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 215 (out of 259) — FNIR(1600000, 0, 1) = 0.1251 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 188 (out of 221) -- FNIR(1600000, 0, 1) = 0.2155 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 116 (out of 190) — FNIR(1600000, 0, 1) = 0.9298 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 101 (out of 142) -- FNIR(1600000, 0, 1) = 0.1346 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 109 (out of 139) -- FNIR(1600000, 0, 1) = 0.4670 vs. lowest 0.0694 from cib_000

Identification:

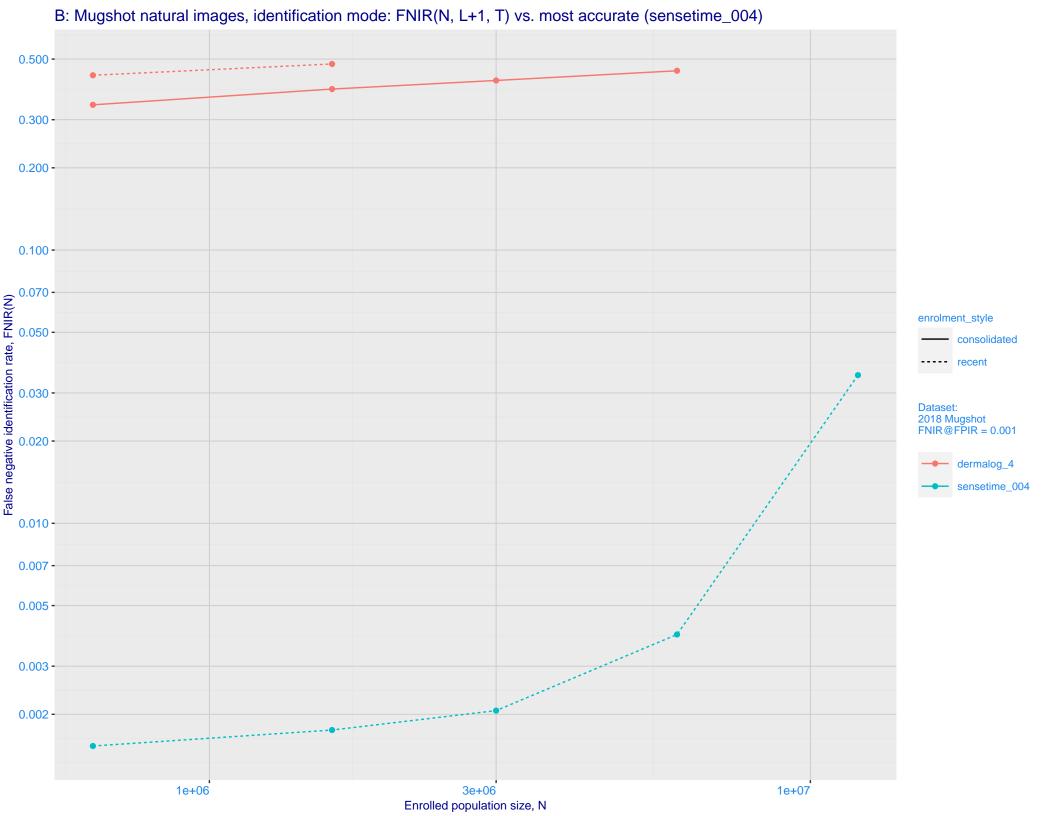
Frontal mugshot ranking 210 (out of 259) -- FNIR(1600000, T, L+1) = 0.4798, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

