A: Datasheet

Algorithm: dermalog_4

Developer: Dermalog

Submission Date: 2018_06_21

Template size: 128 bytes

Template time (2.5 percentile): 194 msec

Template time (median): 206 msec

Template time (97.5 percentile): 229 msec

Investigation:

Frontal mugshot ranking 234 (out of 279) -- FNIR(1600000, 0, 1) = 0.1251 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 206 (out of 241) -- FNIR(1600000, 0, 1) = 0.2155 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 136 (out of 210) -- FNIR(1600000, 0, 1) = 0.9298 vs. lowest 0.0587 from xforwardai_002

Immigration visa-border ranking 124 (out of 168) -- FNIR(1600000, 0, 1) = 0.1346 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 133 (out of 165) -- FNIR(1600000, 0, 1) = 0.4670 vs. lowest 0.0568 from cloudwalk_hr_000

Identification:

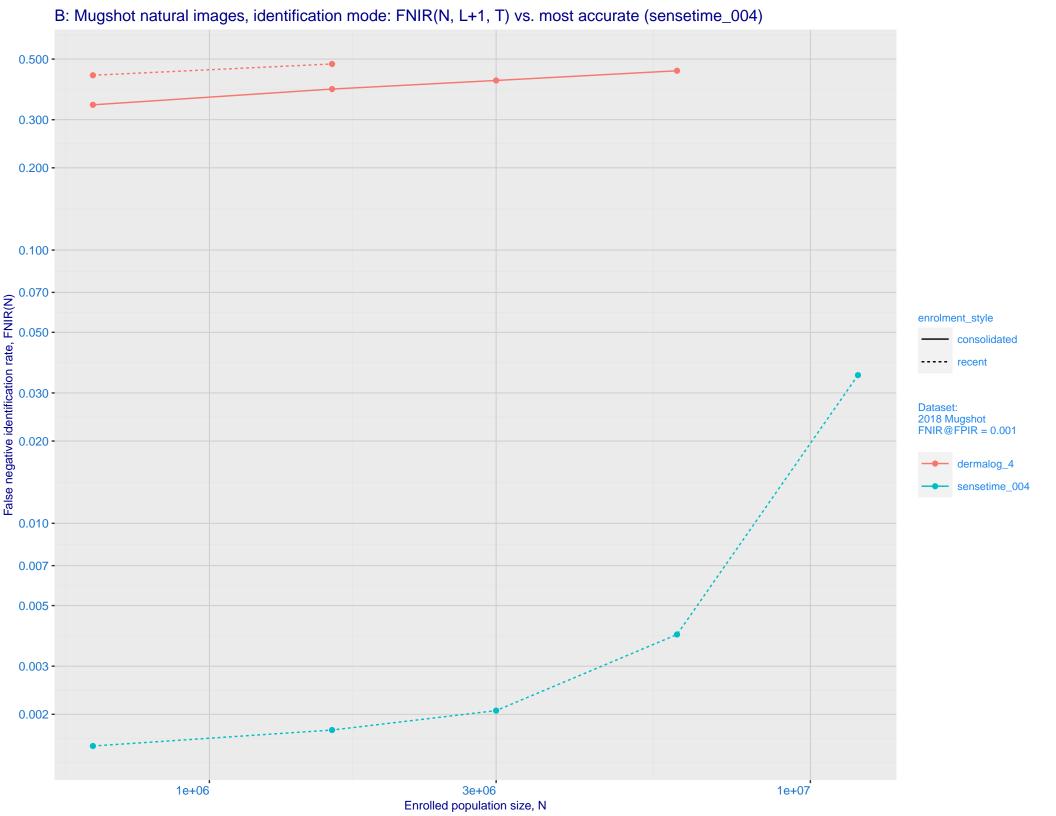
Frontal mugshot ranking 228 (out of 279) -- FNIR(1600000, T, L+1) = 0.4798, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

