## A: Datasheet

Algorithm: smilart\_4

Developer: Smilart

Submission Date: 2018\_10\_30

Template size: 512 bytes

Template time (2.5 percentile): 149 msec

Template time (median): 168 msec

Template time (97.5 percentile): 191 msec

Investigation:

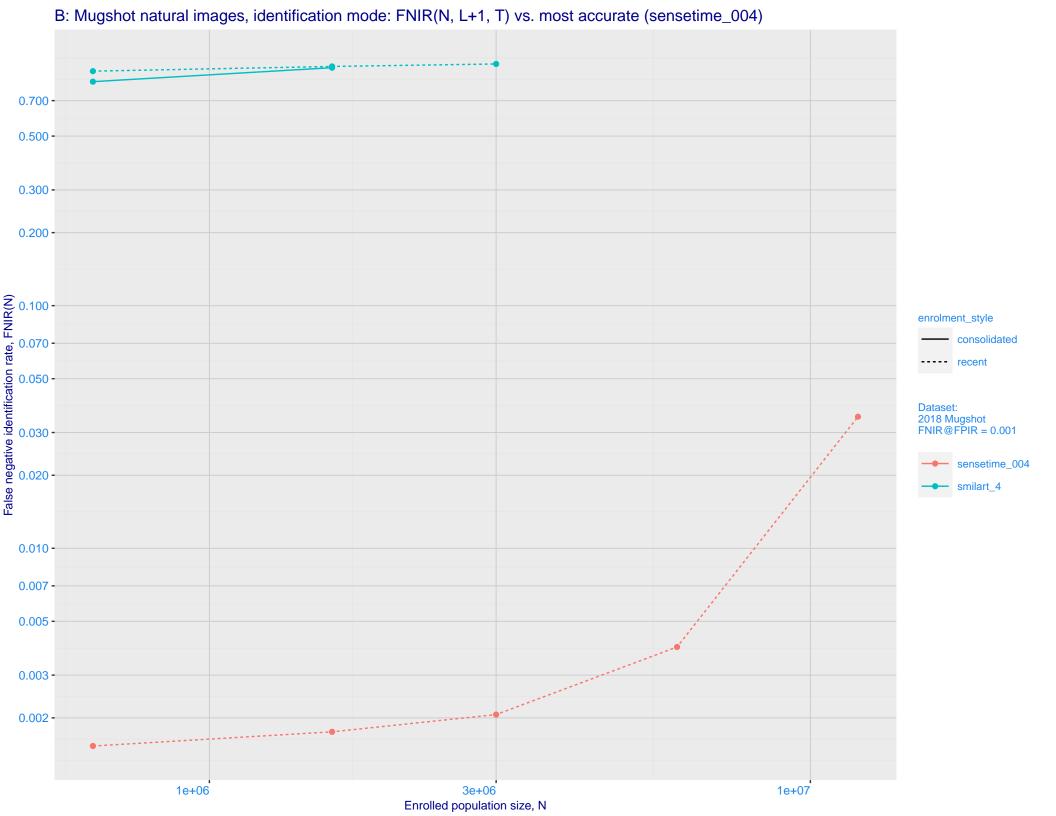
Frontal mugshot ranking 263 (out of 265) -- FNIR(1600000, 0, 1) = 0.9648 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 225 (out of 227) -- FNIR(1600000, 0, 1) = 0.9742 vs. lowest 0.0062 from sensetime\_005

Identification:

Frontal mugshot ranking 254 (out of 265) -- FNIR(1600000, T, L+1) = 0.9682, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

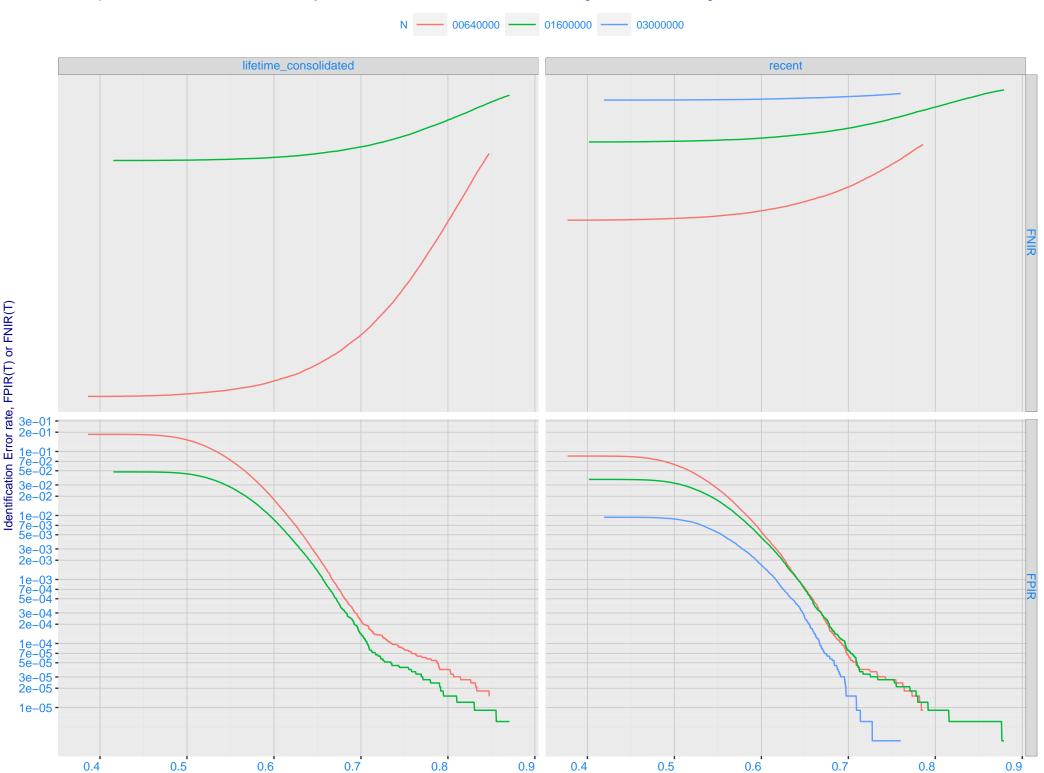
Mugshot webcam ranking 217 (out of 225) -- FNIR(1600000, T, L+1) = 0.9756, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003