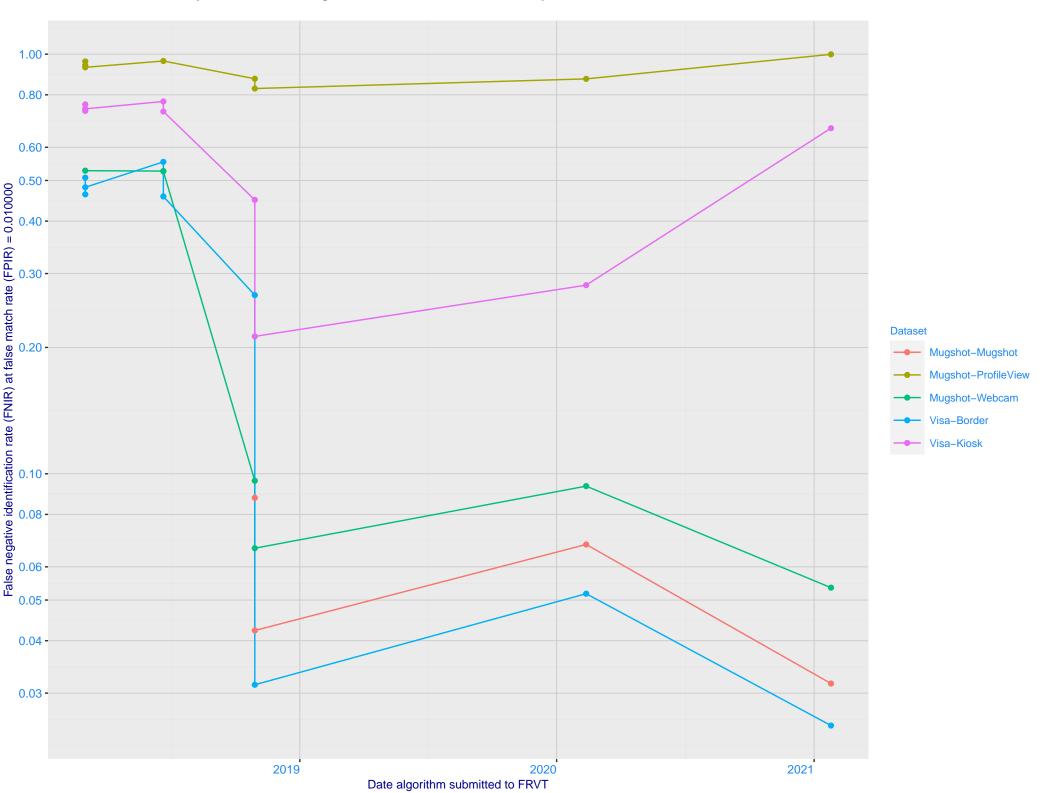
Mugshot webcam ranking 188 (out of 219) -- FNIR(1600000, T, L+1) = 0.6568, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 100 (out of 189) -- FNIR(1600000, T, L+1) = 0.9955, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 101 (out of 139) -- FNIR(1600000, T, L+1) = 0.6029, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 89 (out of 134) -- FNIR(1600000, T, L+1) = 0.8562, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005