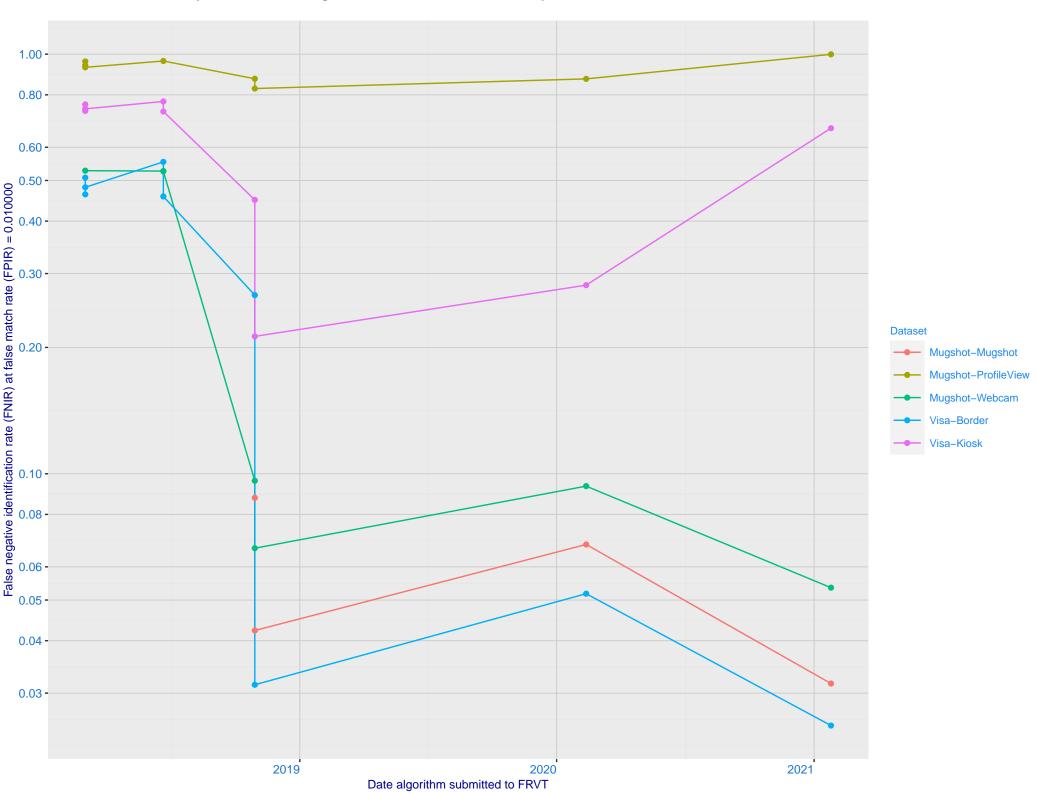
Mugshot webcam ranking 205 (out of 236) -- FNIR(1600000, T, L+1) = 0.6568, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 111 (out of 209) -- FNIR(1600000, T, L+1) = 0.9955, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 125 (out of 167) -- FNIR(1600000, T, L+1) = 0.6029, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa-kiosk ranking 107 (out of 162) -- FNIR(1600000, T, L+1) = 0.8562, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk_hr_000

