## A: Datasheet

Algorithm: microsoft\_1

Developer: Microsoft

Submission Date: 2018\_02\_12

Template size: 1024 bytes

Template time (2.5 percentile): 341 msec

Template time (median): 348 msec

Template time (97.5 percentile): 362 msec

Investigation:

Frontal mugshot ranking 72 (out of 279) -- FNIR(1600000, 0, 1) = 0.0035 vs. lowest 0.0009 from sensetime\_005

Immigration visa-border ranking 66 (out of 168) -- FNIR(1600000, 0, 1) = 0.0083 vs. lowest 0.0013 from visionlabs\_010

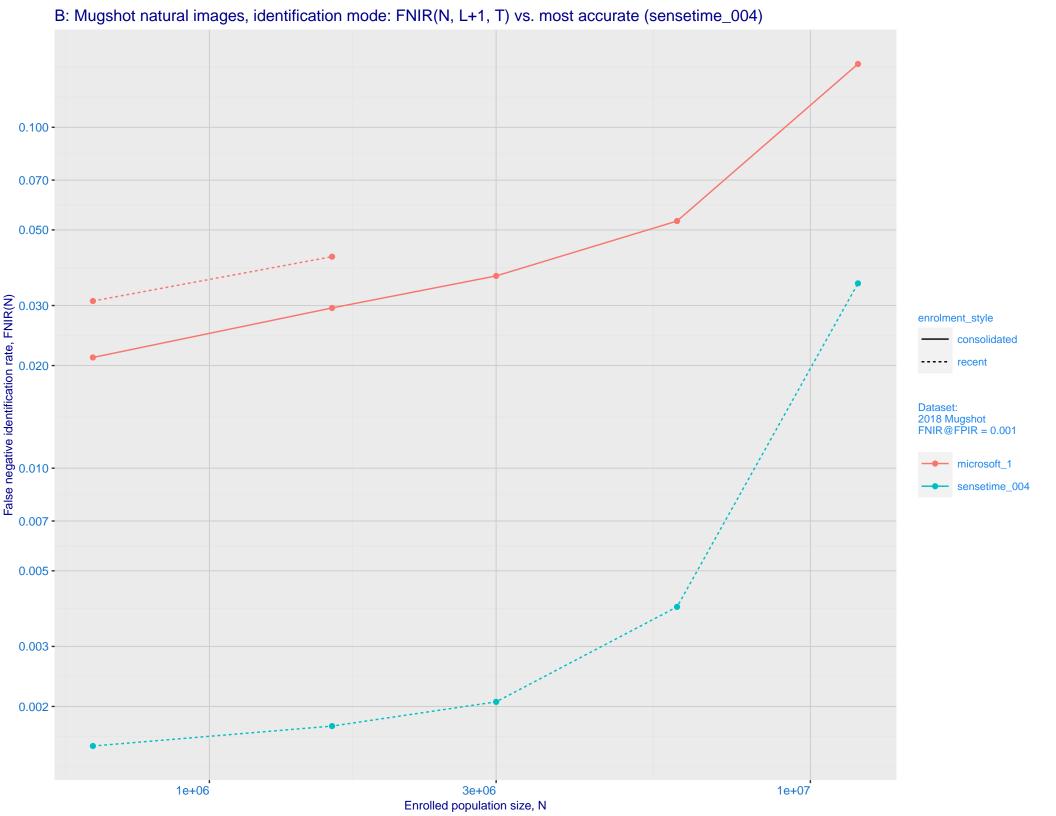
Immigration visa-kiosk ranking 66 (out of 165) -- FNIR(1600000, 0, 1) = 0.1351 vs. lowest 0.0568 from cloudwalk\_hr\_000

