## A: Datasheet

Algorithm: aware\_2

Developer: Aware

Submission Date: 2018\_02\_16

Template size: 2076 bytes

Template time (2.5 percentile): 848 msec

Template time (median): 909 msec

Template time (97.5 percentile): 989 msec

Investigation:

Frontal mugshot ranking 219 (out of 279) -- FNIR(1600000, 0, 1) = 0.0575 vs. lowest 0.0009 from sensetime\_005

Mugshot profile ranking 191 (out of 210) -- FNIR(1600000, 0, 1) = 0.9768 vs. lowest 0.0587 from xforwardai\_002

Immigration visa-border ranking 129 (out of 168) -- FNIR(1600000, 0, 1) = 0.1489 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 128 (out of 165) -- FNIR(1600000, 0, 1) = 0.3947 vs. lowest 0.0568 from cloudwalk\_hr\_000

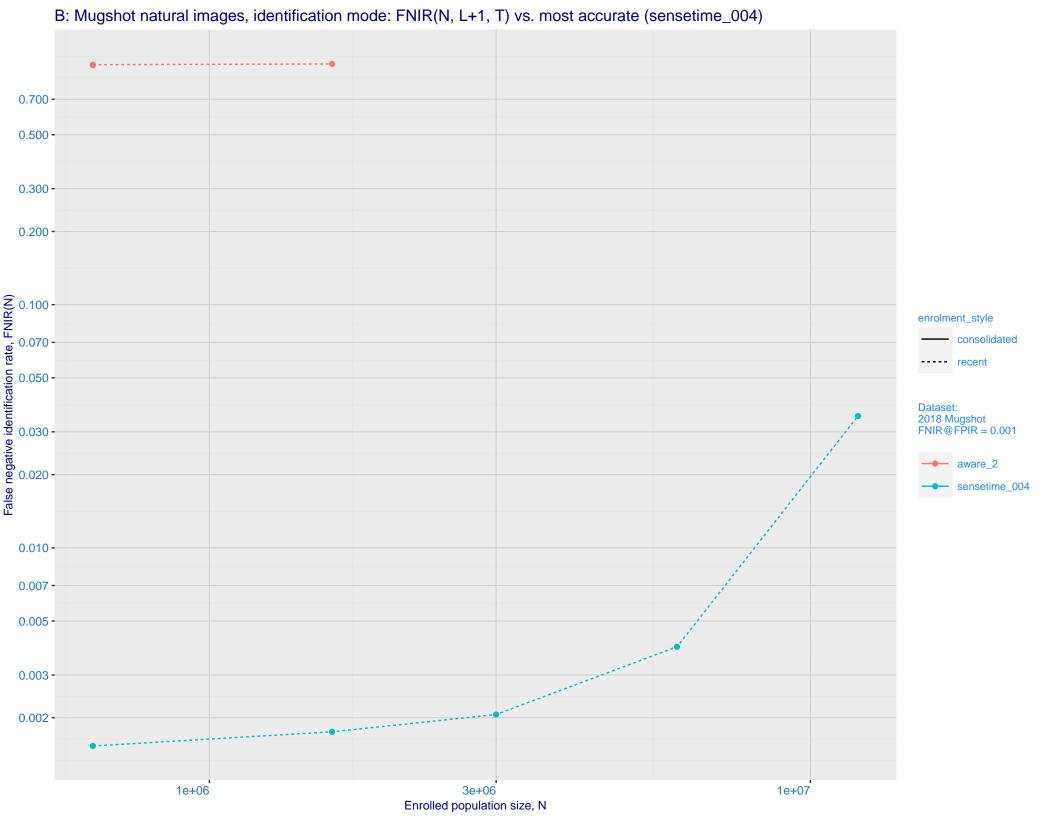
Identification:

Frontal mugshot ranking 268 (out of 279) -- FNIR(1600000, T, L+1) = 0.9772, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