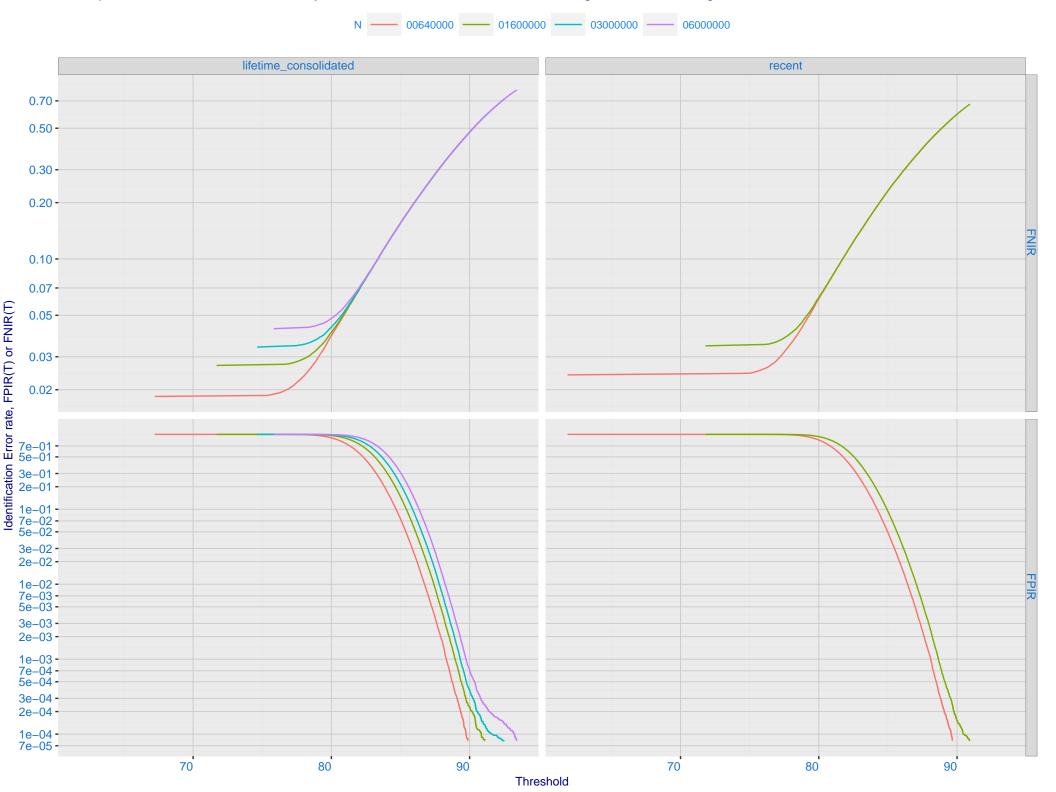




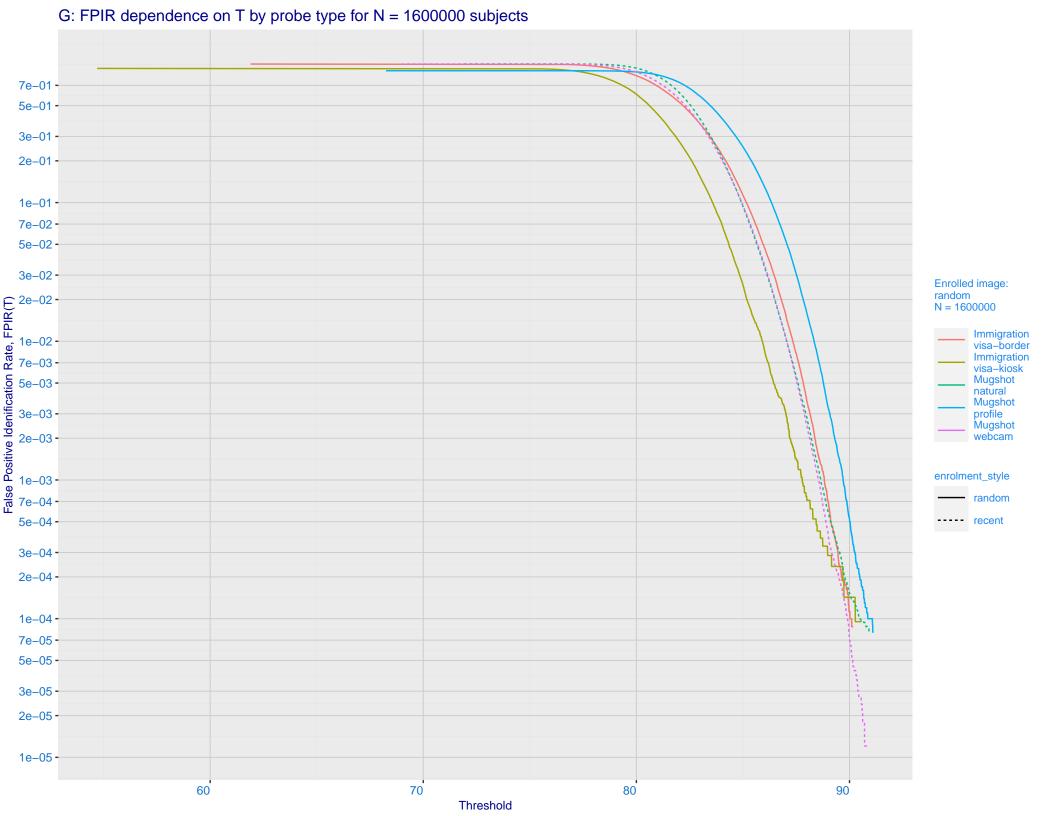
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