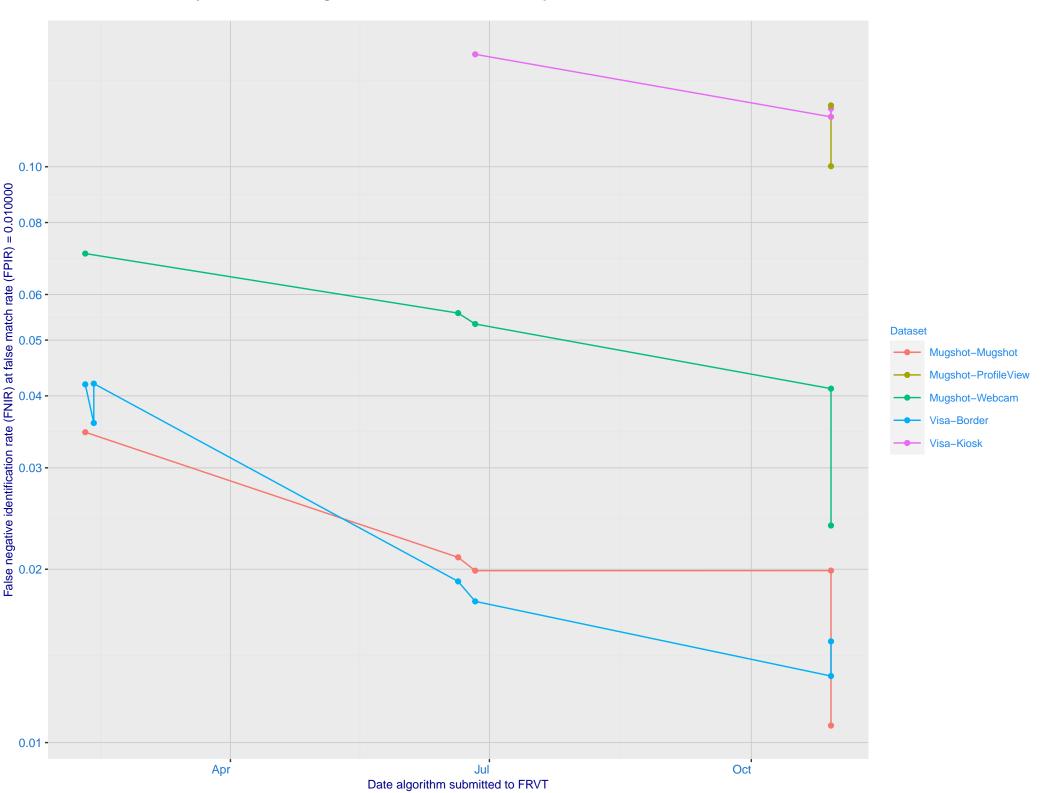
Identification:

Frontal mugshot ranking 74 (out of 279) -- FNIR(1600000, T, L+1) = 0.0417, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Immigration visa-border ranking 66 (out of 167) -- FNIR(1600000, T, L+1) = 0.0662, FPIR=0.001000 vs. lowest 0.0047 from idemia\_008

Immigration visa-kiosk ranking 39 (out of 162) -- FNIR(1600000, T, L+1) = 0.2766, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk\_hr\_000

