## A: Datasheet

Algorithm: smilart\_0

Developer: Smilart

Submission Date: 2018\_02\_15

Template size: 1024 bytes

Template time (2.5 percentile): 154 msec

Template time (median): 169 msec

Template time (97.5 percentile): 183 msec

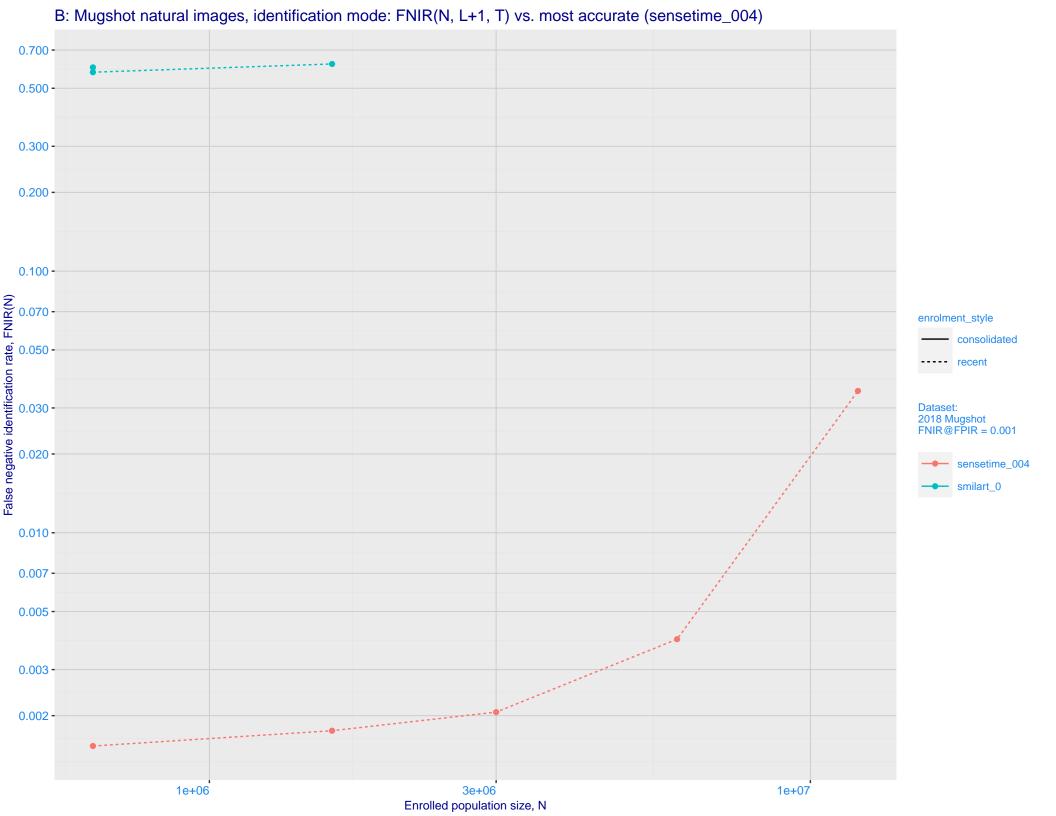
Investigation:

Frontal mugshot ranking 229 (out of 259) -- FNIR(1600000, 0, 1) = 0.1910 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 198 (out of 221) -- FNIR(1600000, 0, 1) = 0.3252 vs. lowest 0.0062 from sensetime\_005

Identification:

Frontal mugshot ranking 223 (out of 259) -- FNIR(1600000, T, L+1) = 0.6192, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