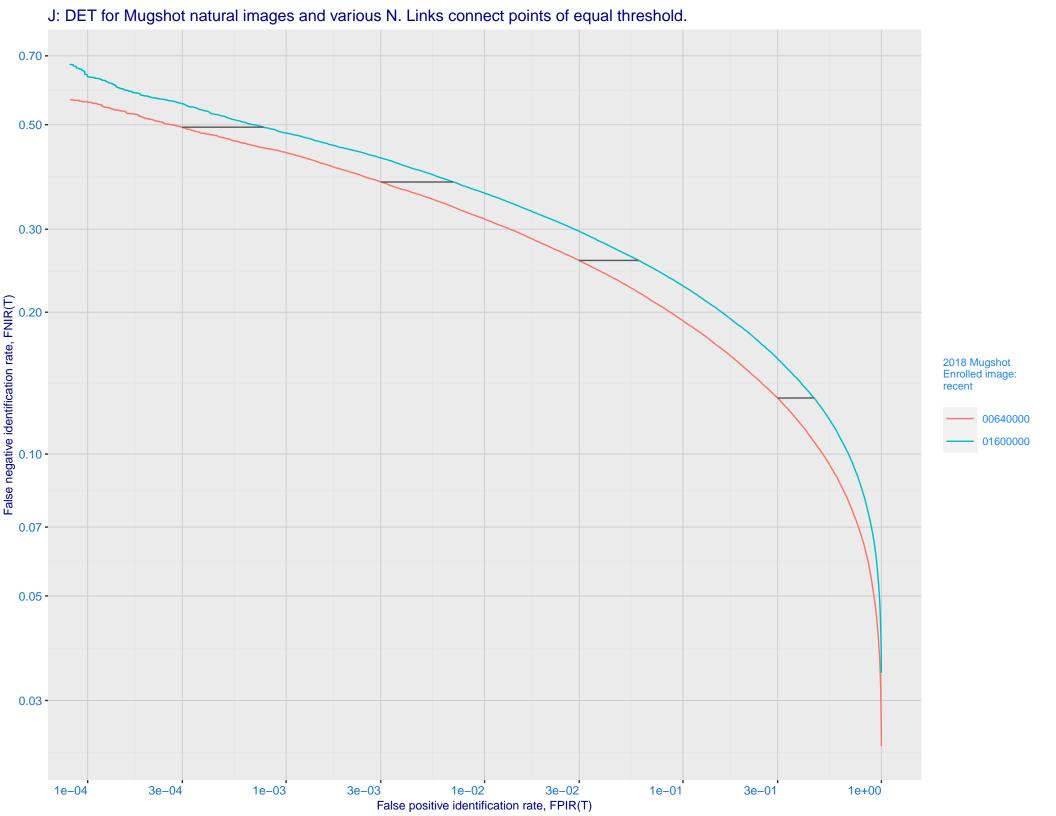
False positive identification rate, FPIR(T)

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

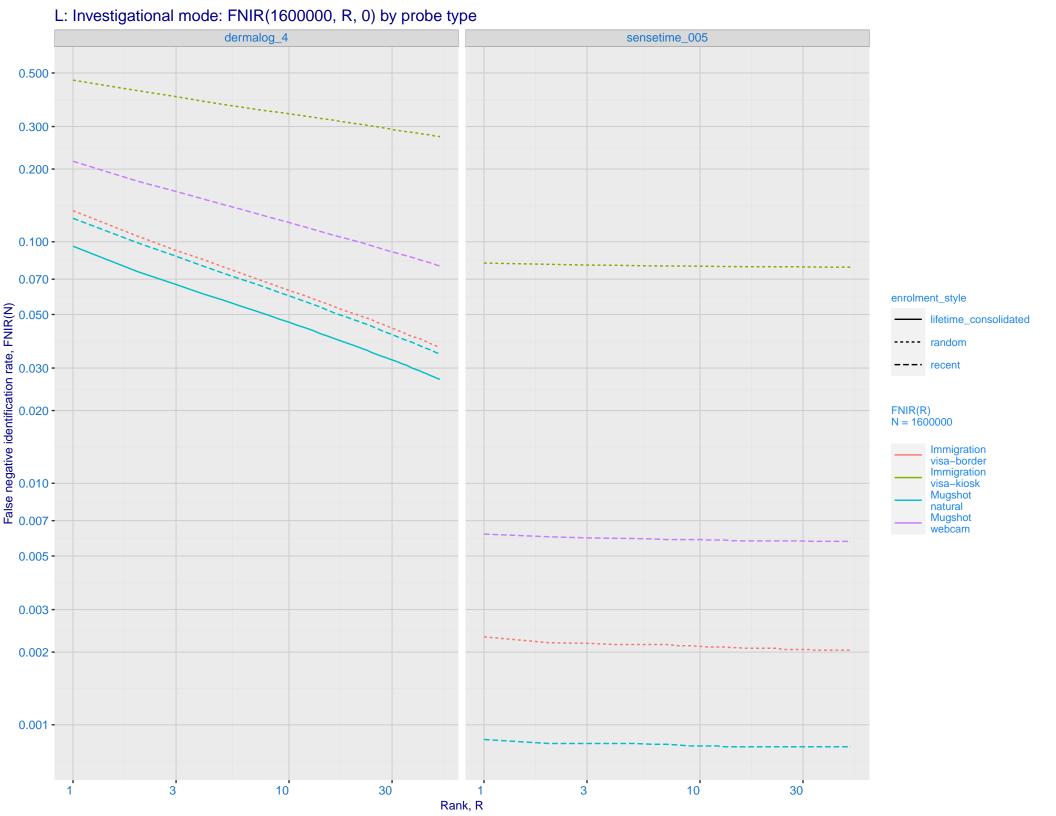


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -5e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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





K: 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 dermalog_4 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



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 - Log Model ---- Power Law Model 200 -100 -70 -50 -7e+05 8e+05 1e+06

Enrolled population size, N, one image per person

Search Duration (milliseconds)

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