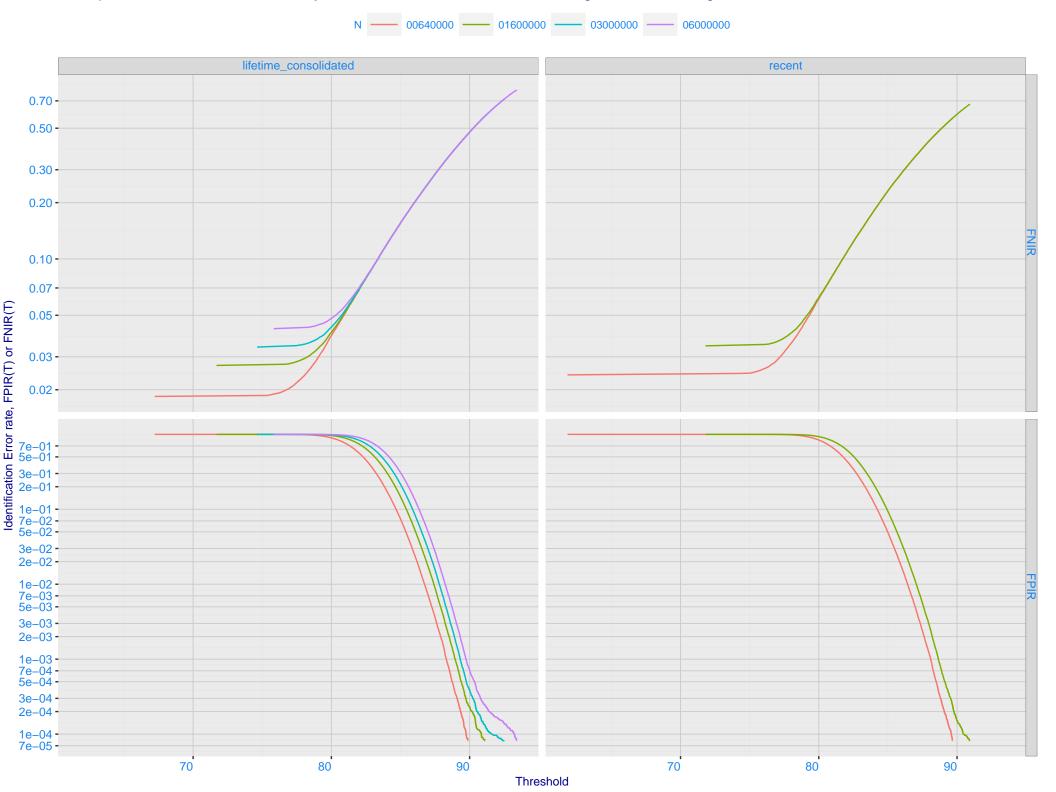




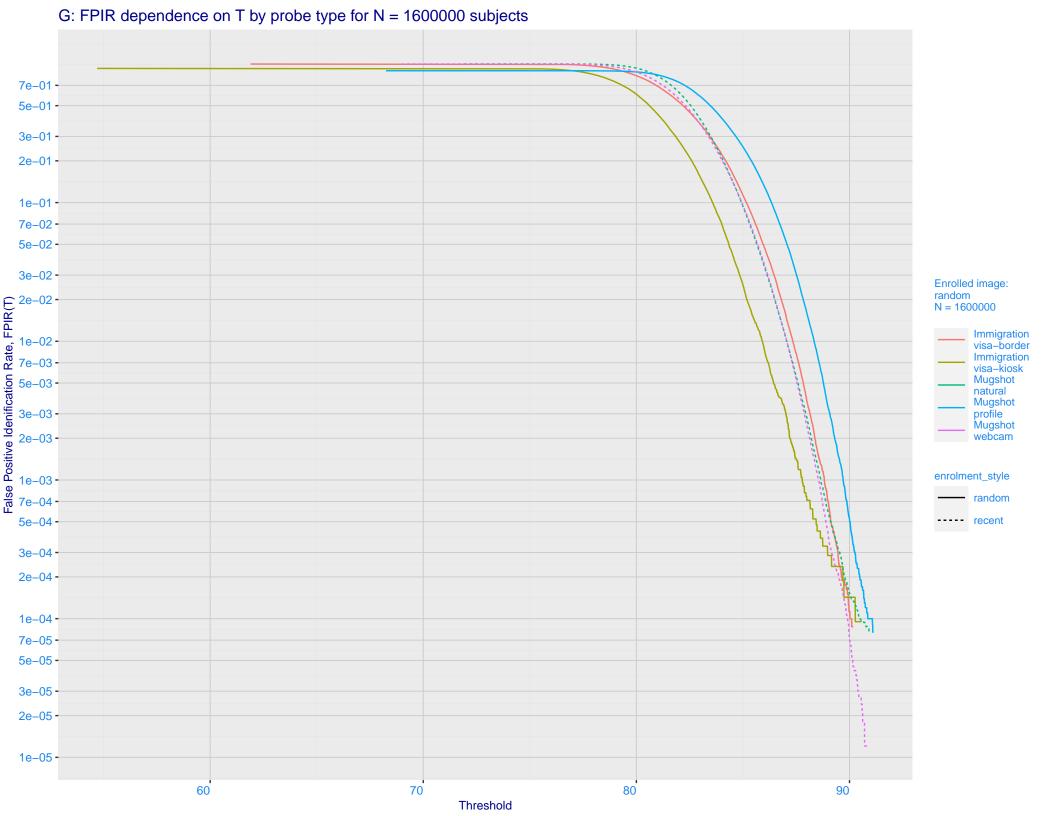
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