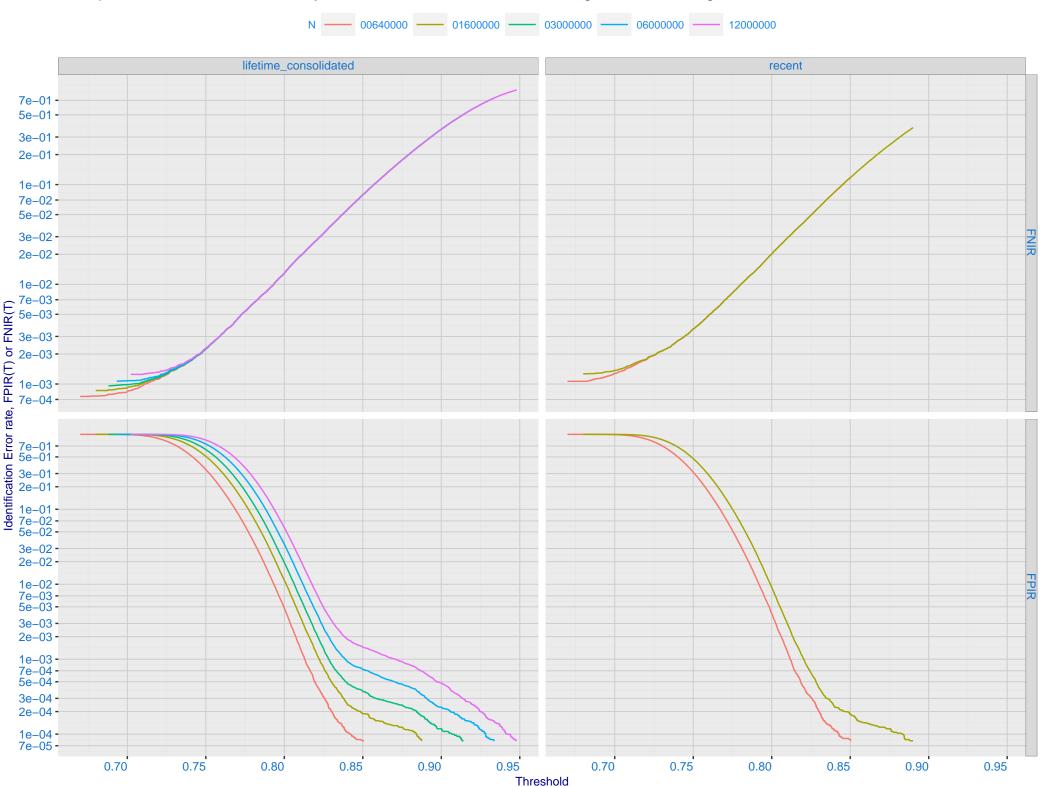




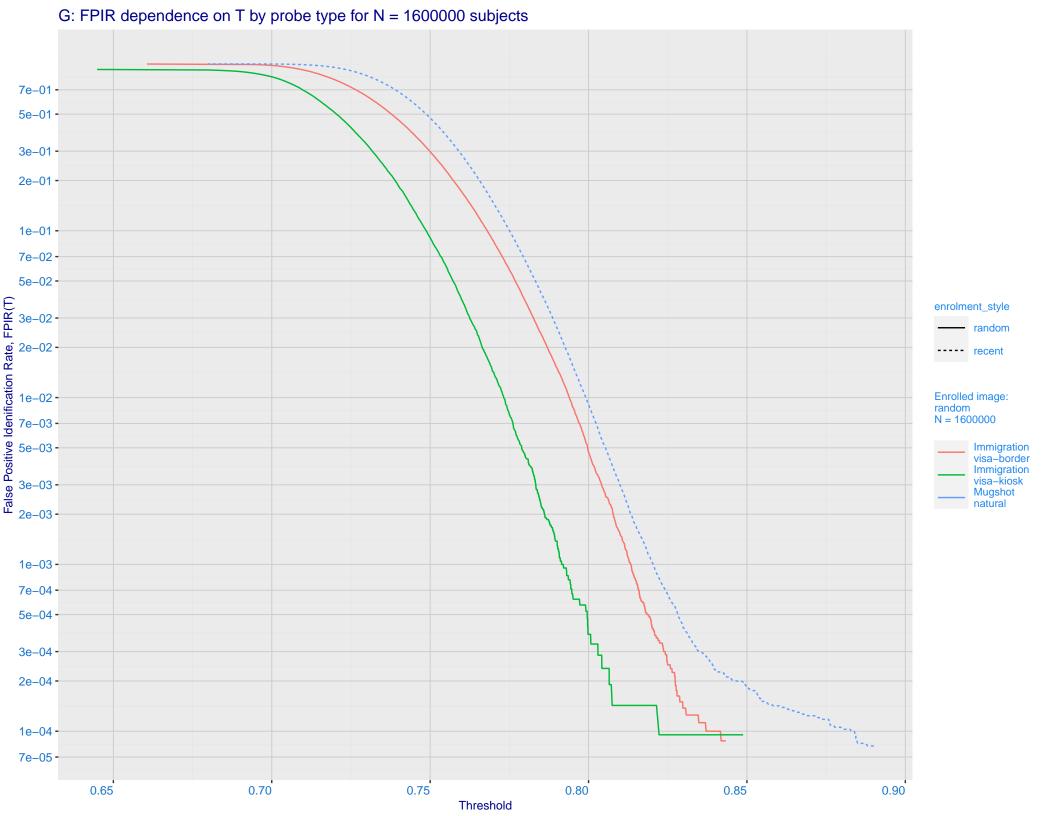
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.500 - 0.500 - 0.200 - 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 -

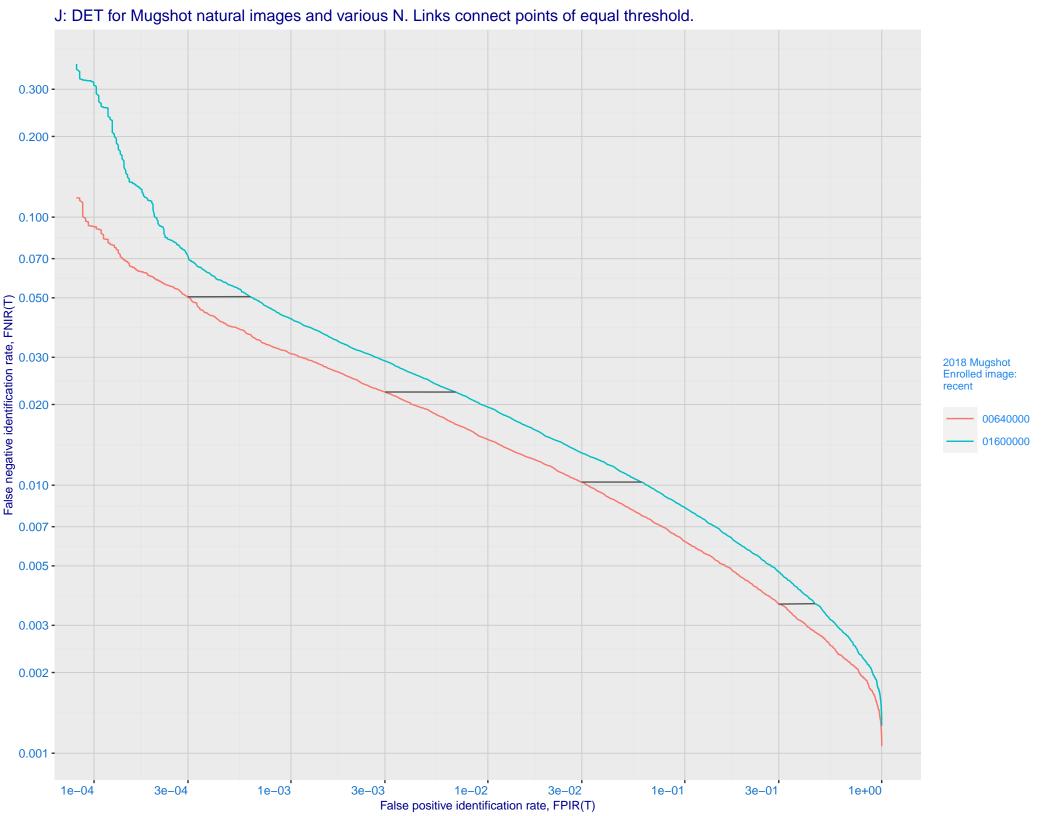
False positive identification rate, FPIR(T)

