## A: Datasheet

Algorithm: megvii\_0

Developer: Megvii/Face++

Submission Date: 2018\_02\_15

Template size: 2048 bytes

Template time (2.5 percentile): 784 msec

Template time (median): 785 msec

Template time (97.5 percentile): 816 msec

Investigation:

Frontal mugshot ranking 106 (out of 265) -- FNIR(1600000, 0, 1) = 0.0073 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 57 (out of 227) -- FNIR(1600000, 0, 1) = 0.0169 vs. lowest 0.0062 from sensetime\_005

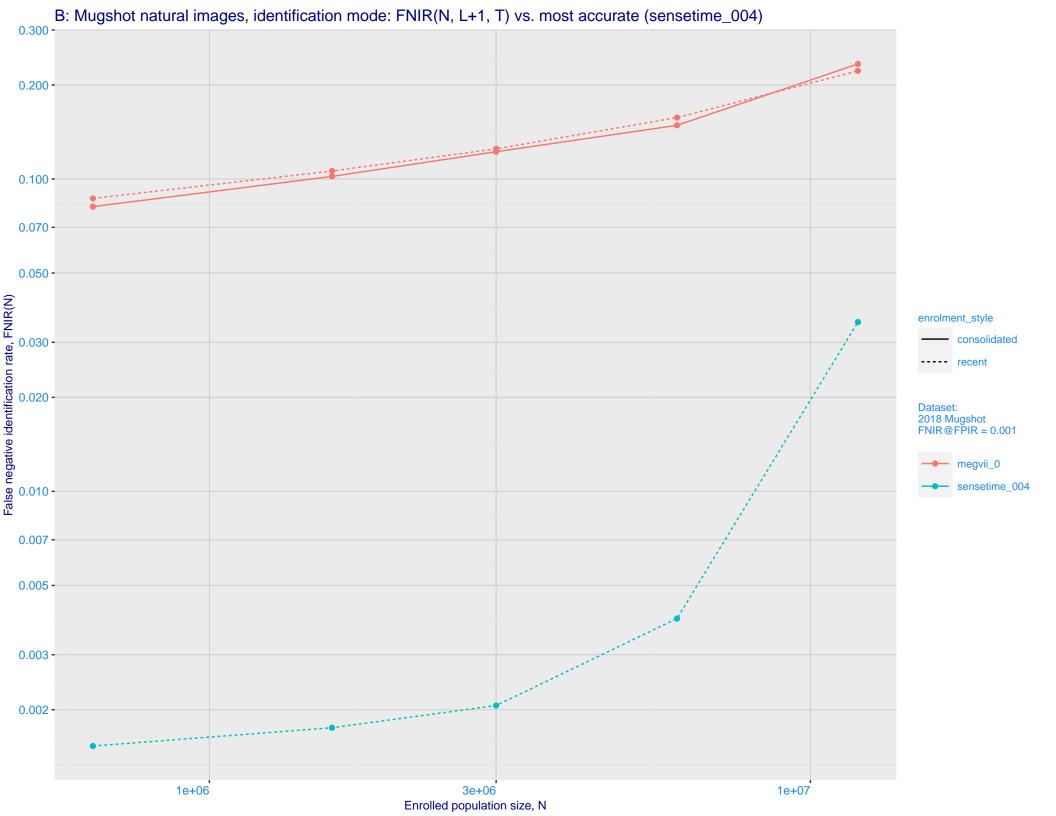
Immigration visa-border ranking 145 (out of 148) -- FNIR(1600000, 0, 1) = 1.0000 vs. lowest 0.0013 from visionlabs\_010

