.0172 vs. lowest 0.0062 from sensetime_005

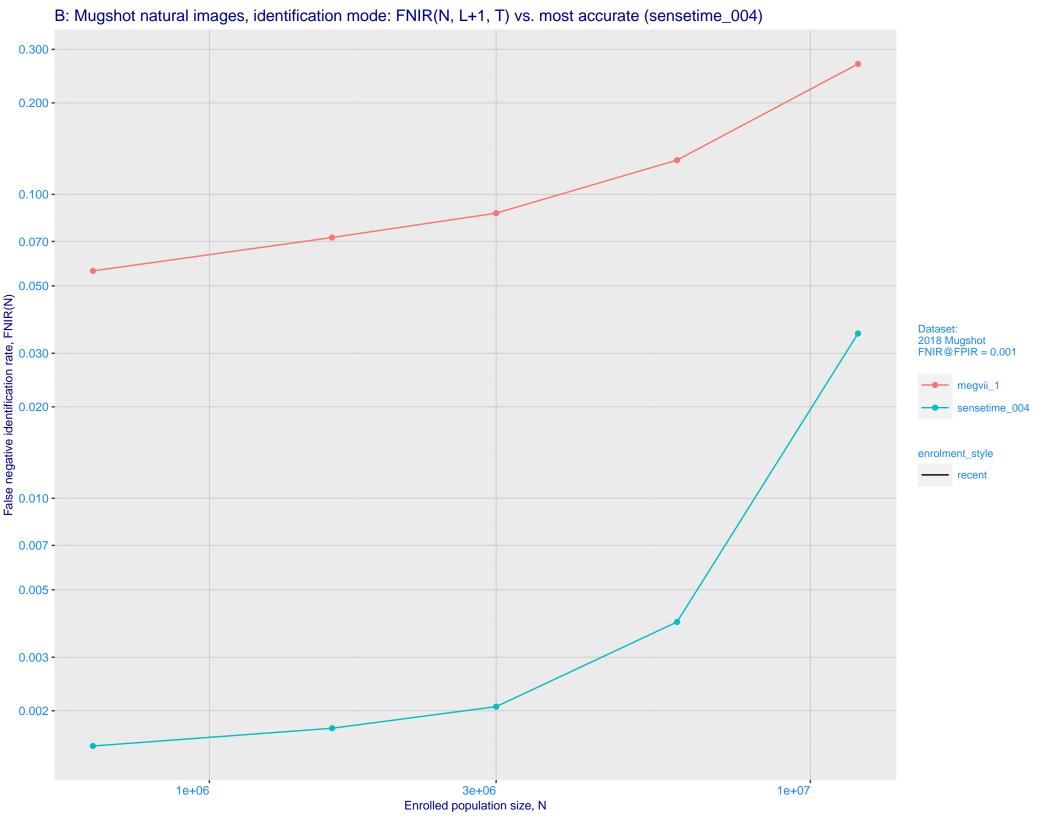
Immigration visa-border ranking 139 (out of 142) -- FNIR(1600000, 0, 1) = 1.0000 vs. lowest 0.0014 from visionlabs_009

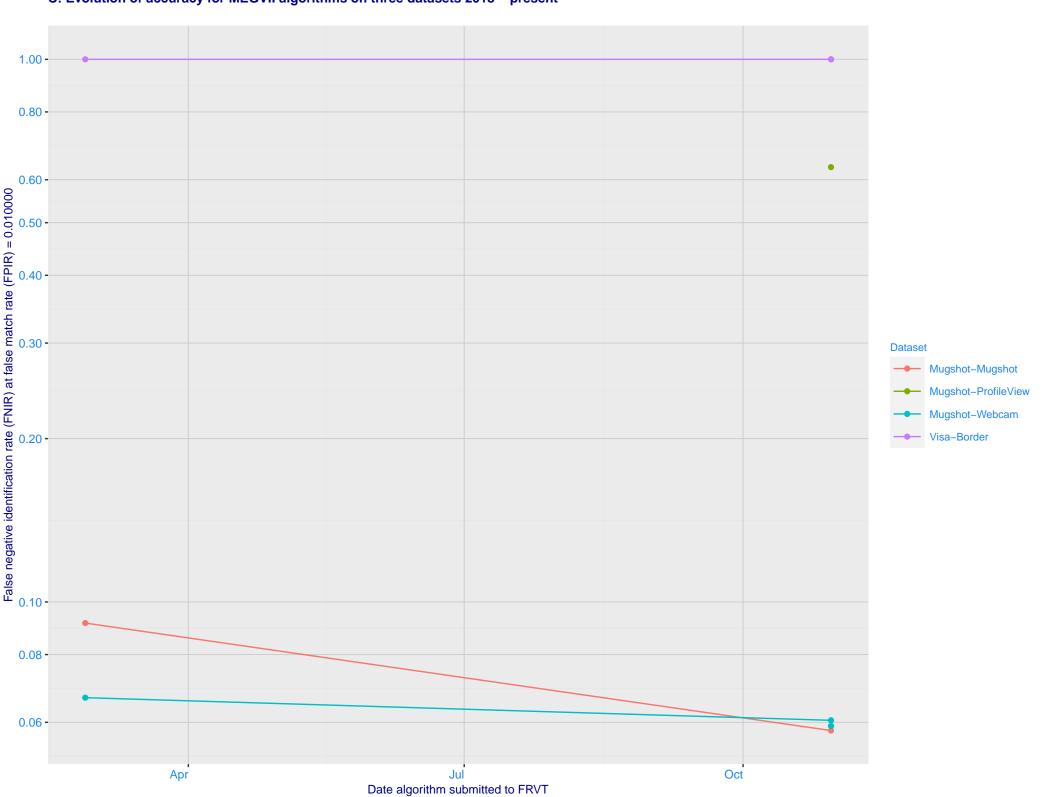
Identification:

Frontal mugshot ranking 105 (out of 259) -- FNIR(1600000, T, L+1) = 0.0721, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 58 (out of 219) -- FNIR(1600000, T, L+1) = 0.0971, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

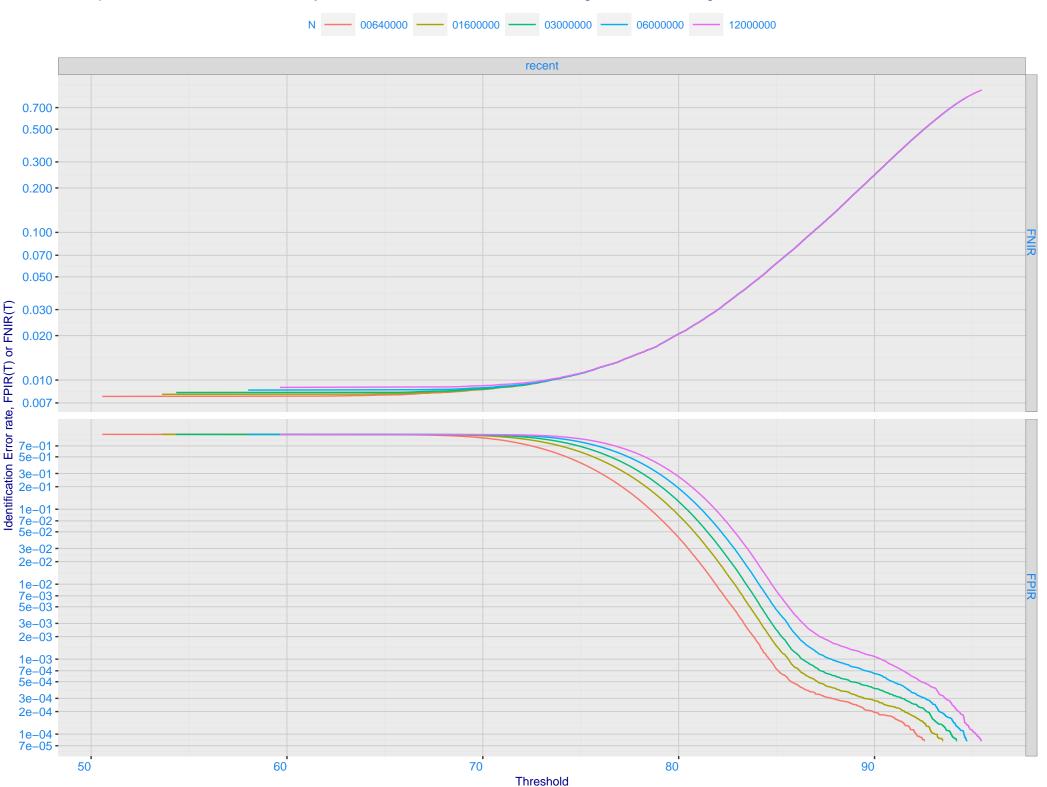
Immigration visa-border ranking 134 (out of 139) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004