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 -(E) 2e-01 -2e-01 -1e-01 -7e-02 -5e-02 -Enrolled images: recent N = 1600000 Mugshot natural 3e-02 -2e-02 -1e-02 -7e-03 -5e-03 -3e-03 -2e-03 -1e-03 -7e-04 -5e-04 -3e-04 -2e-04 -1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

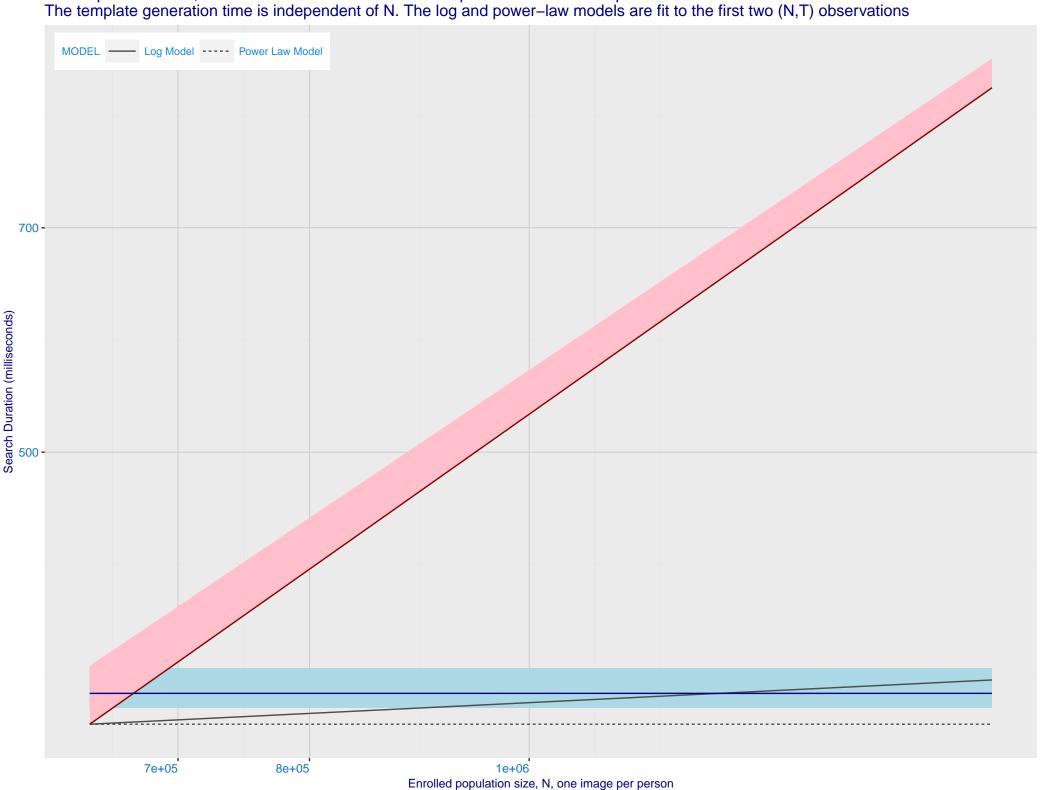




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 microsoft\_1 sensetime\_005 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

L: Investigational mode: FNIR(1600000, R, 0) by probe type microsoft\_1 sensetime\_005 0.100 -0.070 -0.050 -0.030 enrolment\_style Ealse negative identification rate, FNIR(N) 0.000 - 0.000 - 0.0007 - 0.0005 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 3 10 30 Rank, R

M: 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



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