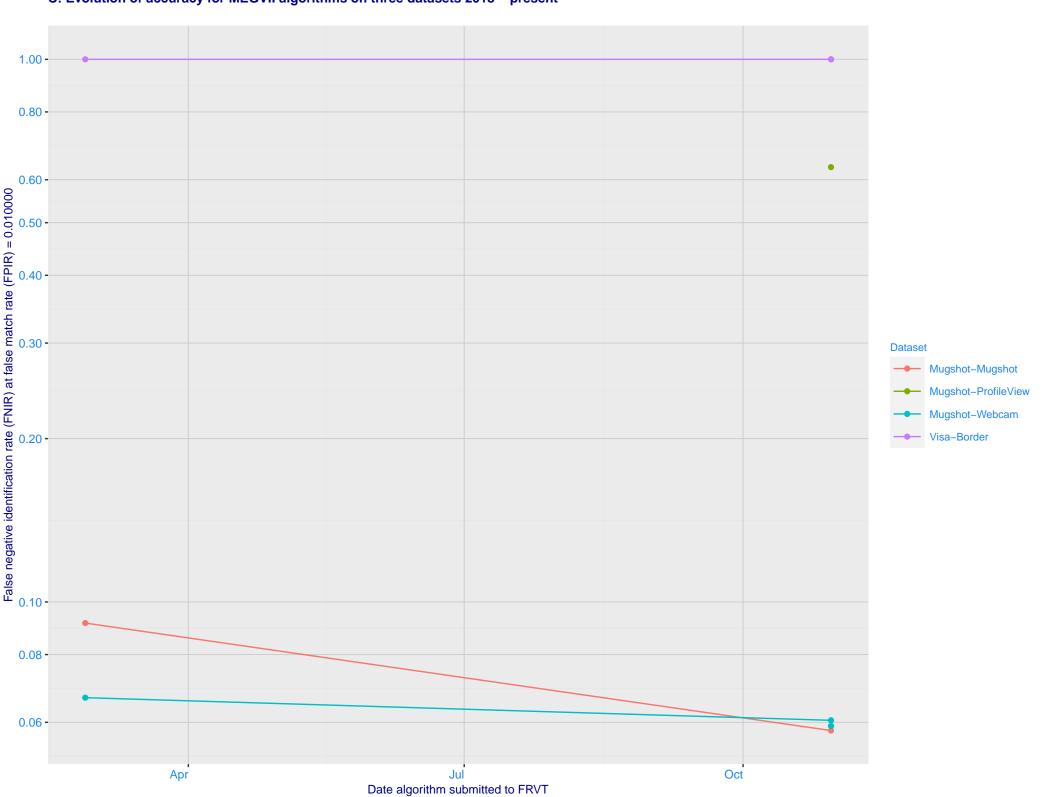
Identification:

Frontal mugshot ranking 139 (out of 265) -- FNIR(1600000, T, L+1) = 0.1061, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 78 (out of 225) -- FNIR(1600000, T, L+1) = 0.1157, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

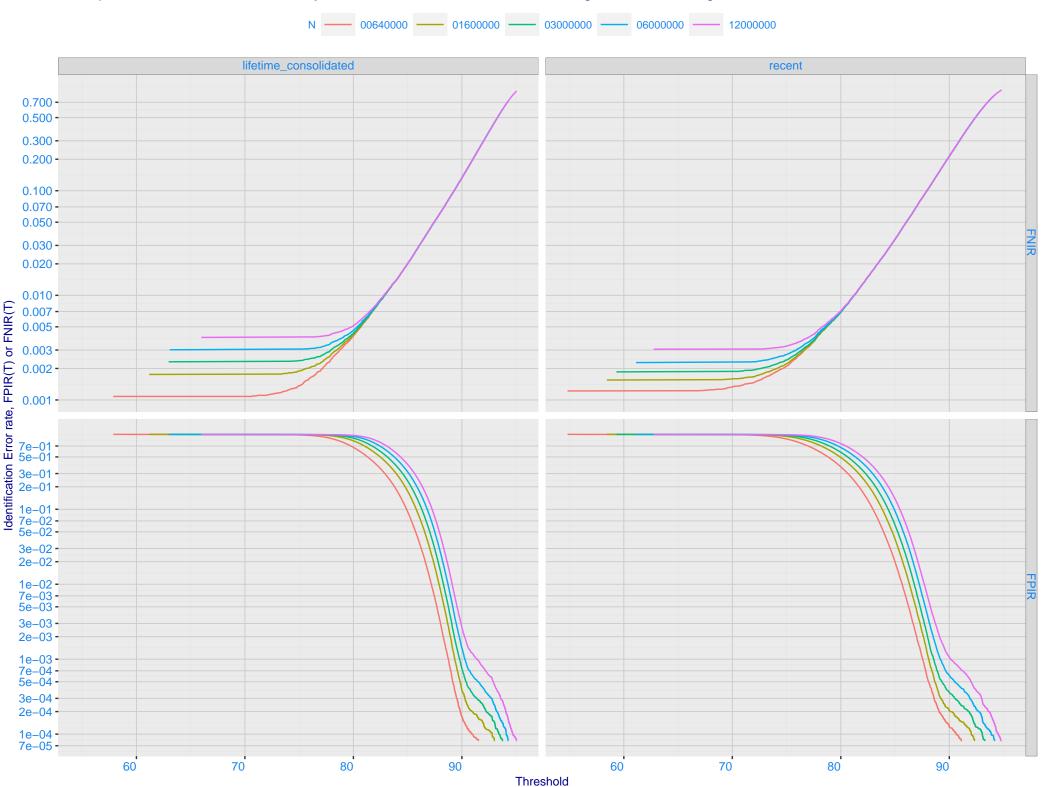
Immigration visa-border ranking 141 (out of 146) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.0049 from hr\_000



