## A: Datasheet

Algorithm: imagus\_2

Developer: Imagus Technology Pty Ltd

Submission Date: 2018\_06\_21

Template size: 512 bytes

Template time (2.5 percentile): 62 msec

Template time (median): 69 msec

Template time (97.5 percentile): 85 msec

Investigation:

Frontal mugshot ranking 242 (out of 265) -- FNIR(1600000, 0, 1) = 0.2203 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 201 (out of 227) -- FNIR(1600000, 0, 1) = 0.3007 vs. lowest 0.0062 from sensetime\_005

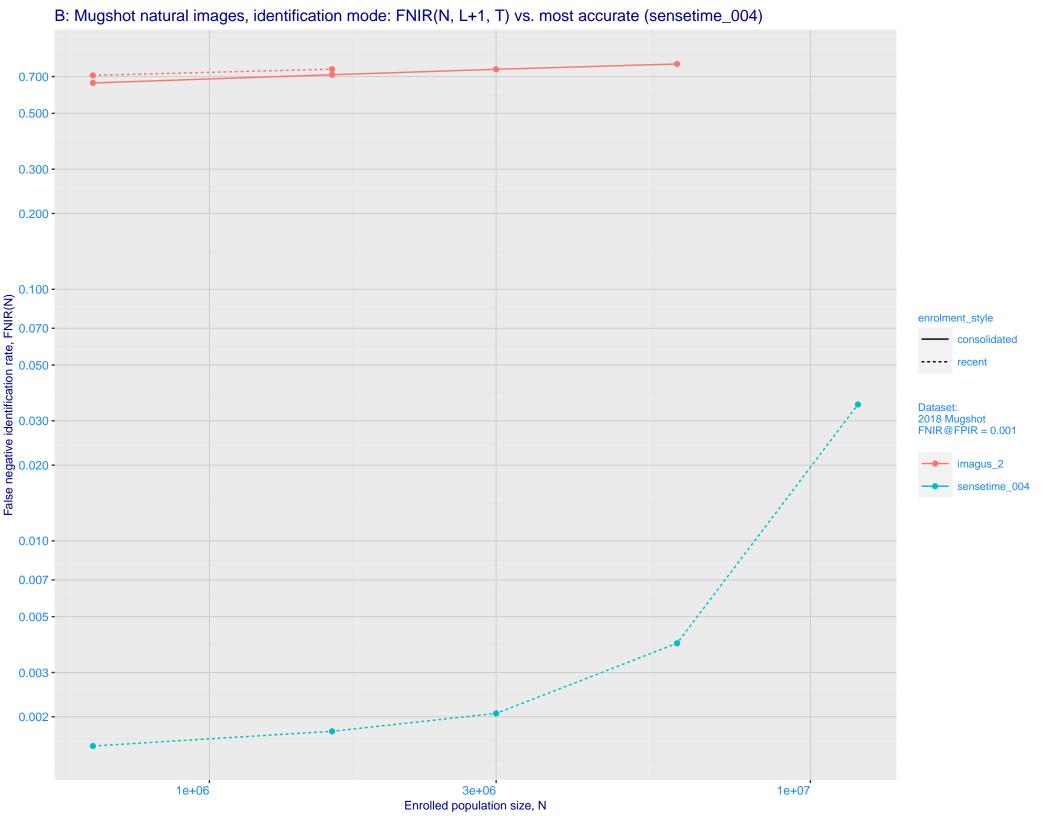
Mugshot profile ranking 185 (out of 196) -- FNIR(1600000, 0, 1) = 0.9880 vs. lowest 0.0591 from sensetime\_005

Identification:

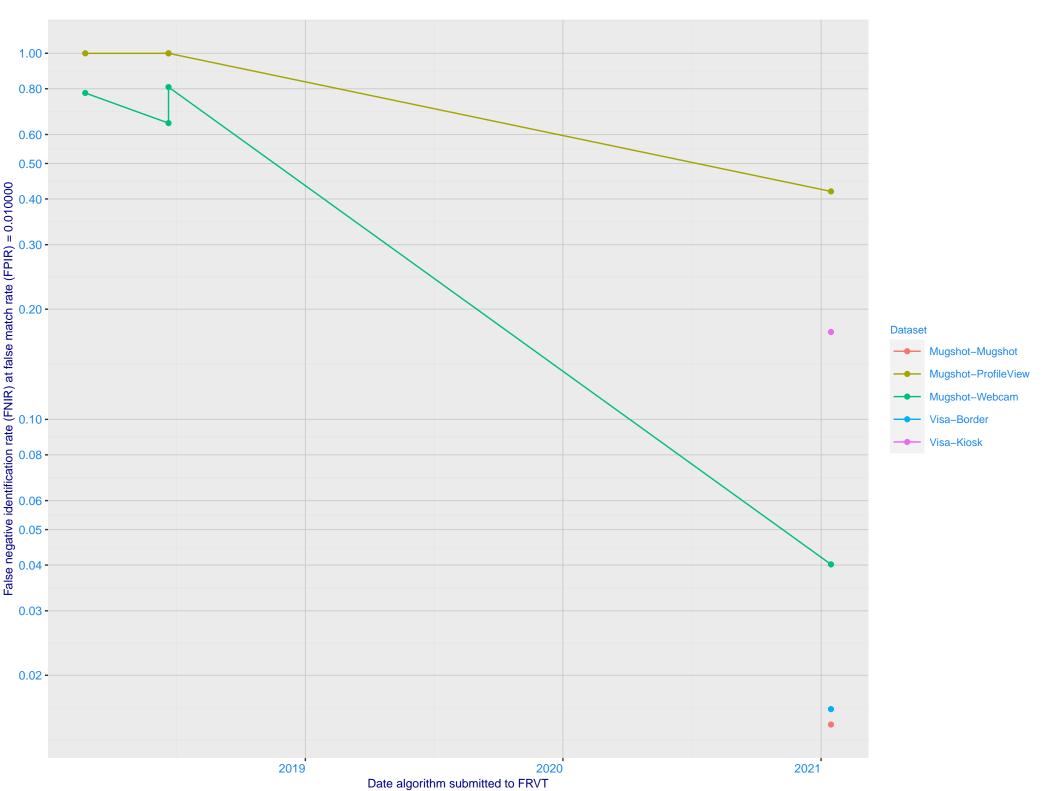
Frontal mugshot ranking 239 (out of 265) -- FNIR(1600000, T, L+1) = 0.7491, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 202 (out of 225) -- FNIR(1600000, T, L+1) = 0.8142, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

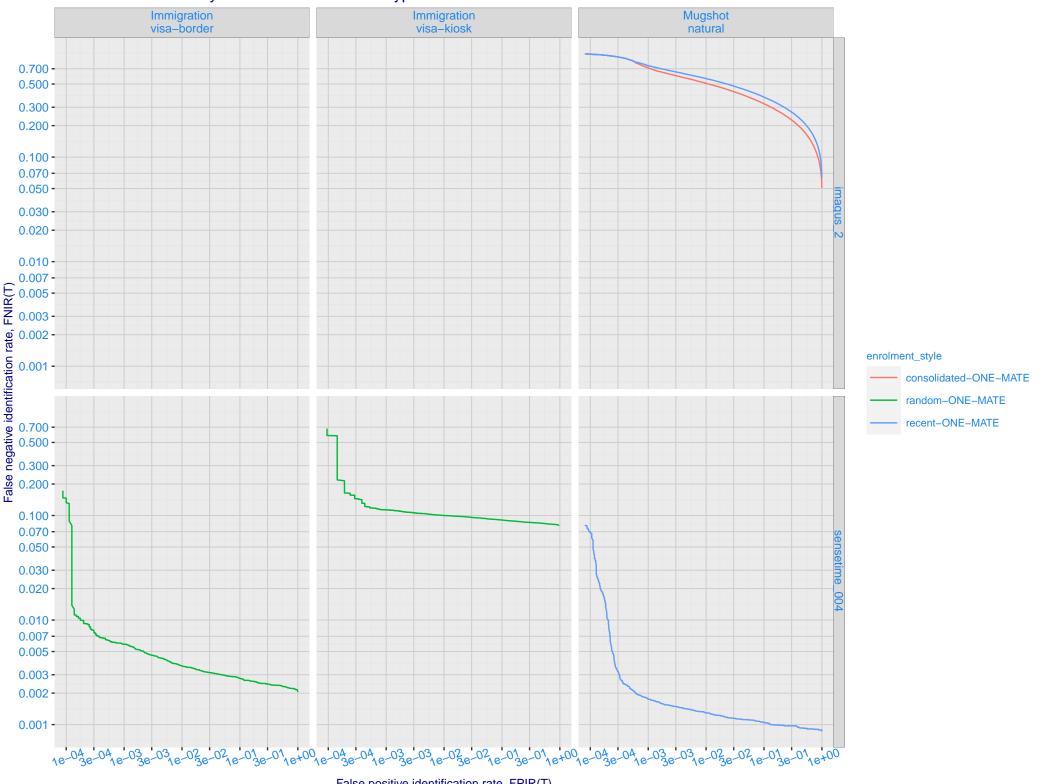
Mugshot profile ranking 176 (out of 195) -- FNIR(1600000, T, L+1) = 0.9999, FPIR=0.001000 vs. lowest 0.1331 from hr\_000



