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 250 (out of 265) -- FNIR(1600000, 0, 1) = 0.3035 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 212 (out of 227) -- FNIR(1600000, 0, 1) = 0.4824 vs. lowest 0.0062 from sensetime_005

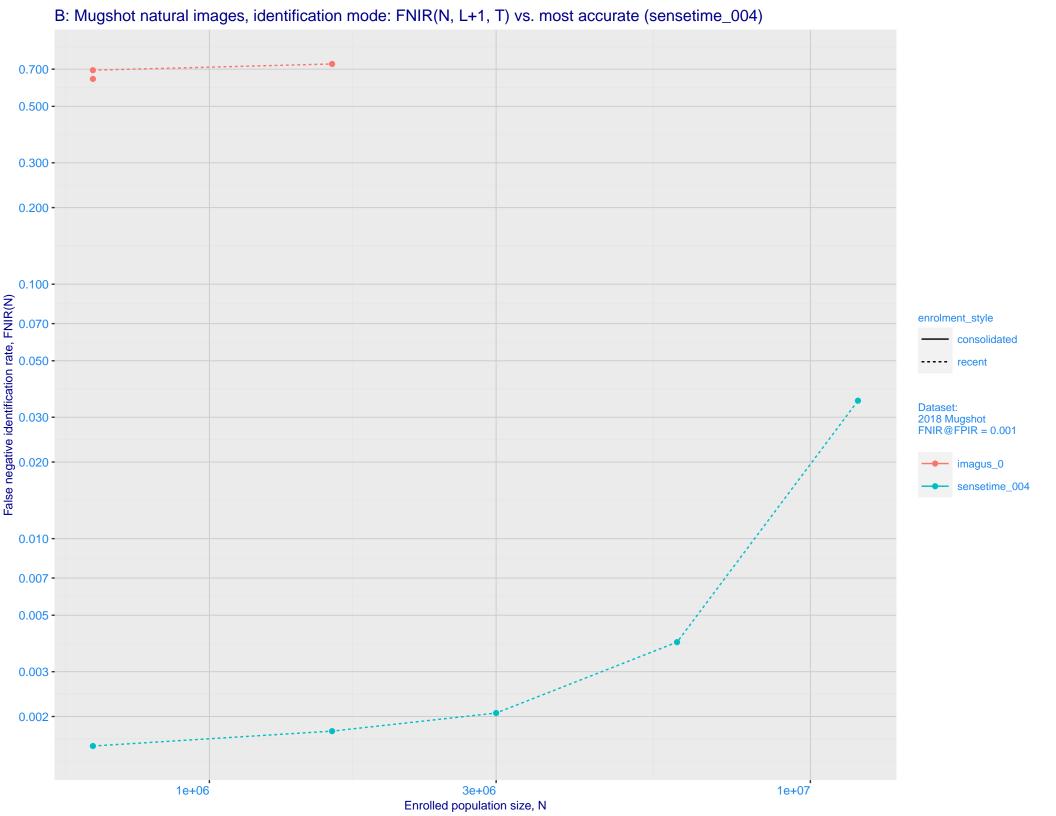
Mugshot profile ranking 193 (out of 196) -- FNIR(1600000, 0, 1) = 0.9937 vs. lowest 0.0591 from sensetime_005

Identification:

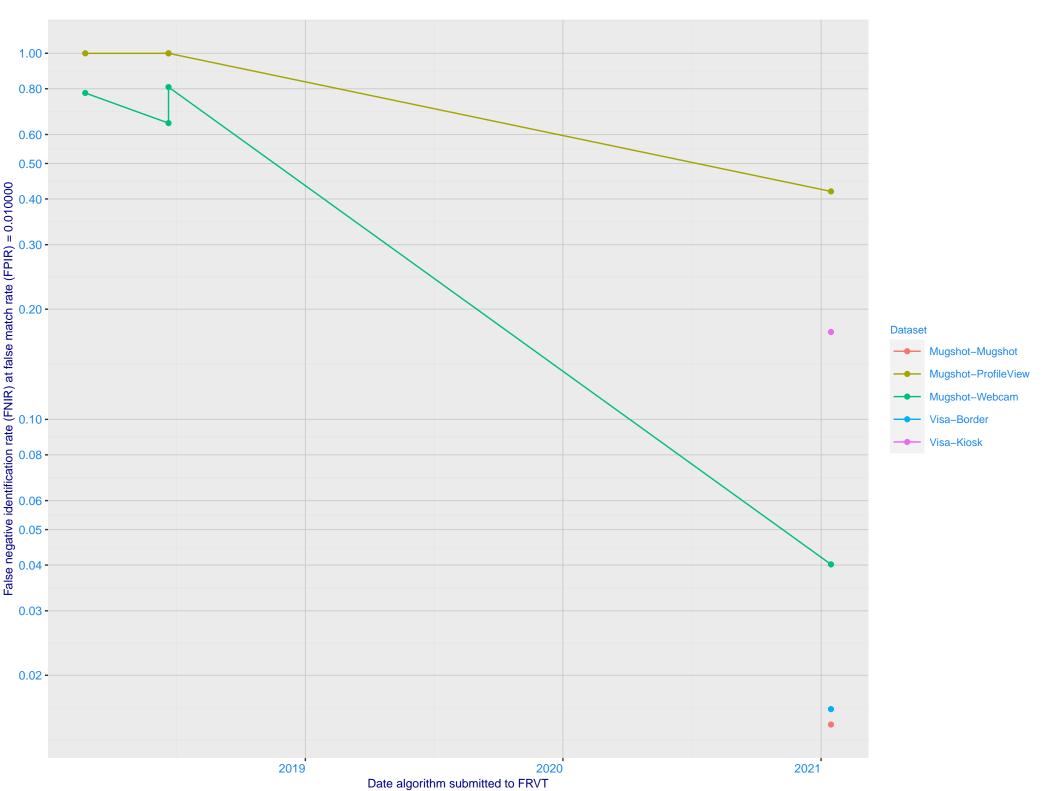
Frontal mugshot ranking 238 (out of 265) -- FNIR(1600000, T, L+1) = 0.7337, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 205 (out of 225) -- FNIR(1600000, T, L+1) = 0.8718, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 154 (out of 195) -- FNIR(1600000, T, L+1) = 0.9997, FPIR=0.001000 vs. lowest 0.1331 from hr_000



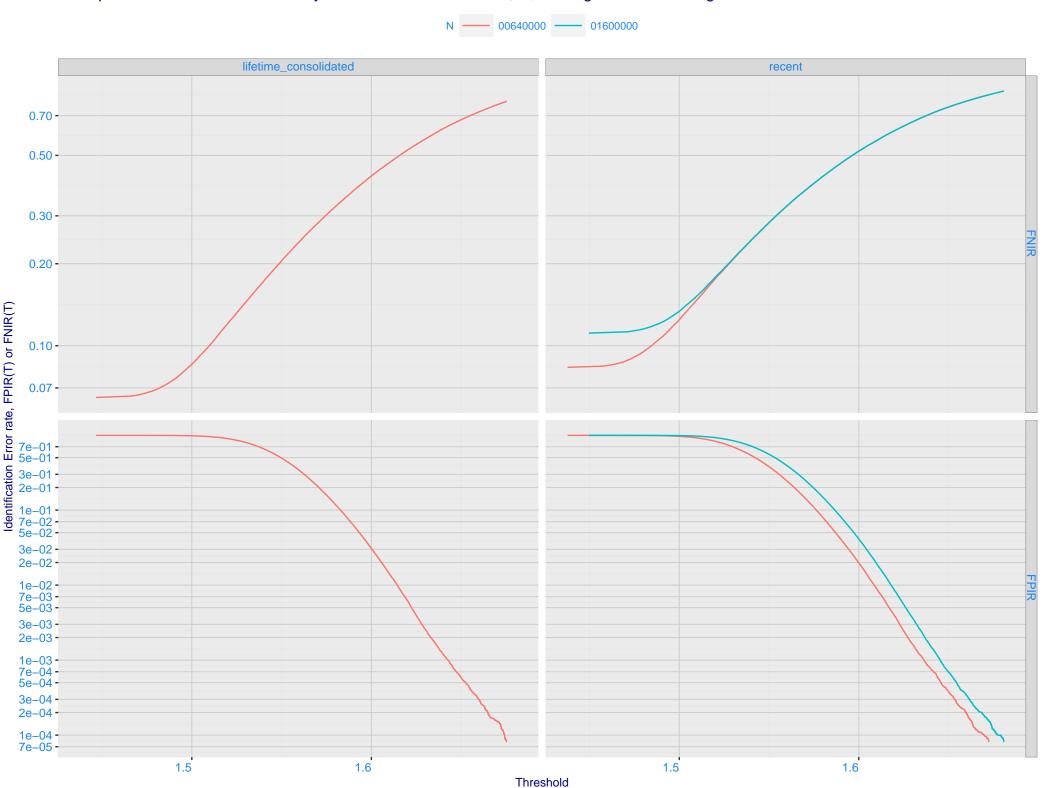
C: Evolution of accuracy for IMAGUS algorithms on three datasets 2018 – present