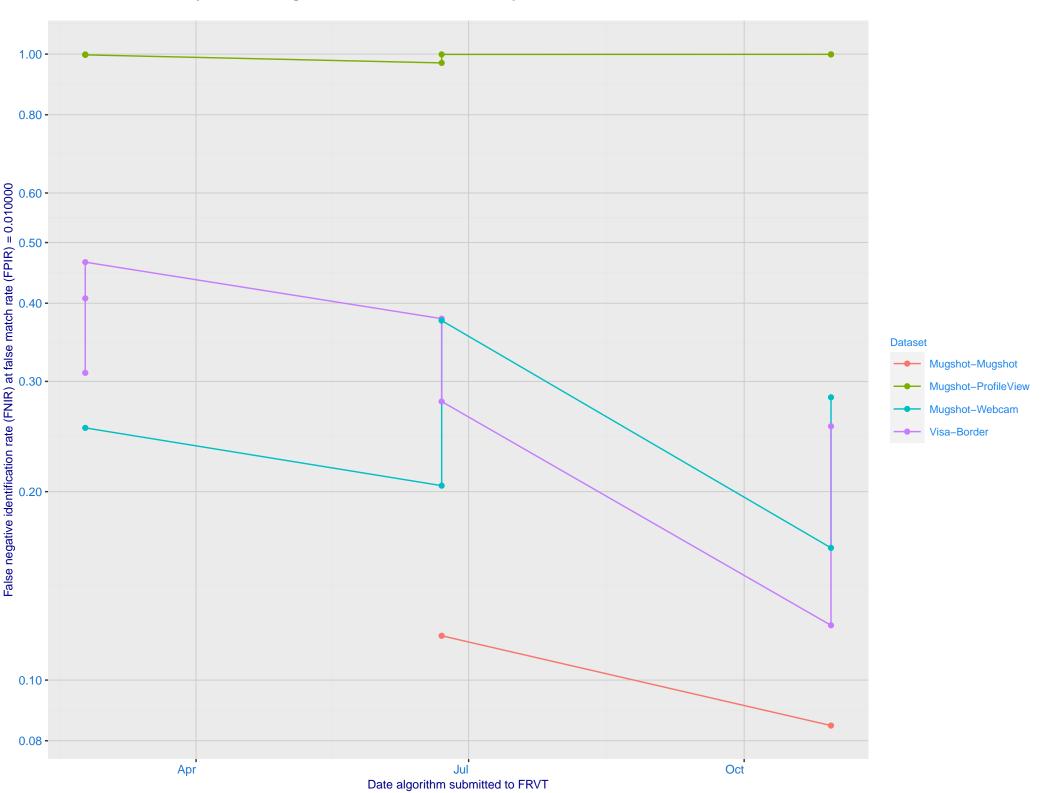
Mugshot profile ranking 187 (out of 209) -- FNIR(1600000, T, L+1) = 0.9999, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

Immigration visa-border ranking 136 (out of 167) -- FNIR(1600000, T, L+1) = 0.7433, FPIR=0.001000 vs. lowest 0.0047 from idemia\_008

Immigration visa-kiosk ranking 122 (out of 162) -- FNIR(1600000, T, L+1) = 0.9431, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk\_hr\_000