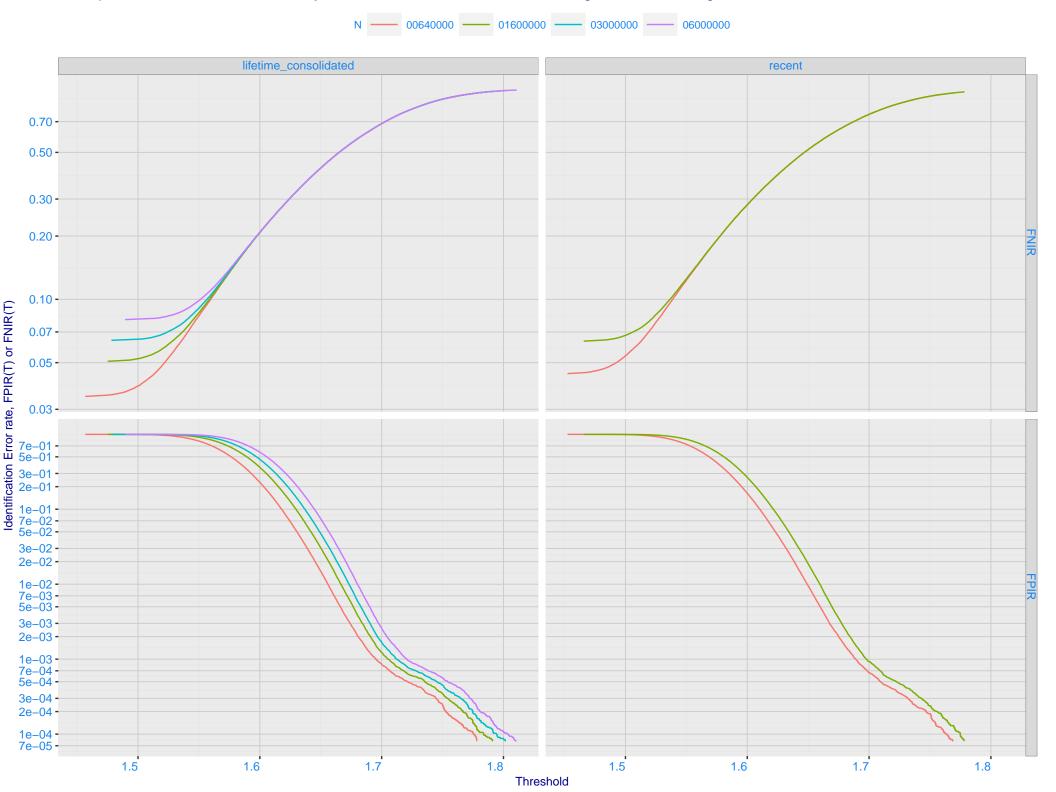
C: Evolution of accuracy for IMAGUS algorithms on three datasets 2018 – present