Date algorithm submitted to FRVT

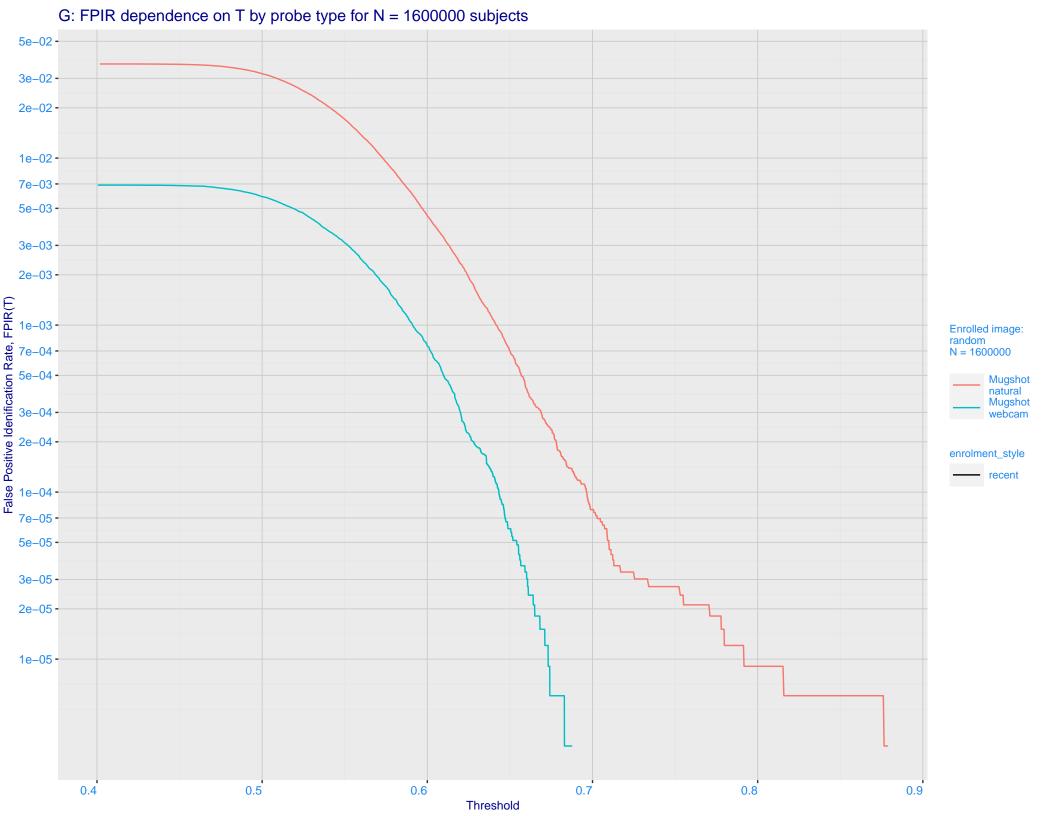
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

