A: Datasheet

Algorithm: imagus_0

Developer: Imagus Technology Pty Ltd

Submission Date: 2018_02_14

Template size: 512 bytes

Template time (2.5 percentile): 24 msec

Template time (median): 29 msec

Template time (97.5 percentile): 33 msec

Investigation:

Frontal mugshot ranking 263 (out of 279) -- FNIR(1600000, 0, 1) = 0.3035 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 224 (out of 241) -- FNIR(1600000, 0, 1) = 0.4824 vs. lowest 0.0062 from sensetime_005

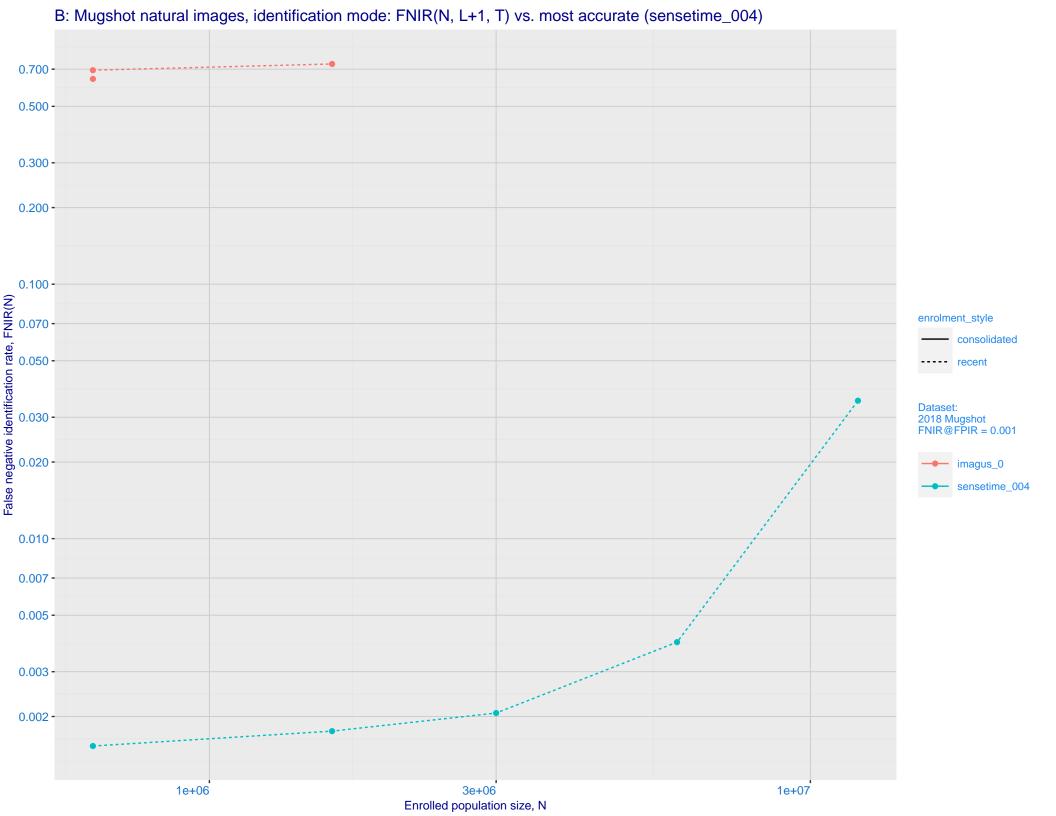
Mugshot profile ranking 207 (out of 210) -- FNIR(1600000, 0, 1) = 0.9937 vs. lowest 0.0587 from xforwardai_002