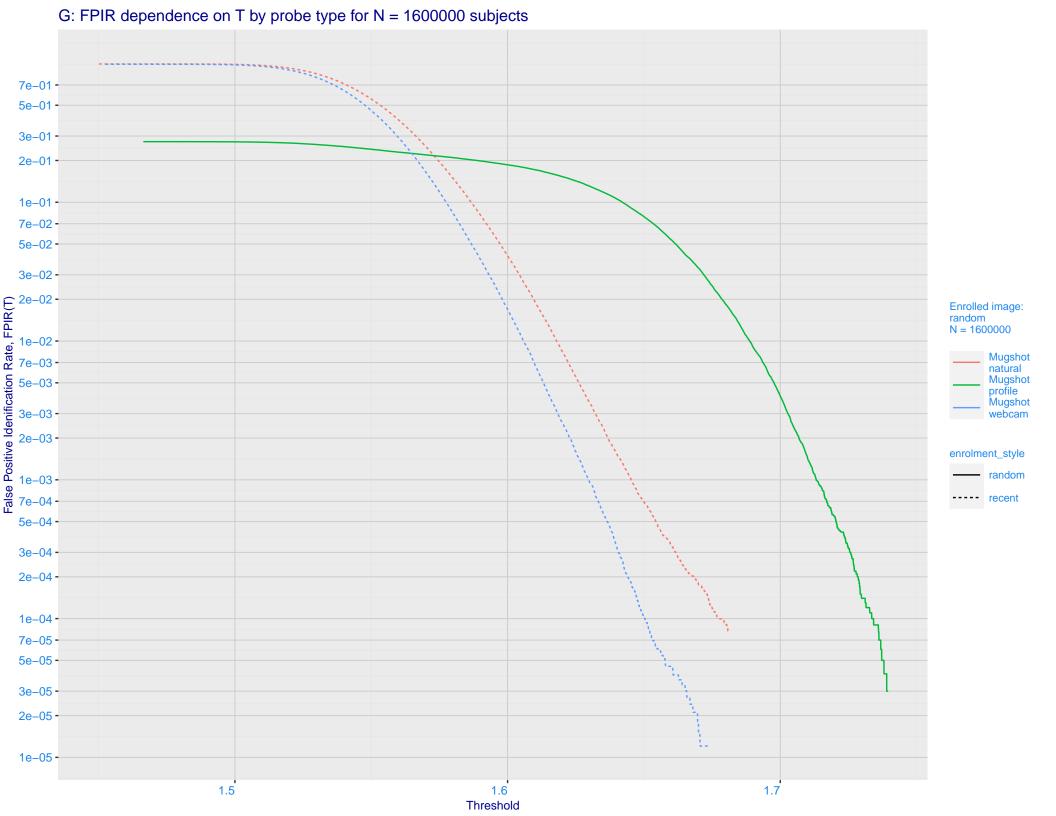
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.0001 - 0.500 - 0.2001 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 -

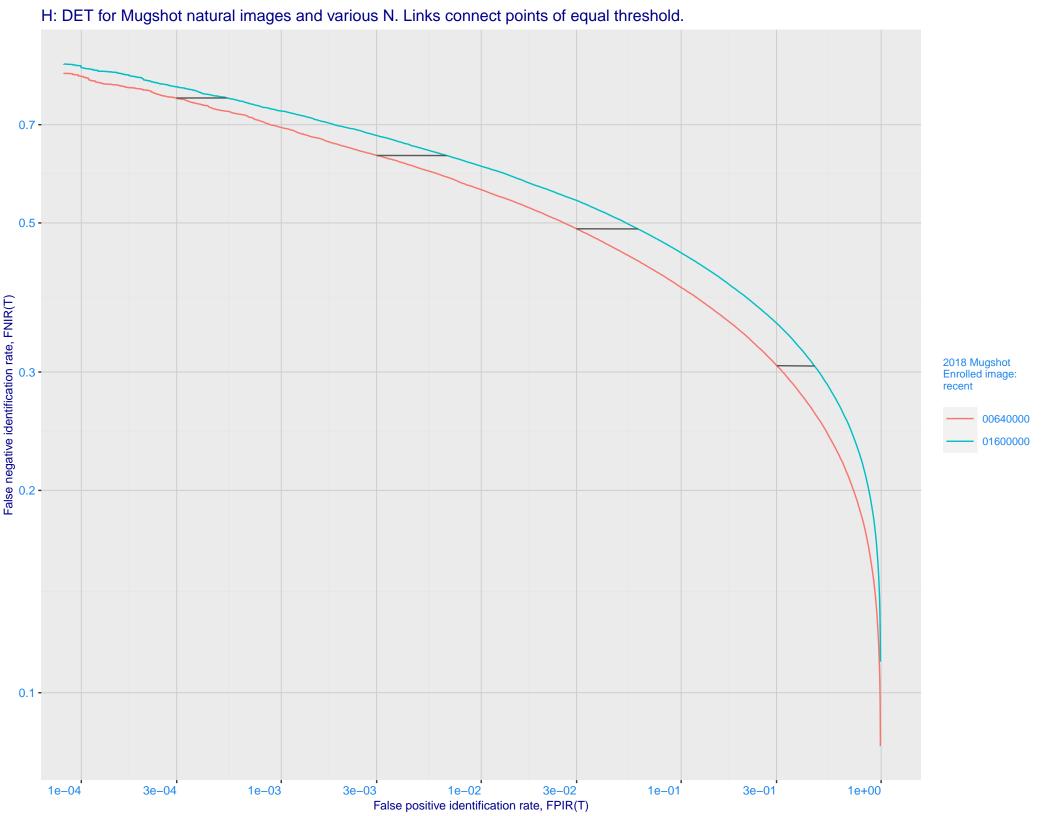
False positive identification rate, FPIR(T)