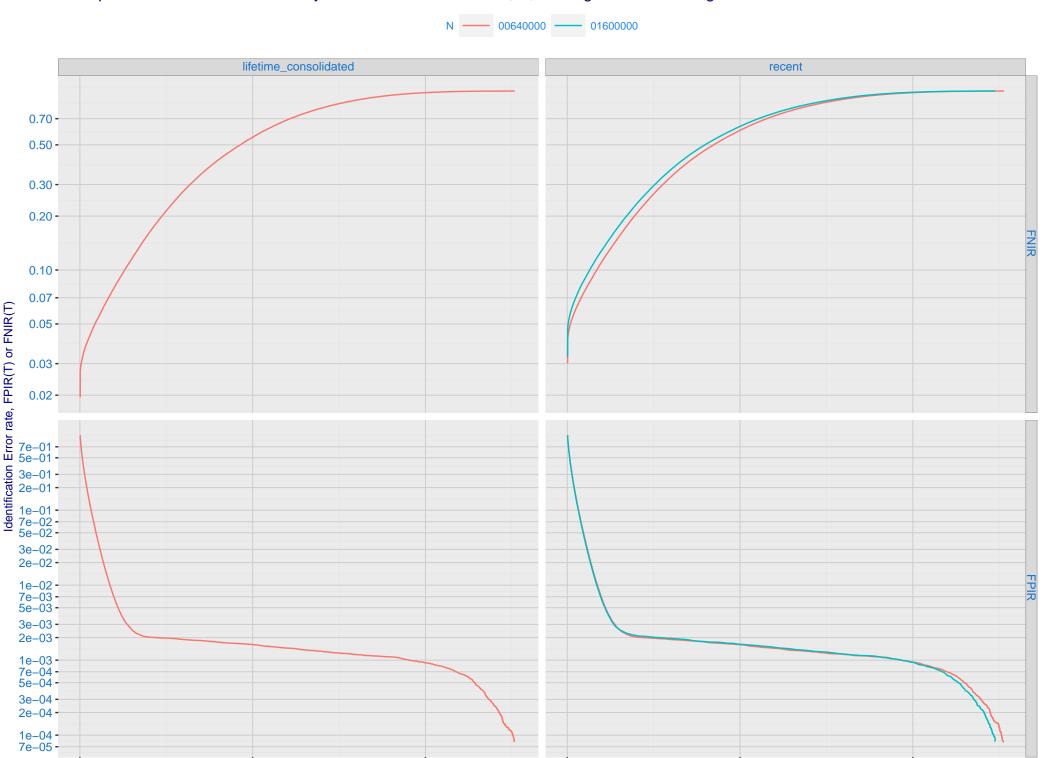


C: Evolution of accuracy for AWARE algorithms on three datasets 2018 – present



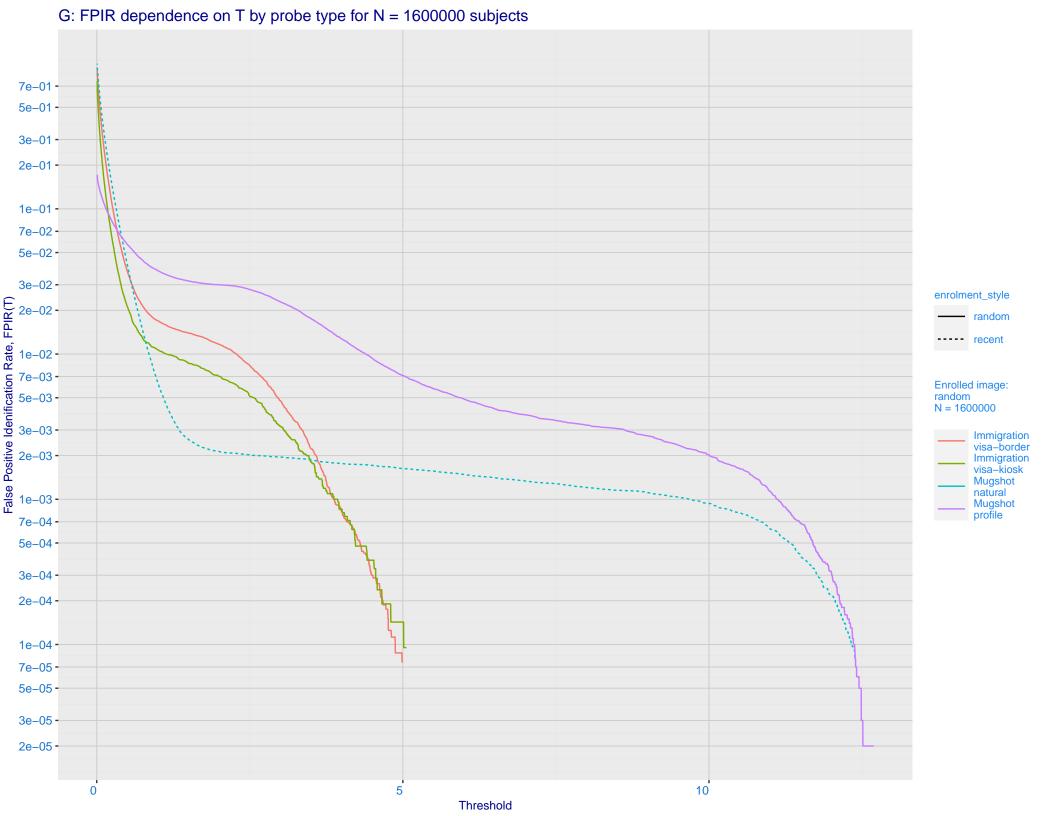
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style random-ONE-MATE recent-ONE-MATE 0.100 -0.070 sensetime 004 0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -False positive identification rate, FPIR(T)

