A: Datasheet

Algorithm: eyedea_2

Developer: Eyedea Recognition

Submission Date: 2018_02_16

Template size: 1036 bytes

Template time (2.5 percentile): 353 msec

Template time (median): 426 msec

Template time (97.5 percentile): 520 msec

Investigation:

Frontal mugshot ranking 232 (out of 259) -- FNIR(1600000, 0, 1) = 0.1979 vs. lowest 0.0009 from sensetime_005

Mugshot profile ranking 121 (out of 190) -- FNIR(1600000, 0, 1) = 0.9343 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 113 (out of 142) -- FNIR(1600000, 0, 1) = 0.2298 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 115 (out of 139) — FNIR(1600000, 0, 1) = 0.4965 vs. lowest 0.0694 from cib_000

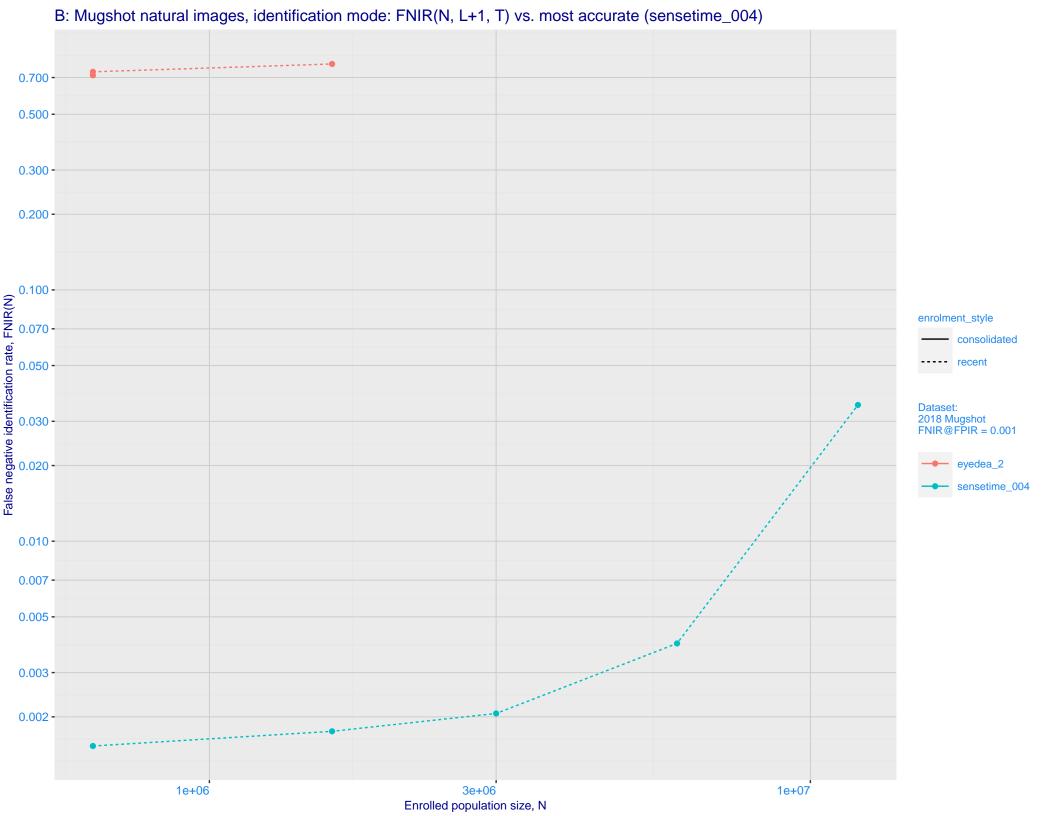
Identification:

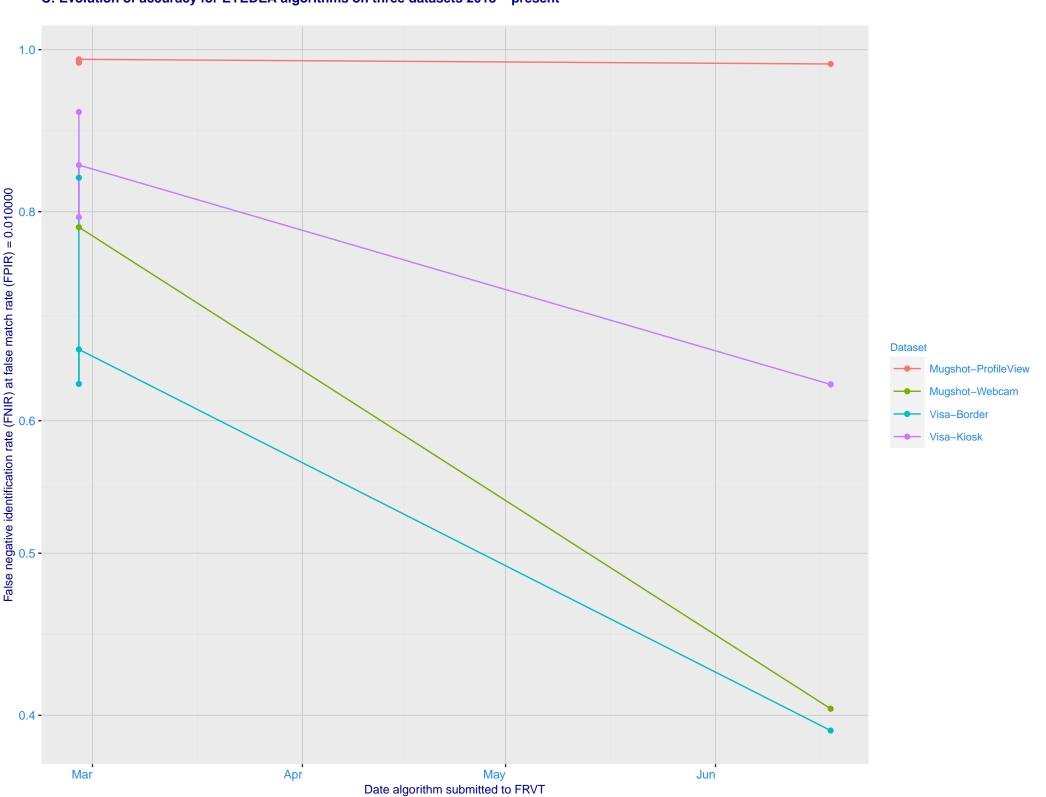
Frontal mugshot ranking 235 (out of 259) -- FNIR(1600000, T, L+1) = 0.7926, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot profile ranking 138 (out of 189) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 113 (out of 139) -- FNIR(1600000, T, L+1) = 0.8351, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 106 (out of 134) -- FNIR(1600000, T, L+1) = 0.9471, 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 - 0.002 - 0.002 - 0.001 - 0.001 - 0.500 - 0.300 - 0.200 enrolment_style 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