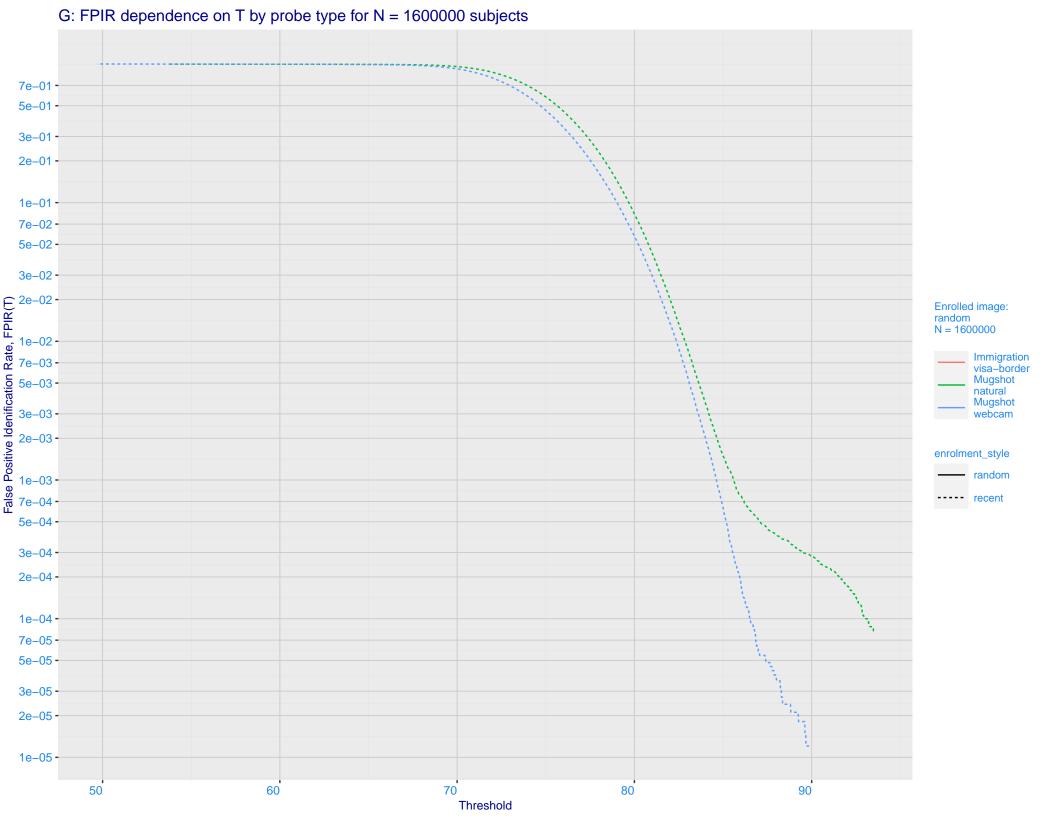


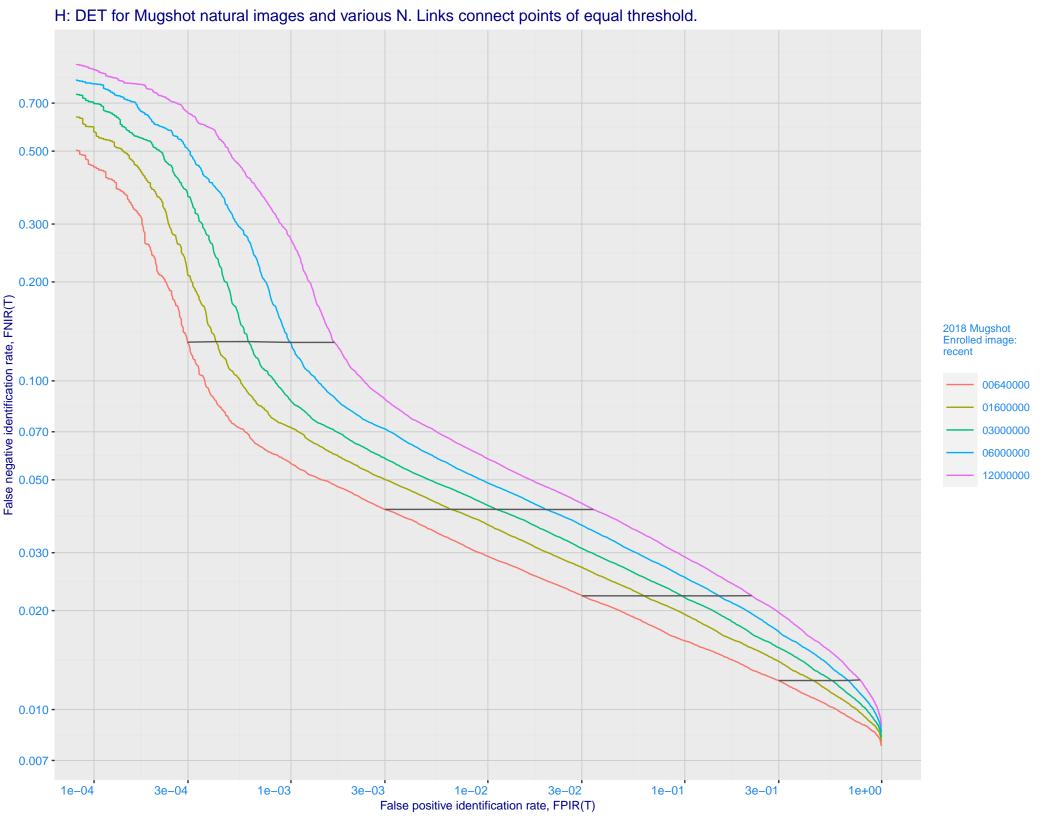
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style 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 -