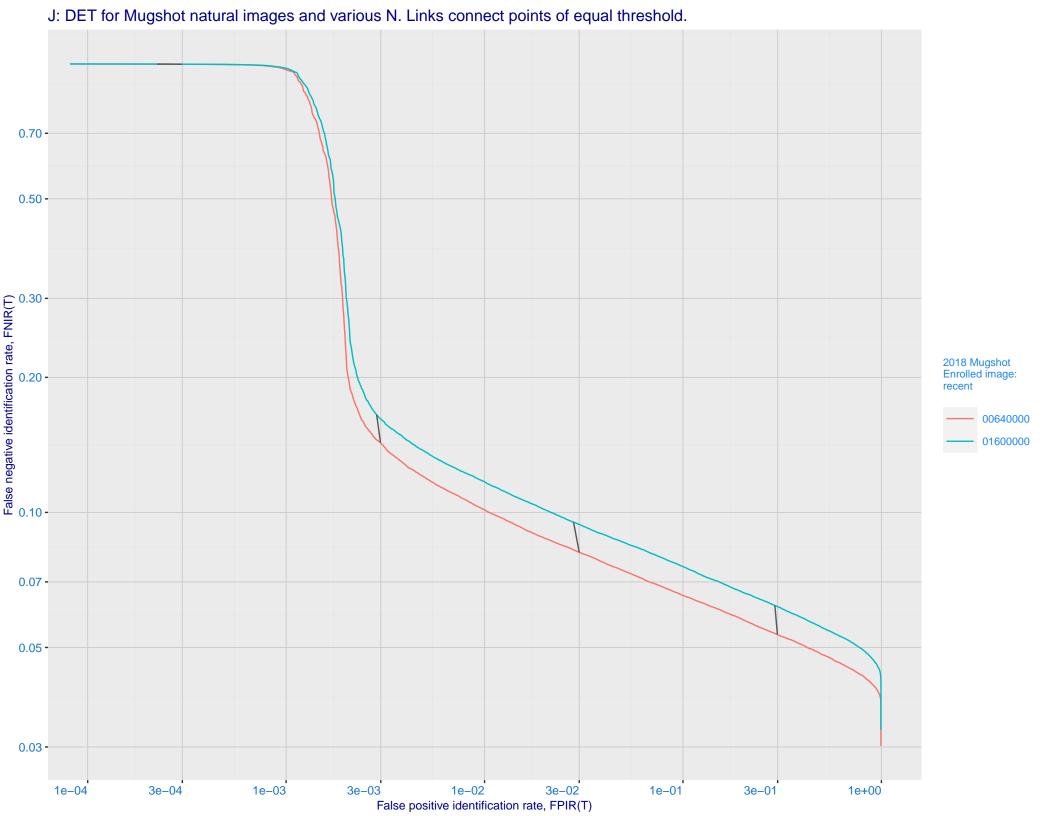
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