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

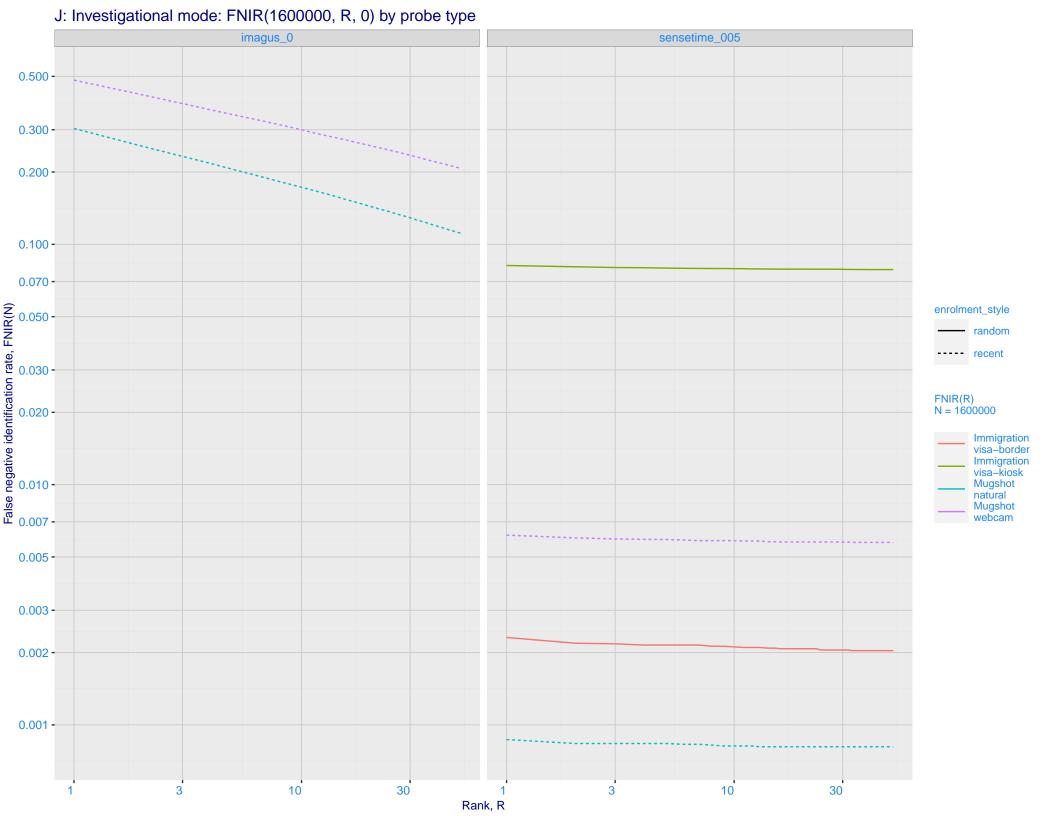


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 - 7e-02 **Enrolled images:** recent N = 1600000Mugshot natural Mugshot webcam 1e-02 -7e-03 -5e-03 -3e-03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





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 - 0.500 - 0.200 - 0.100 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot 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



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 -

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