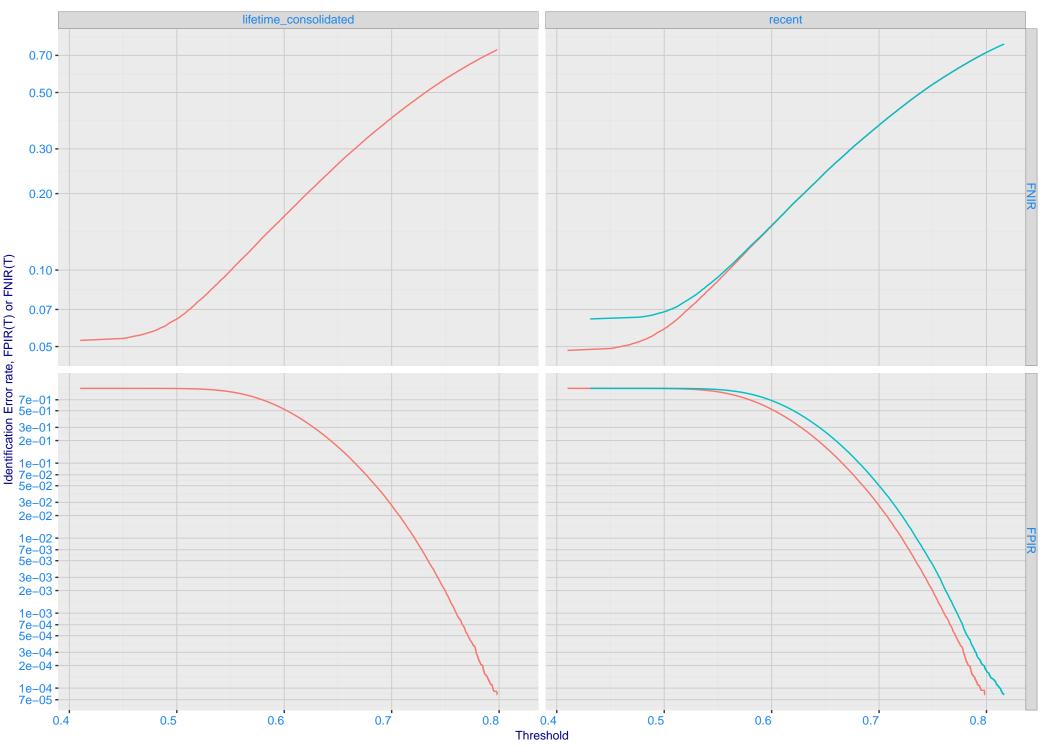


Date algorithm submitted to FRVT

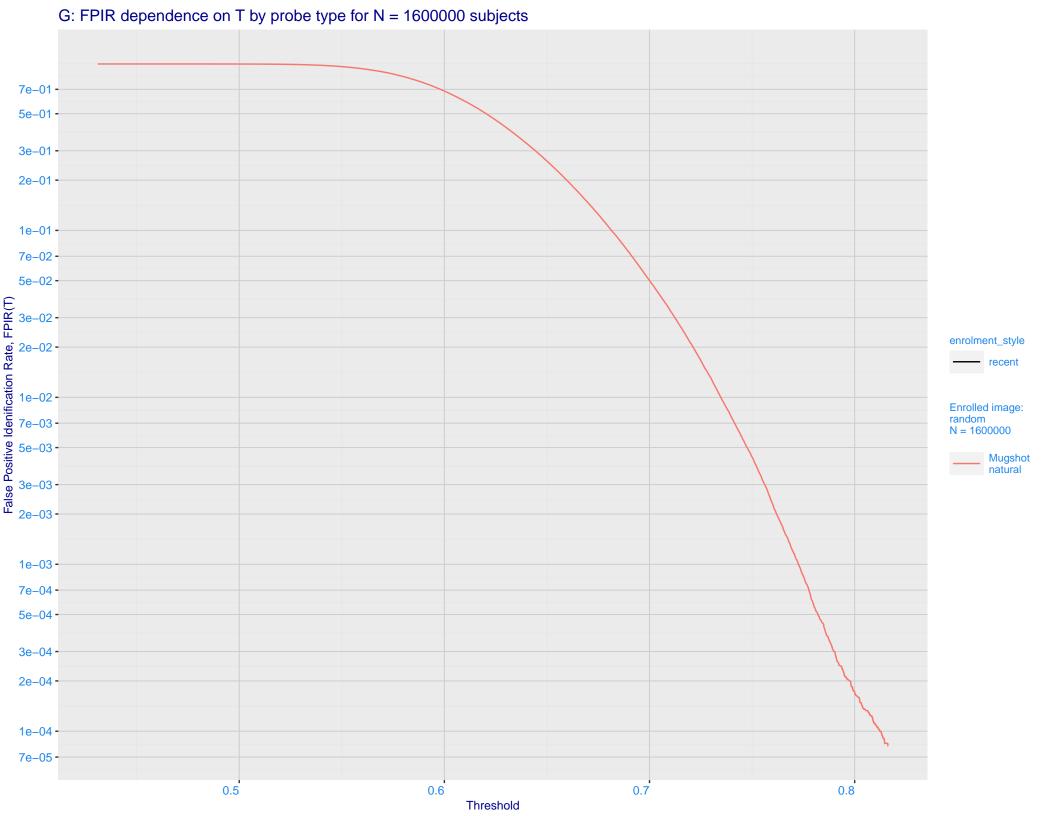
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.002 - 0.0001 - 0.700 - 0.500 - 0.200 - 0 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 - $1e^{-0.4}e^{-0.3}e^{-0.4}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.1}e^{-0.3}e^{-0.1}e^{-0.3}e^{-0.4}e^{-0.3}e^{$ False positive identification rate, FPIR(T)