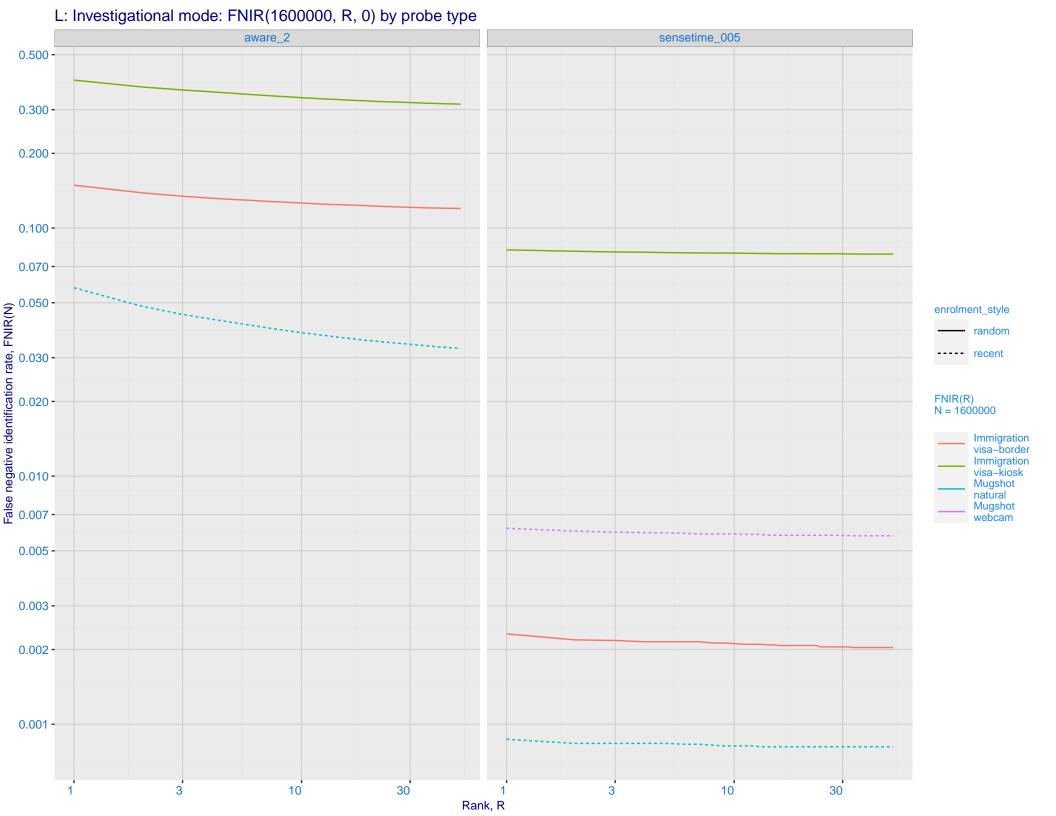
Threshold

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 - 3ee-ctivity. SEL(T) 7e-01 - 7e-02 - 5e-02 - 3ee-02 - 3ee-0 Enrolled images: recent N = 1600000 Mugshot natural 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 -1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

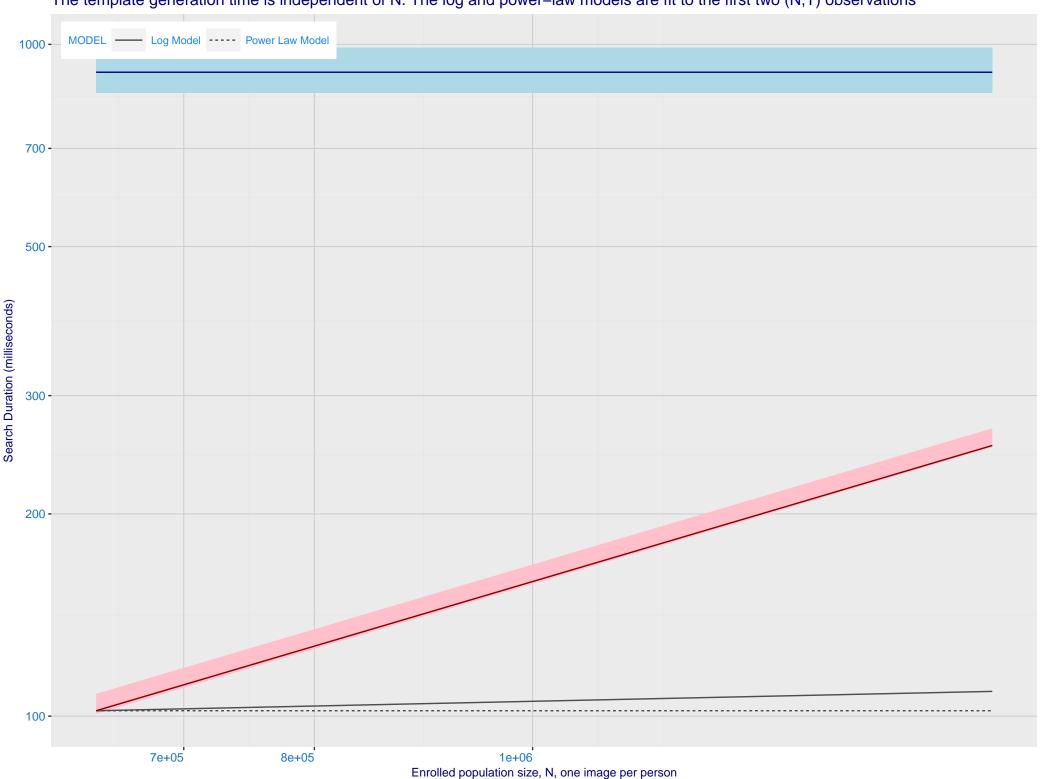




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Palse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.500 - 0.300 - 0.100 - 0. enrolment\_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 aware\_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



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



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