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

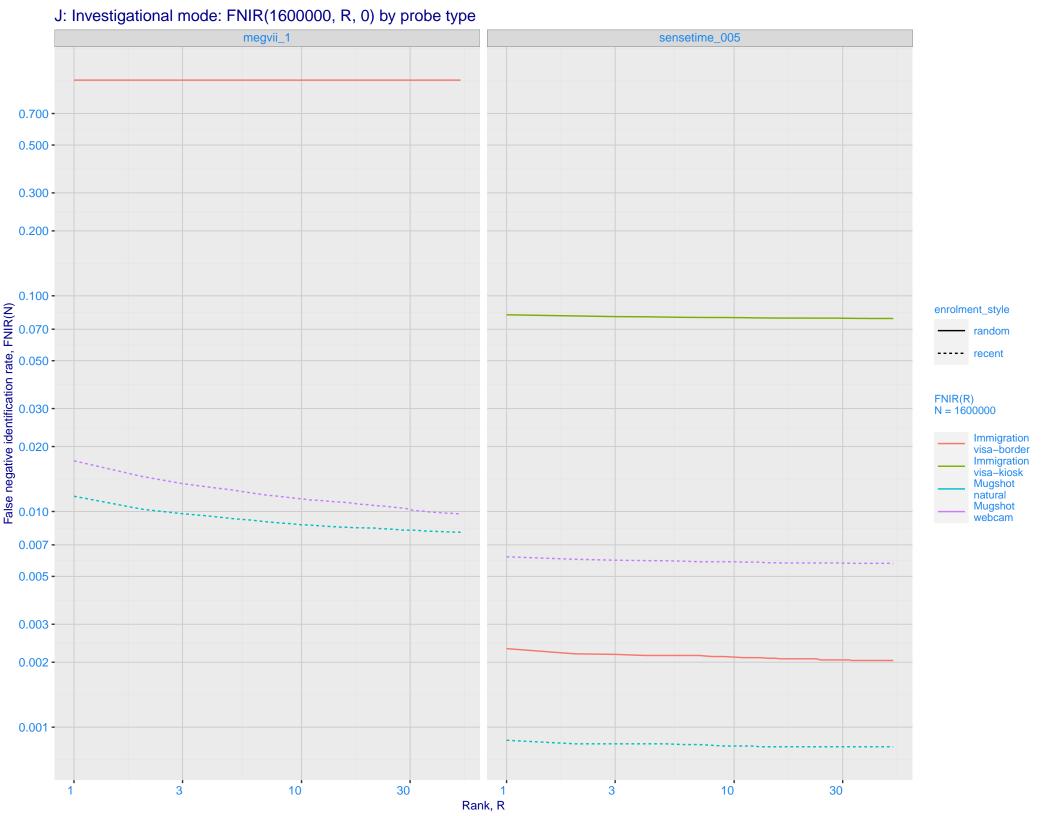


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 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-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 0.700 -0.500 -0.300 -0.200 -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 - 0.300 - 0.200 FNIR@Rank = 1 megvii_1 sensetime_005 Mugshot Mugshot webcam natural enrolment_style random ---- recent 0.100 -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 7000 -Log Model ---- Power Law Model 5000 -3000 -2000 -Search Duration (milliseconds) 1000 -700 -500 -300 -200 -1e+06 3e+06 1e+07 Enrolled population size, N, one image per person

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