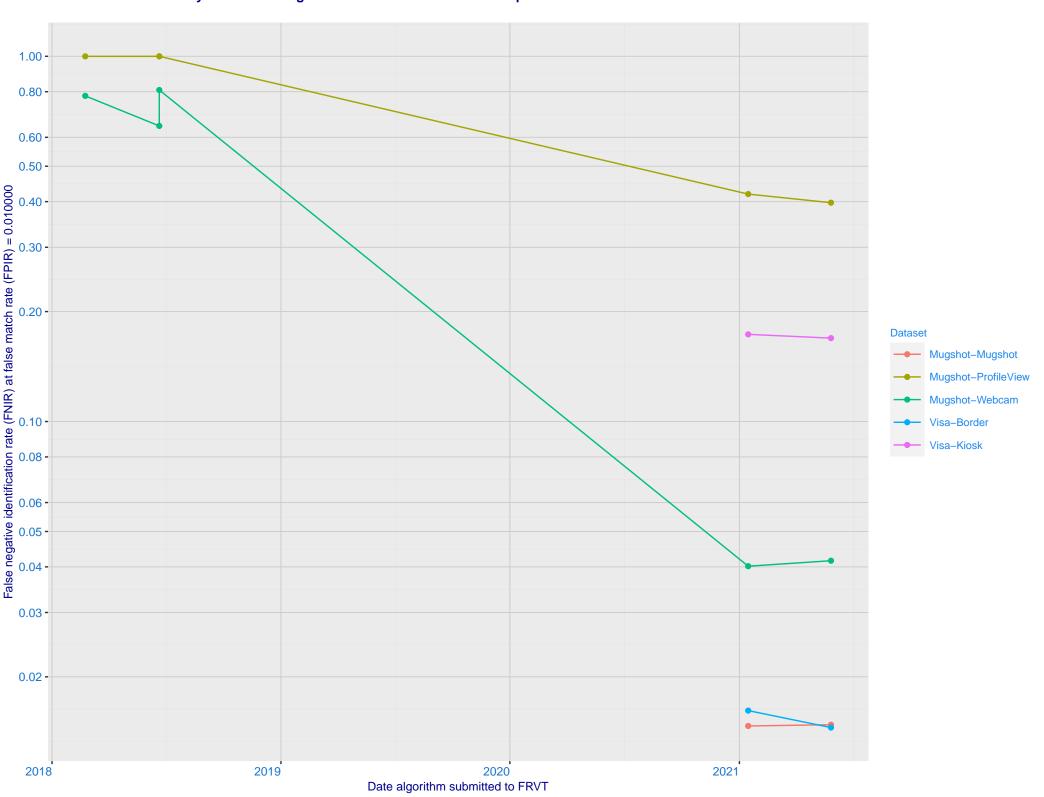
Identification:

Frontal mugshot ranking 251 (out of 279) -- FNIR(1600000, T, L+1) = 0.7337, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 216 (out of 236) -- FNIR(1600000, T, L+1) = 0.8718, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 162 (out of 209) -- FNIR(1600000, T, L+1) = 0.9997, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

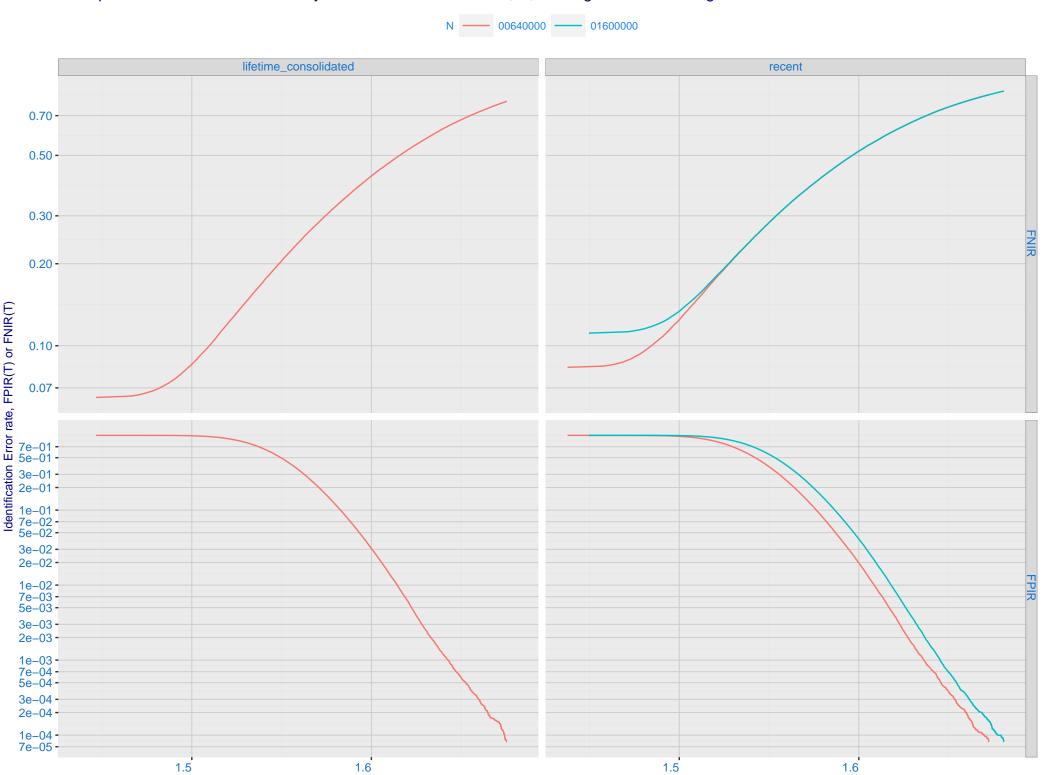




D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.0001 - 0.500 - 0.200 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 -