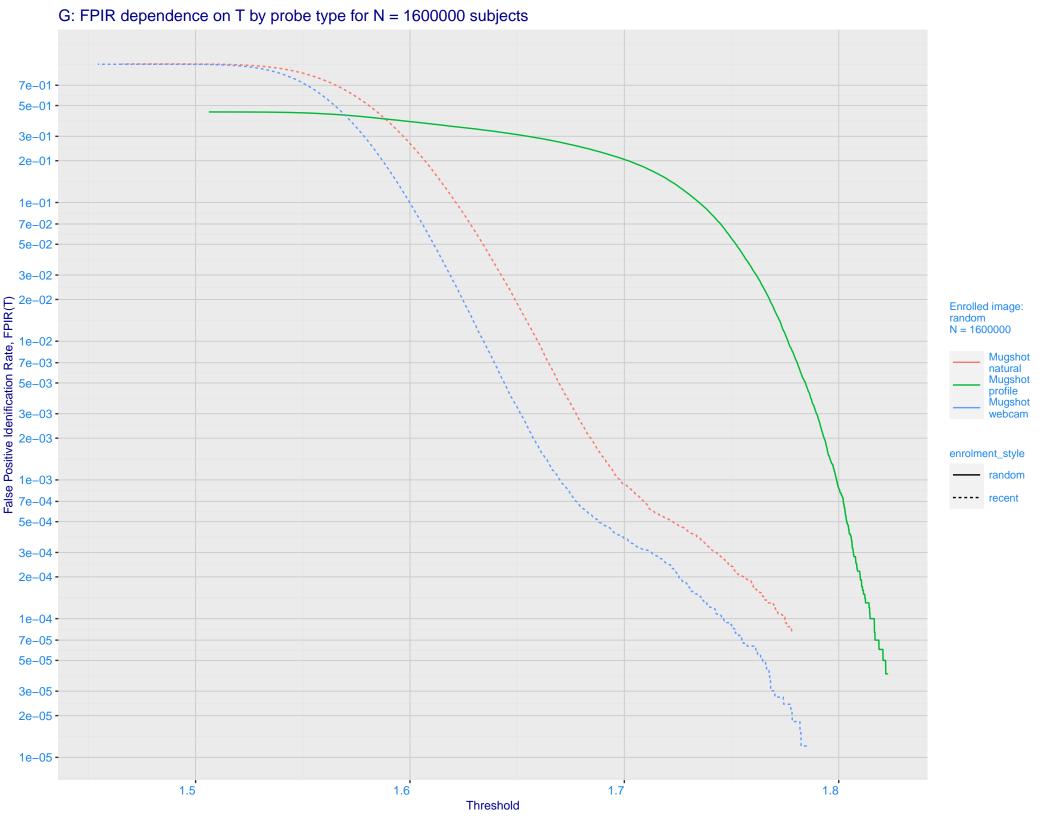
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