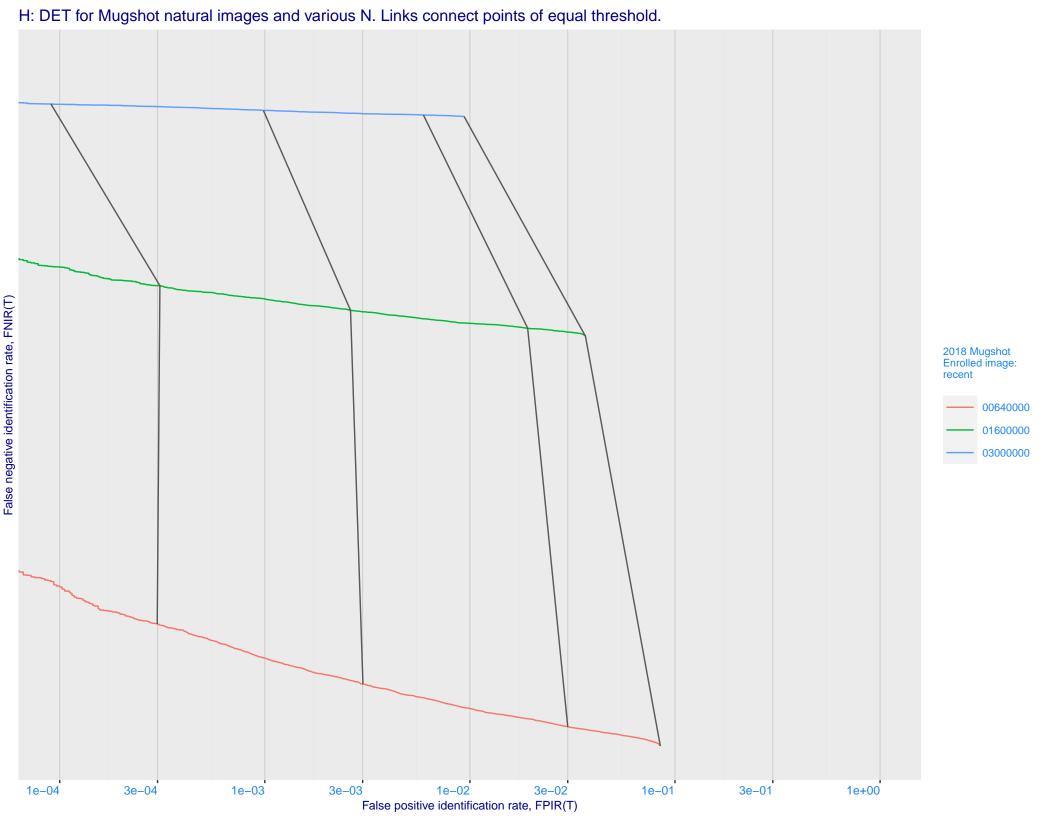
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



Threshold

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

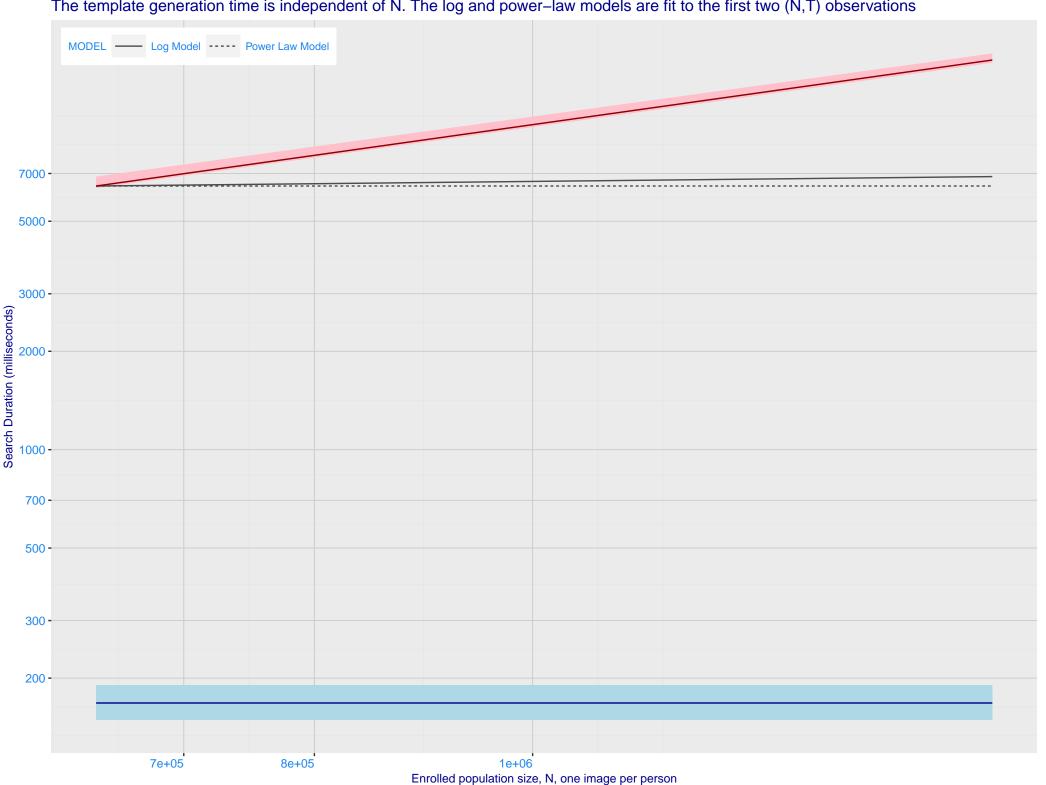




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.300 - 0.200 FNIR@Rank = 1 sensetime\_005 smilart\_4 Mugshot webcam Mugshot natural enrolment\_style consolidated ---- random --- recent 0.100 -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

J: Investigational mode: FNIR(1600000, R, 0) by probe type sensetime\_005 smilart\_4 0.700 -0.500 -0.300 -0.200 -0.100 enrolment\_style Ealse 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 0.007 -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