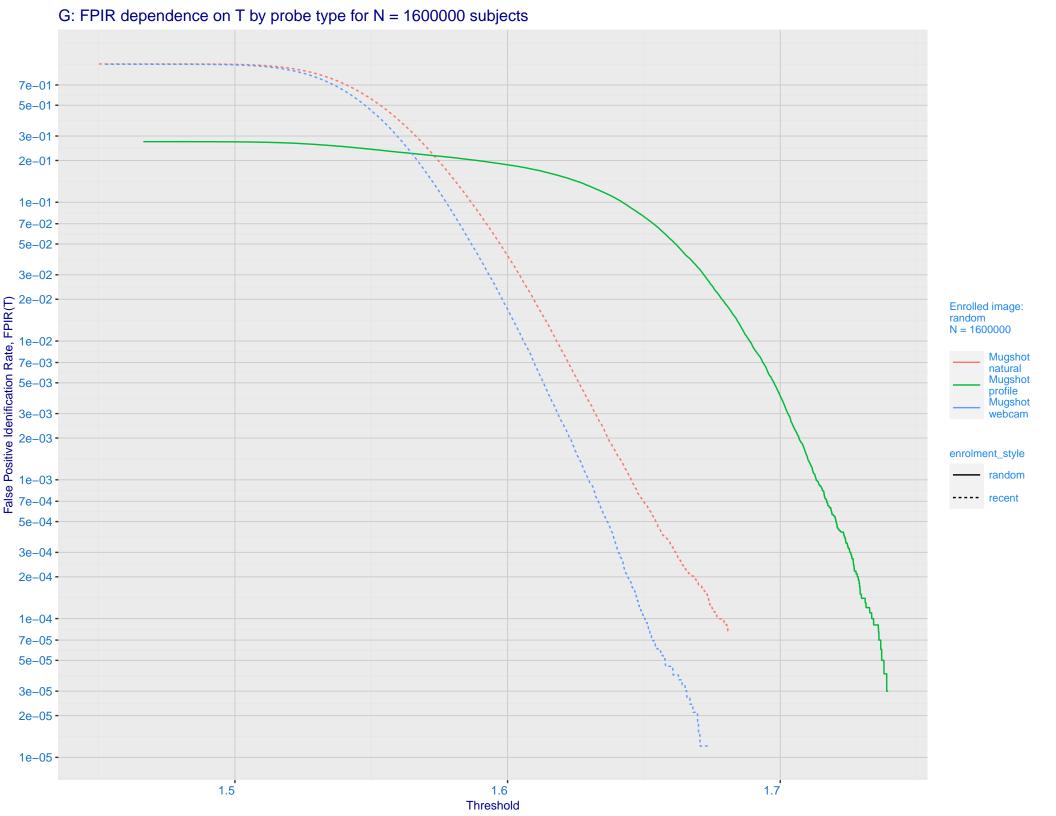
False positive identification rate, FPIR(T)

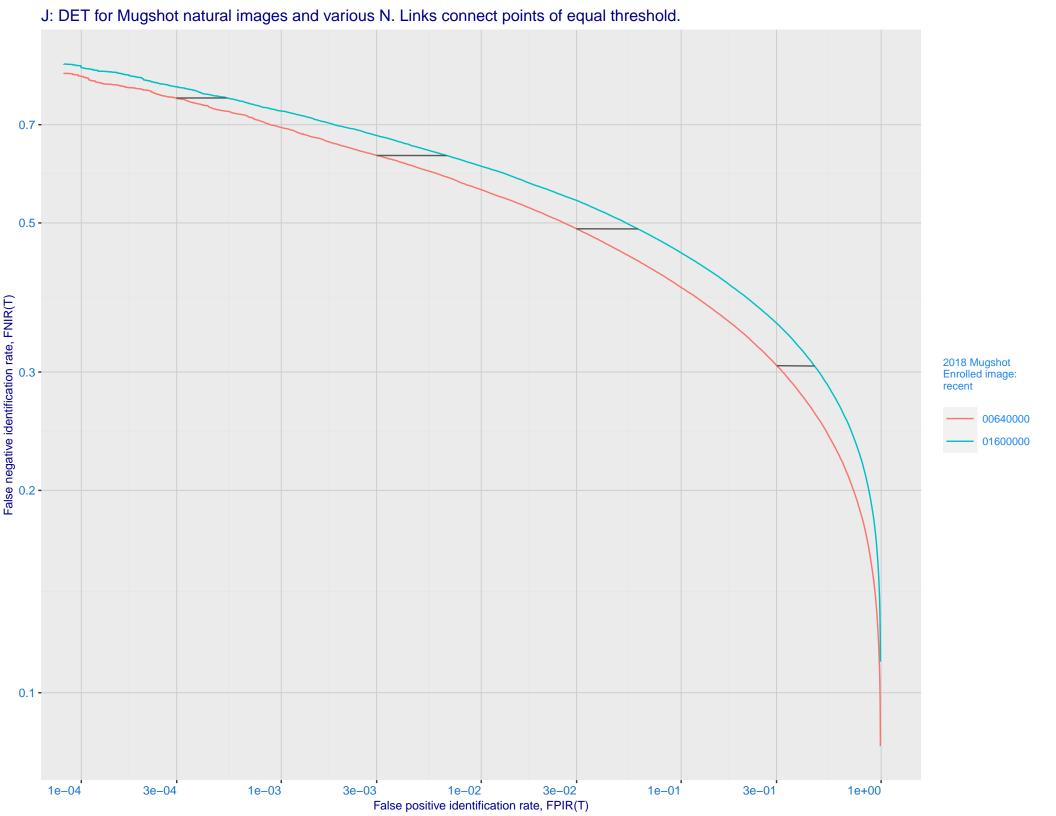
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