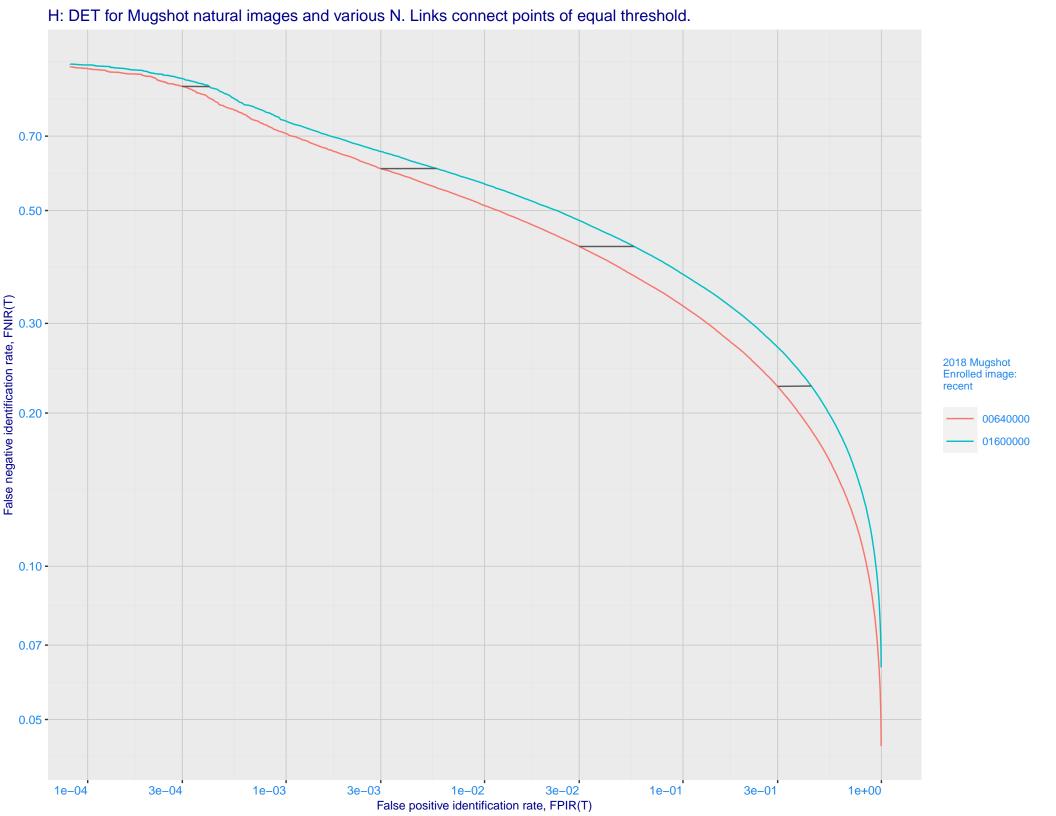


E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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)

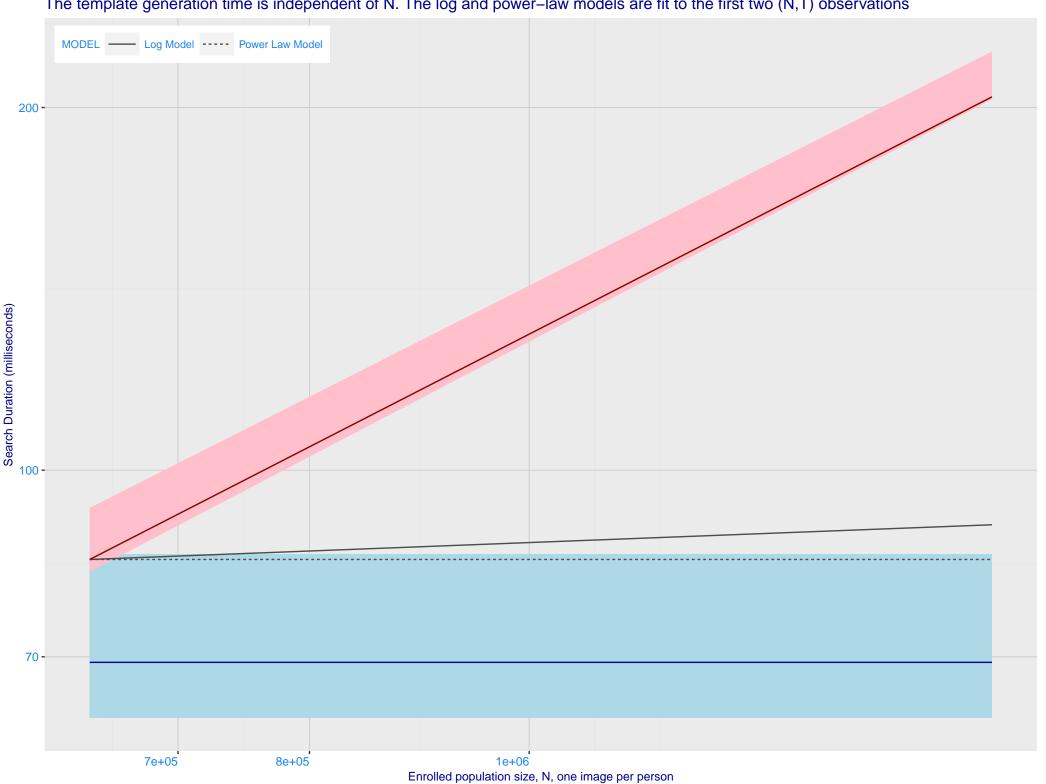




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.001 - 0.300 - 0.100 - 0.070 - 0. enrolment\_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 imagus\_2 sensetime\_005 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

J: Investigational mode: FNIR(1600000, R, 0) by probe type imagus\_2 sensetime\_005 0.300 -0.200 -0.100 -0.070 -0.050 enrolment\_style False negative identification rate, FNIR(N) - 0.000 - lifetime\_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.005 -0.003 -0.002 -0.001 -10 30 3 10 30 Rank, R

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



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