0.5

0.6

0.7

8.0

0.9

Threshold

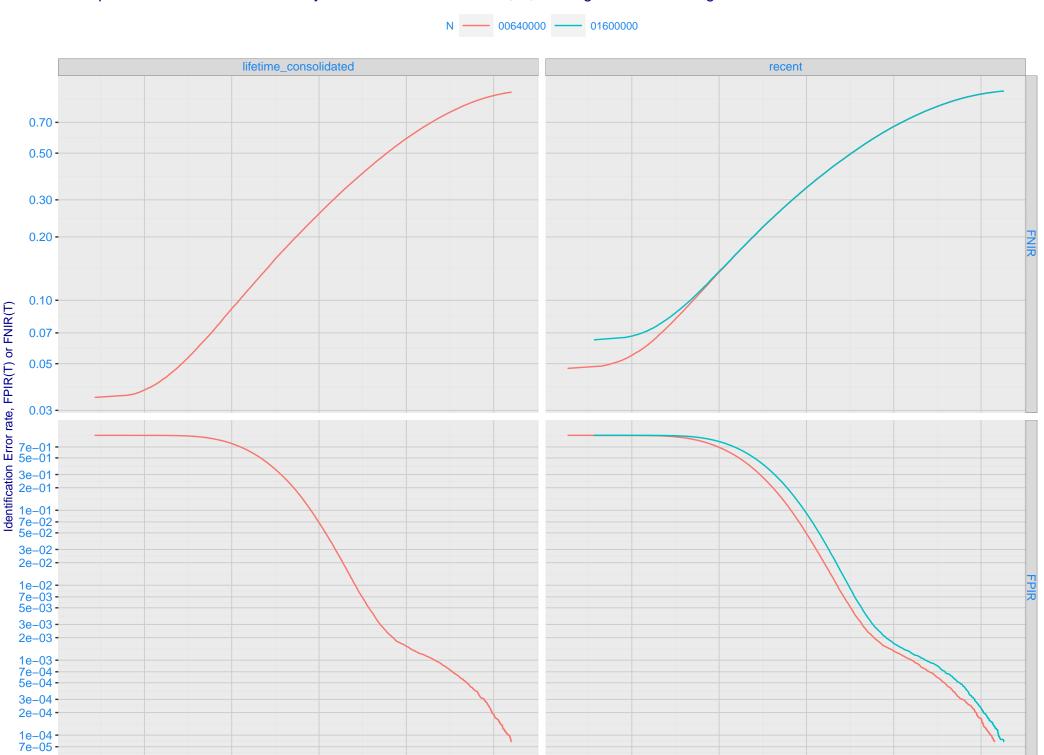
0.5

0.6

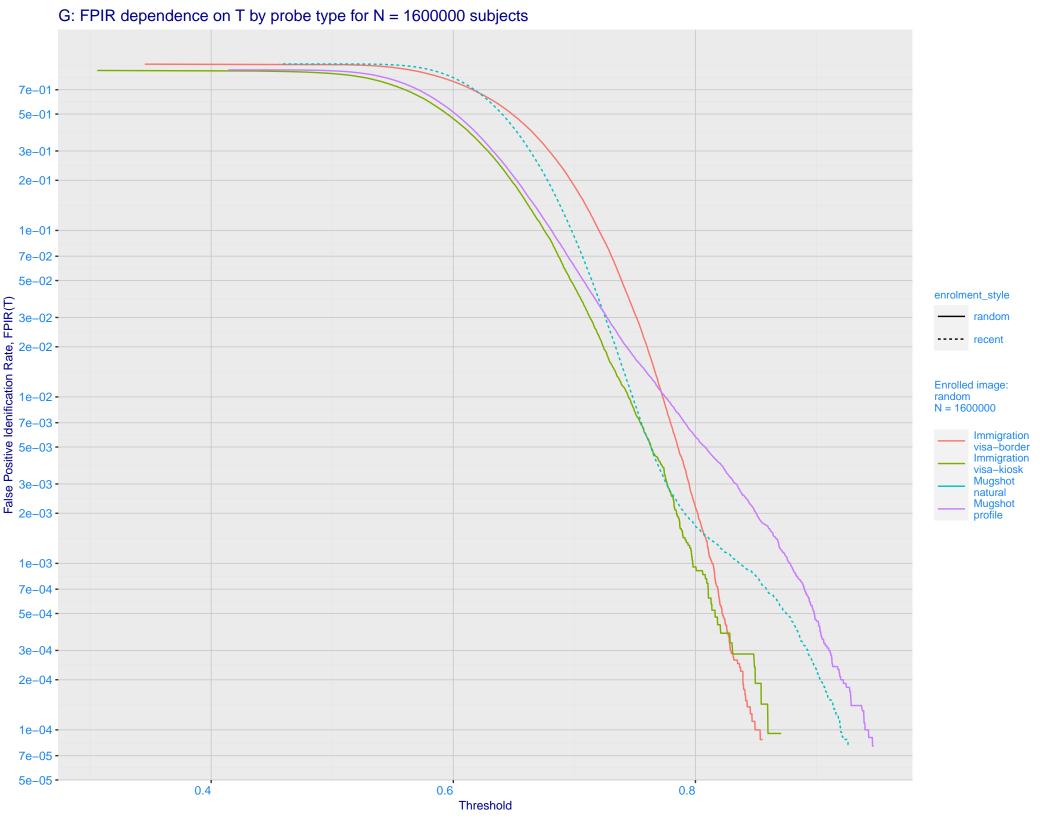
0.7

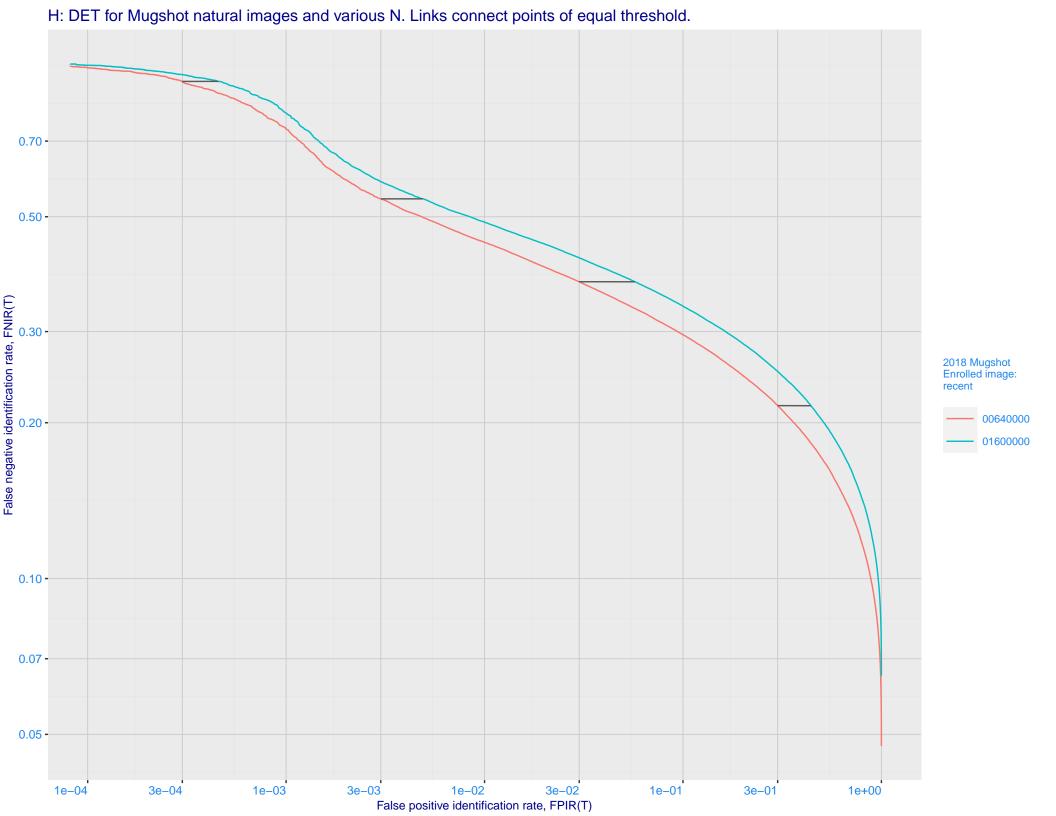
0.8

0.9

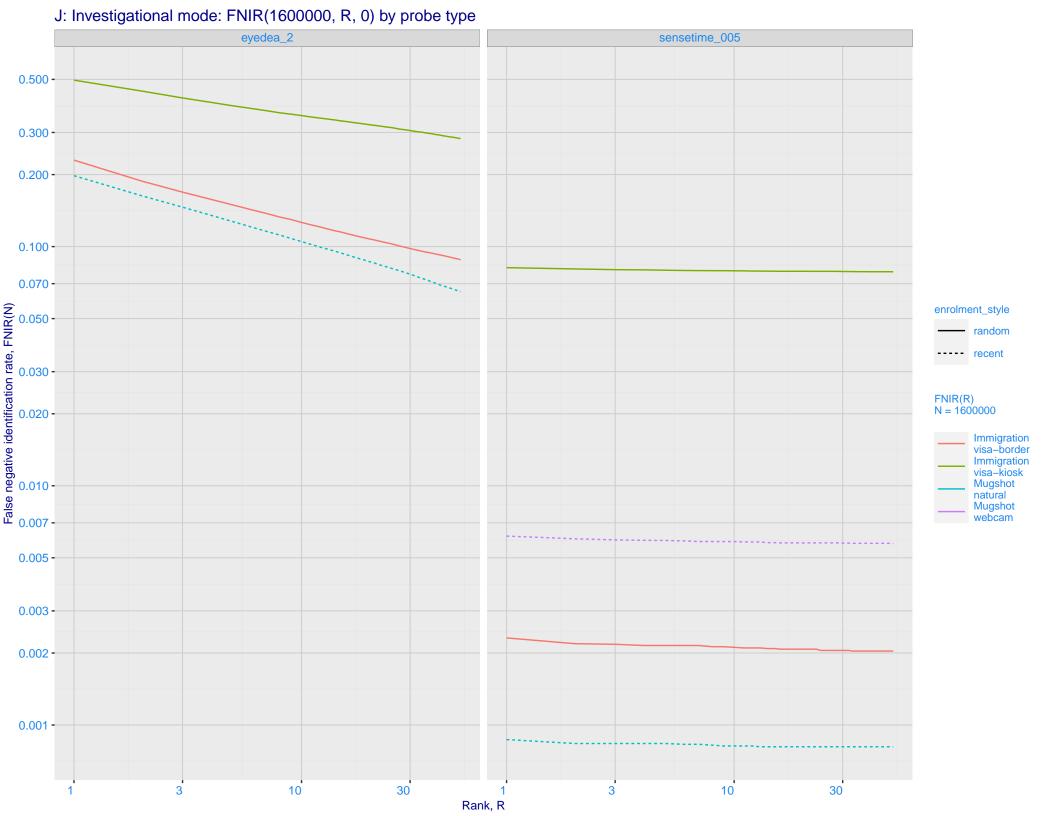


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -2e-01 -1e-01 -7e-02 -5e-02 -Enrolled images: recent N = 1600000 Mugshot natural 5e-02 -3e-02 -2e-02 -1e-02 -7e-03 -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)





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 - 0.200 - 0.100 - 0. enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 eyedea_2 - 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 500 -Search Duration (milliseconds) 200 -

1e+06

Enrolled population size, N, one image per person

8e+05

7e+05

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