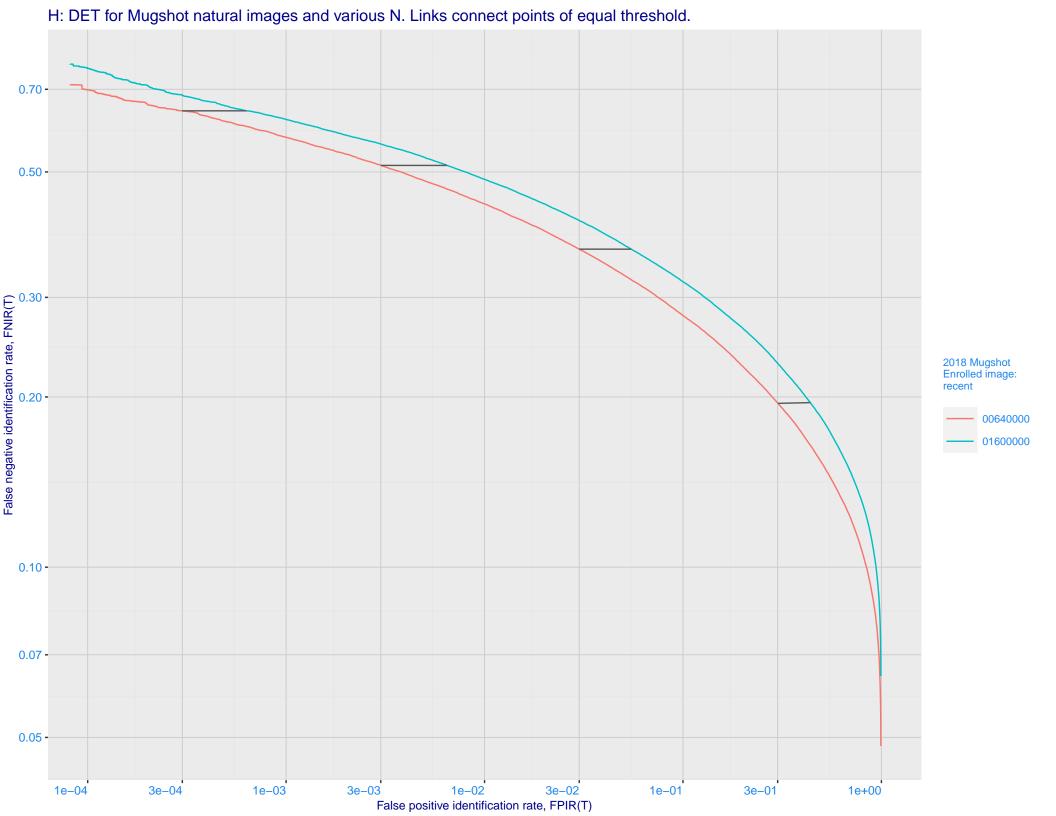
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