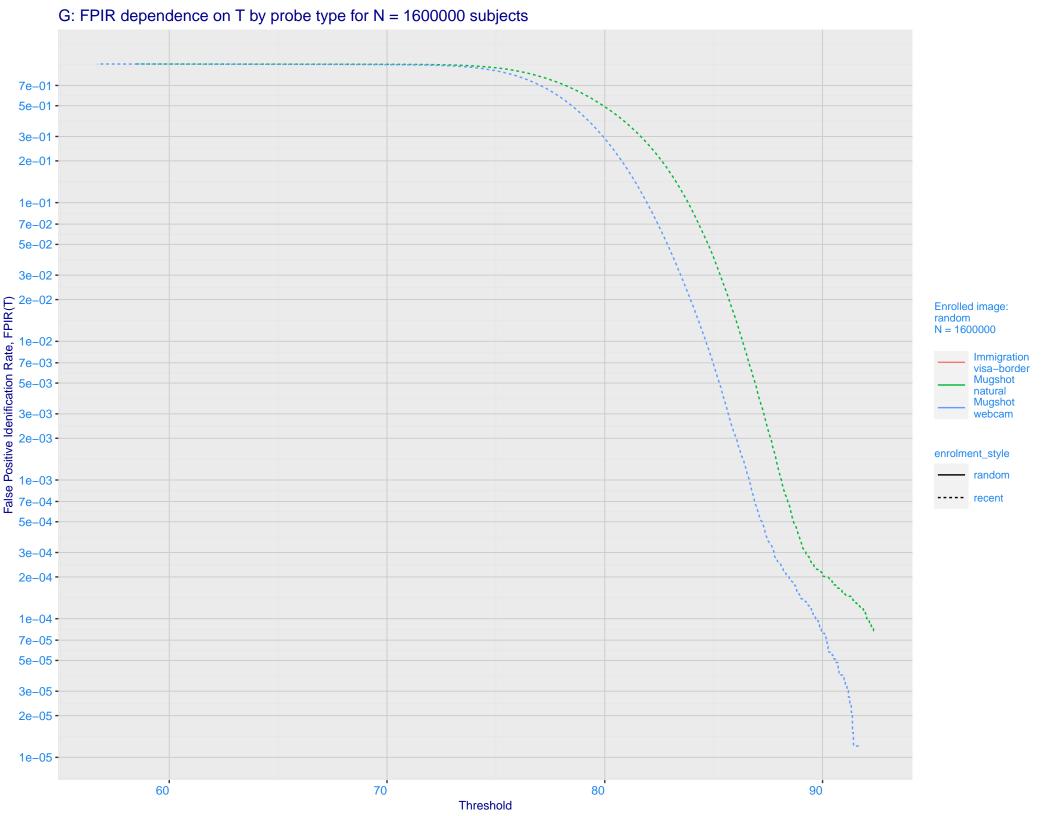


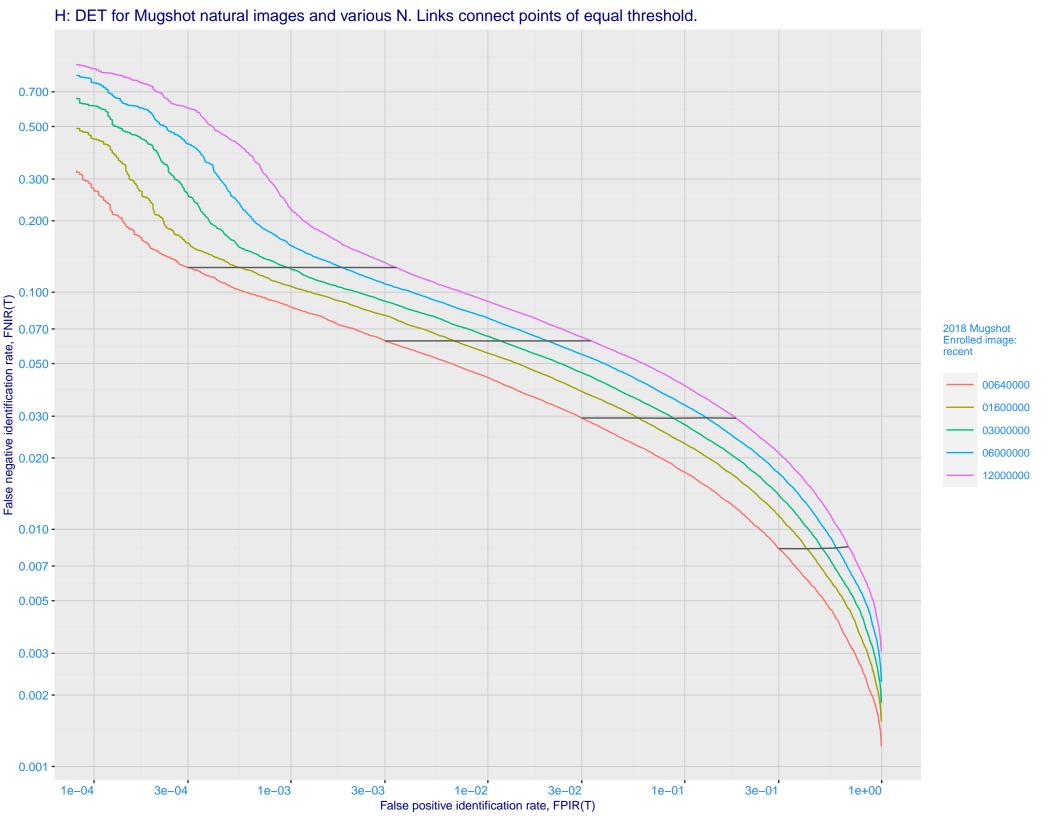
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style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