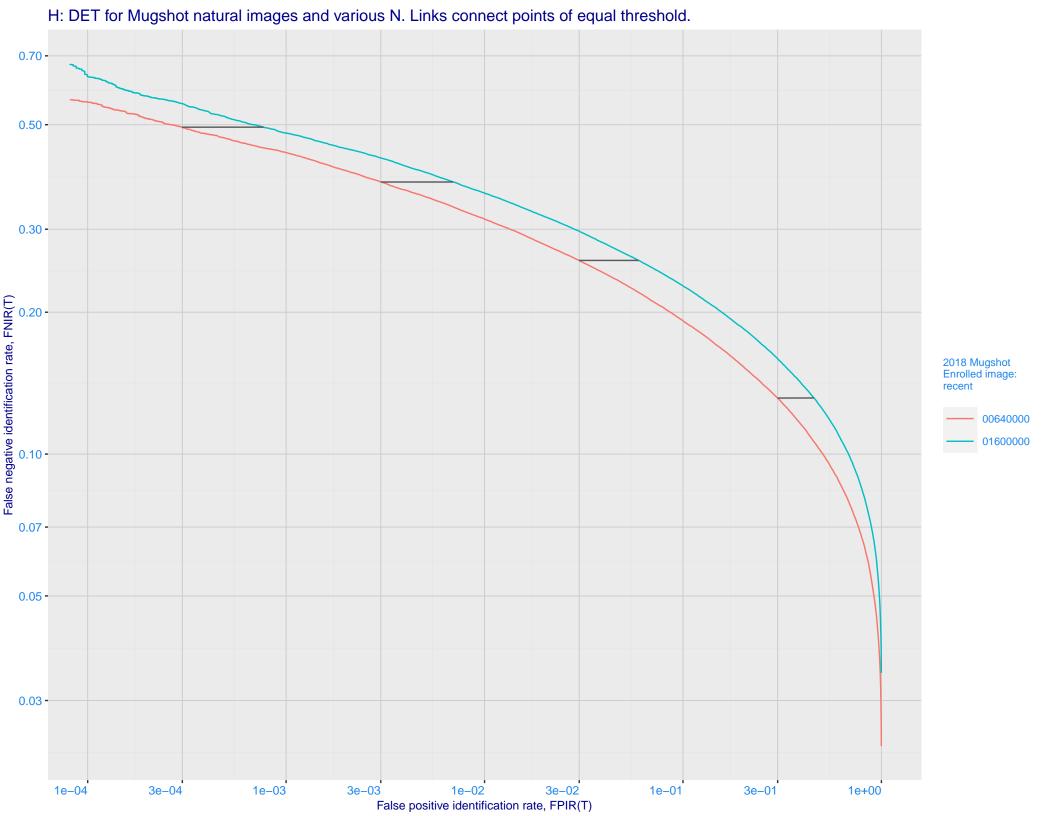
False positive identification rate, FPIR(T)

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

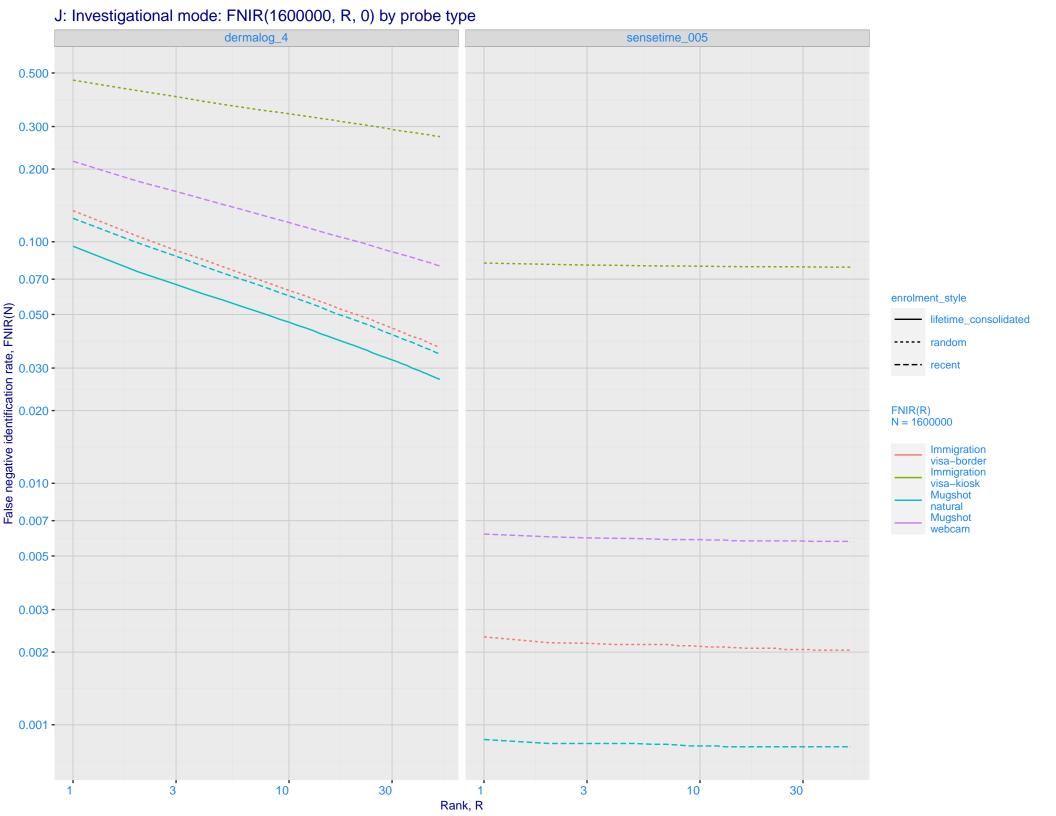


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 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 0.500 -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 webcam Mugshot 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



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 -

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