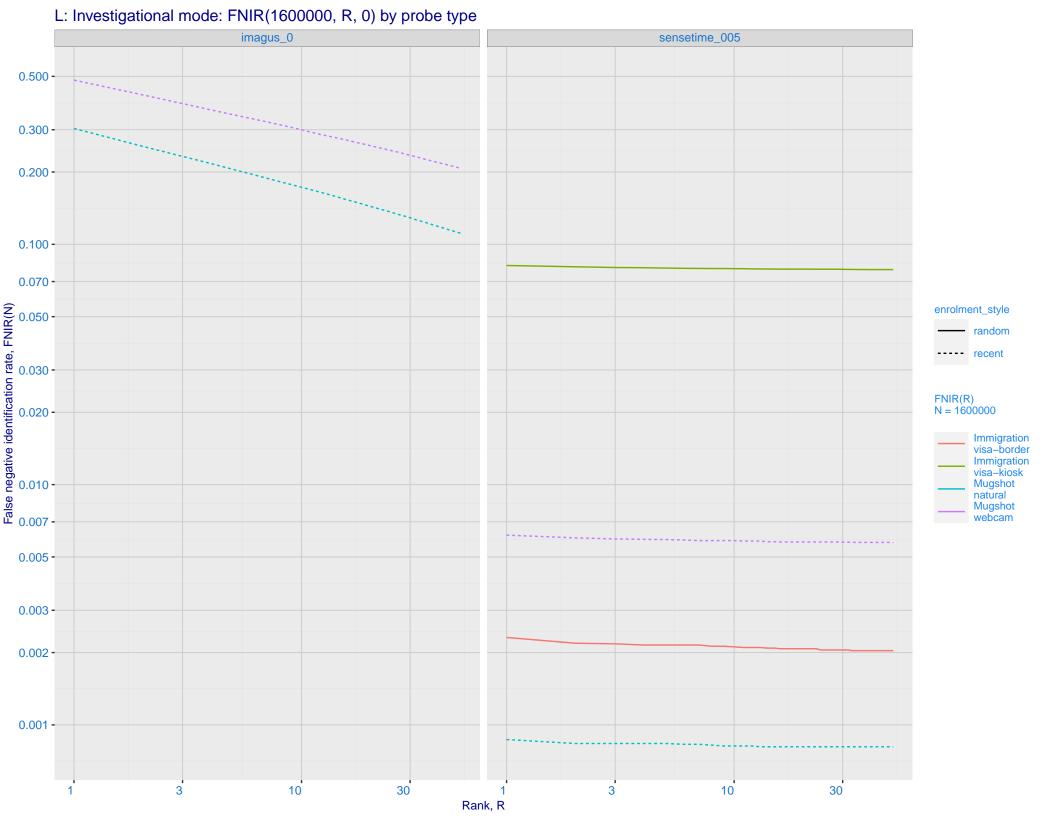
Threshold

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 - 7e-02 - 3e-02 - 2e-02 - 2e-02 - 2e-02 - 7e-02 **Enrolled images:** recent N = 1600000Mugshot natural Mugshot webcam 1e-02 -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-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 imagus_0 - 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 -30 -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