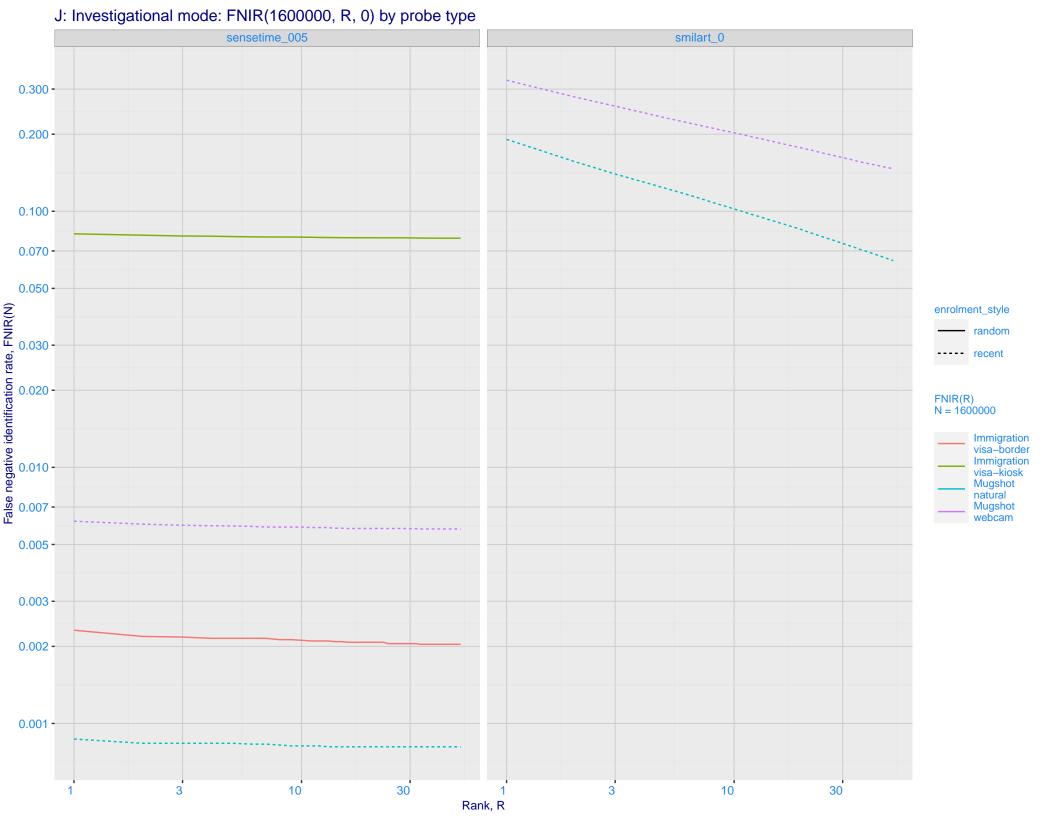


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00-3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 - 2e-01 - 3e-01 - 3e-01 - 3e-01 - 3e-02 Enrolled images: recent N = 1600000 Mugshot natural 3e-02 -2e-02 -1e-02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

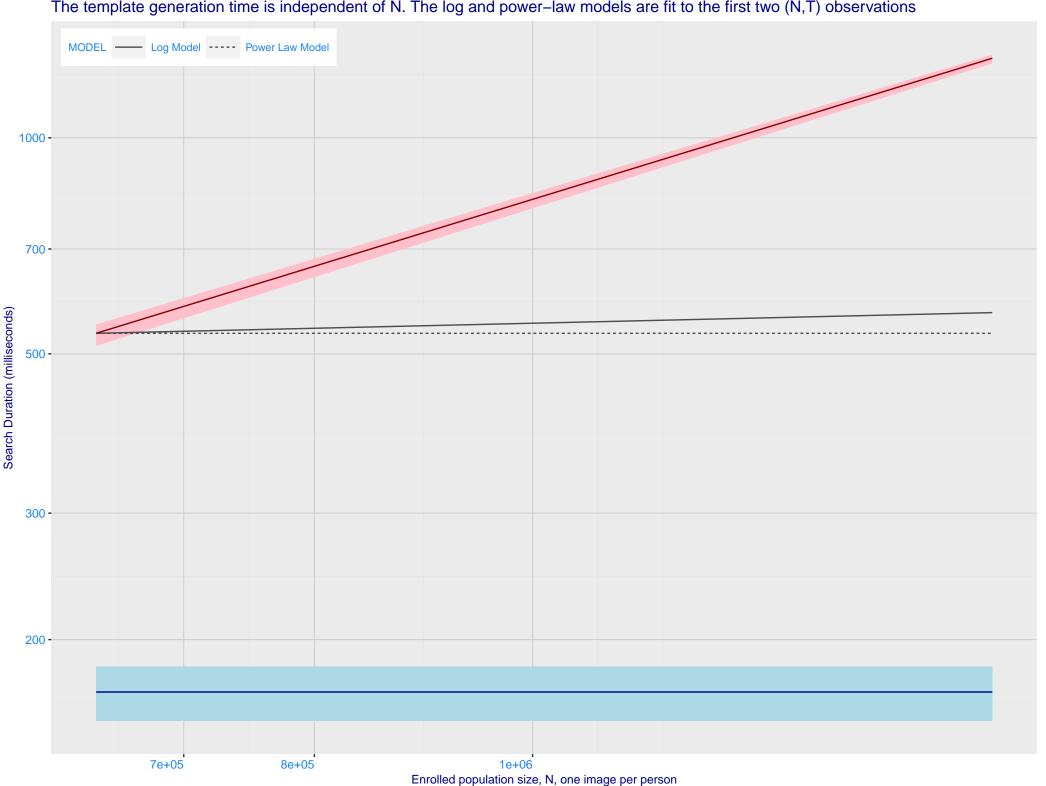




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.300 - 0.100 - 0.700 - 0. enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 sensetime\_005 smilart\_0 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



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