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 -3e-02 1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 1e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

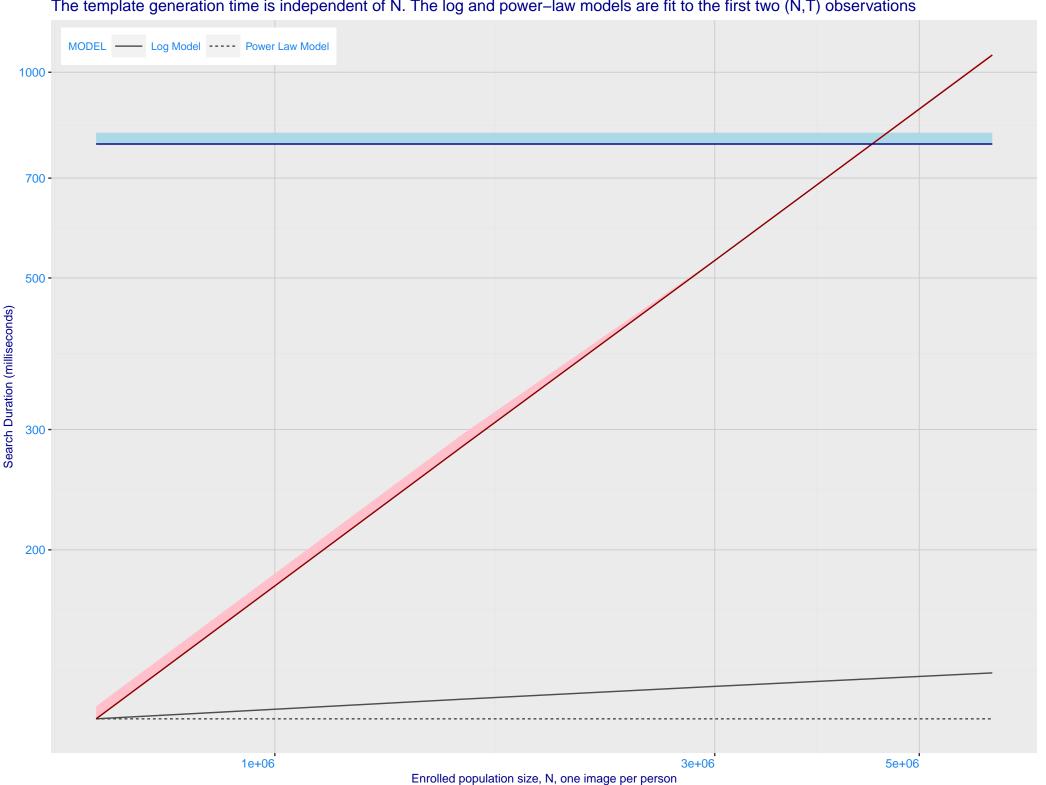




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.300 - 0.200 enrolment\_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 megvii\_0 sensetime\_005 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

J: Investigational mode: FNIR(1600000, R, 0) by probe type megvii\_0 sensetime\_005 0.700 -0.500 -0.300 -0.200 -0.100 - 0.070 - 0.050 - 0.030 - 0.020 - 0.010 enrolment\_style lifetime\_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.007 -0.005 -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



