## A: Datasheet

Algorithm: siat\_1

Developer: Shenzhen Inst Adv Integrated Tech CAS

Submission Date: 2018\_06\_30

Template size: 2052 bytes

Template time (2.5 percentile): 777 msec

Template time (median): 829 msec

Template time (97.5 percentile): 927 msec

Investigation:

Frontal mugshot ranking 22 (out of 265) -- FNIR(1600000, 0, 1) = 0.0018 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 205 (out of 227) -- FNIR(1600000, 0, 1) = 0.3328 vs. lowest 0.0062 from sensetime\_005

Immigration visa-border ranking 30 (out of 148) -- FNIR(1600000, 0, 1) = 0.0043 vs. lowest 0.0013 from visionlabs\_010

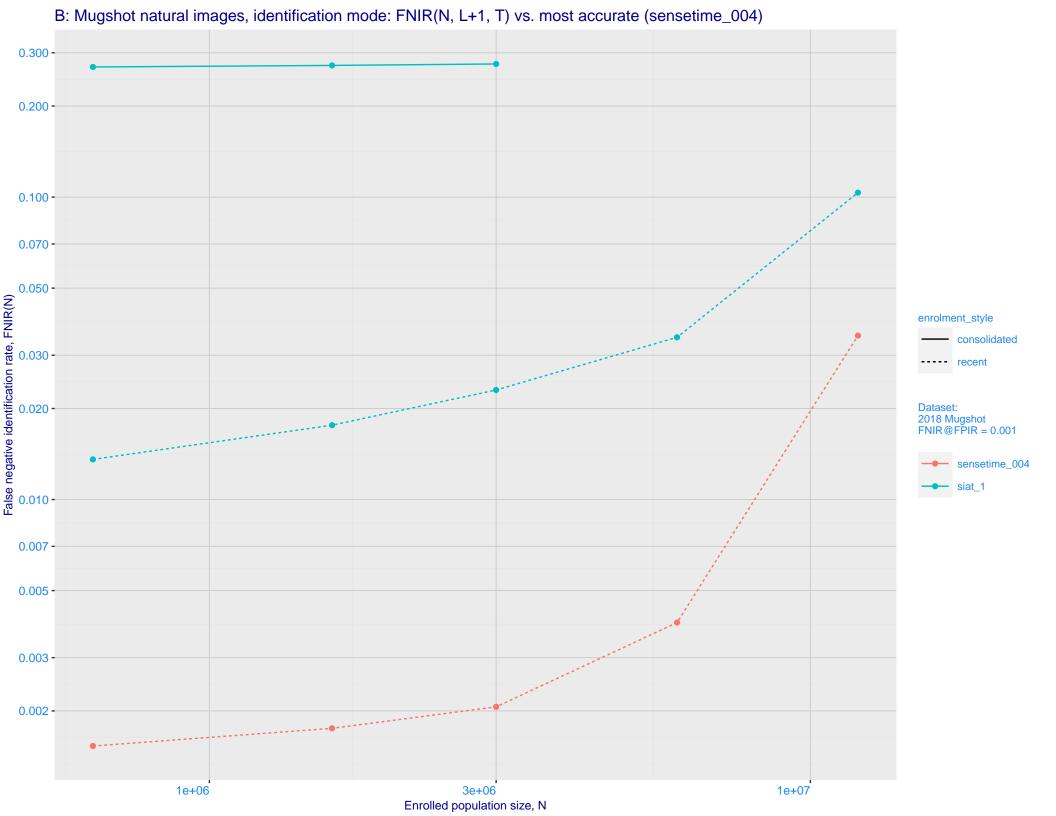
Immigration visa-kiosk ranking 25 (out of 145) -- FNIR(1600000, 0, 1) = 0.0991 vs. lowest 0.0568 from hr\_000

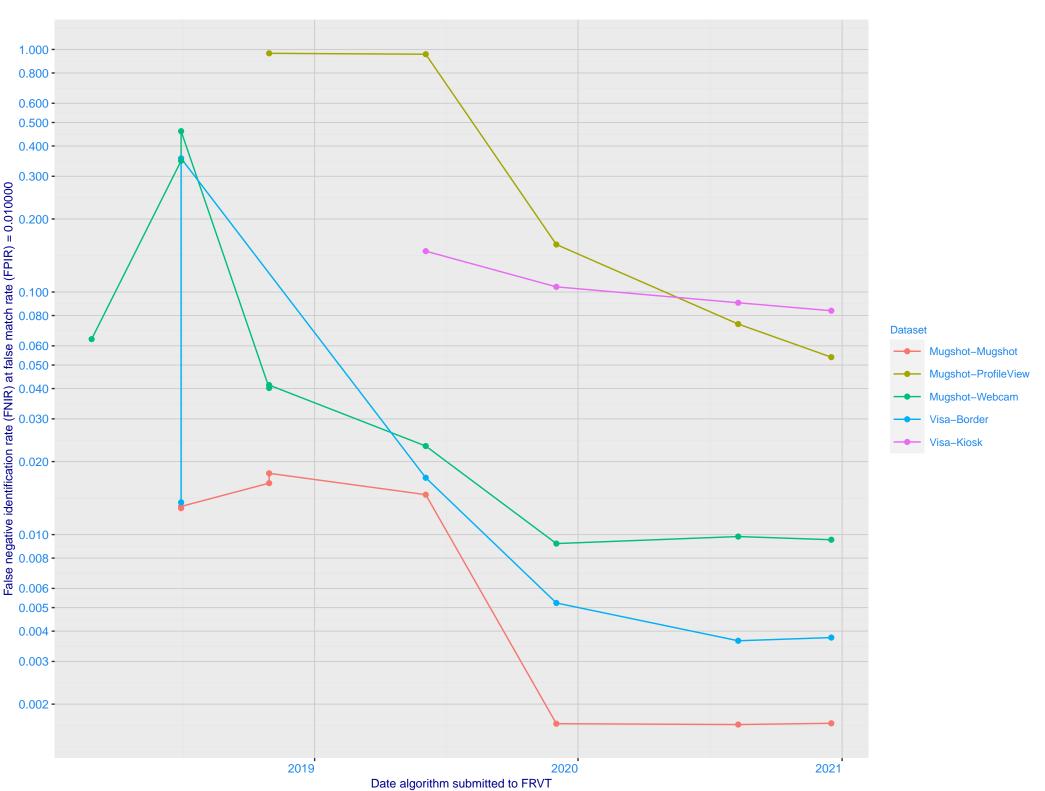
Identification:

Frontal mugshot ranking 28 (out of 265) -- FNIR(1600000, T, L+1) = 0.0176, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 169 (out of 225) -- FNIR(1600000, T, L+1) = 0.3647, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

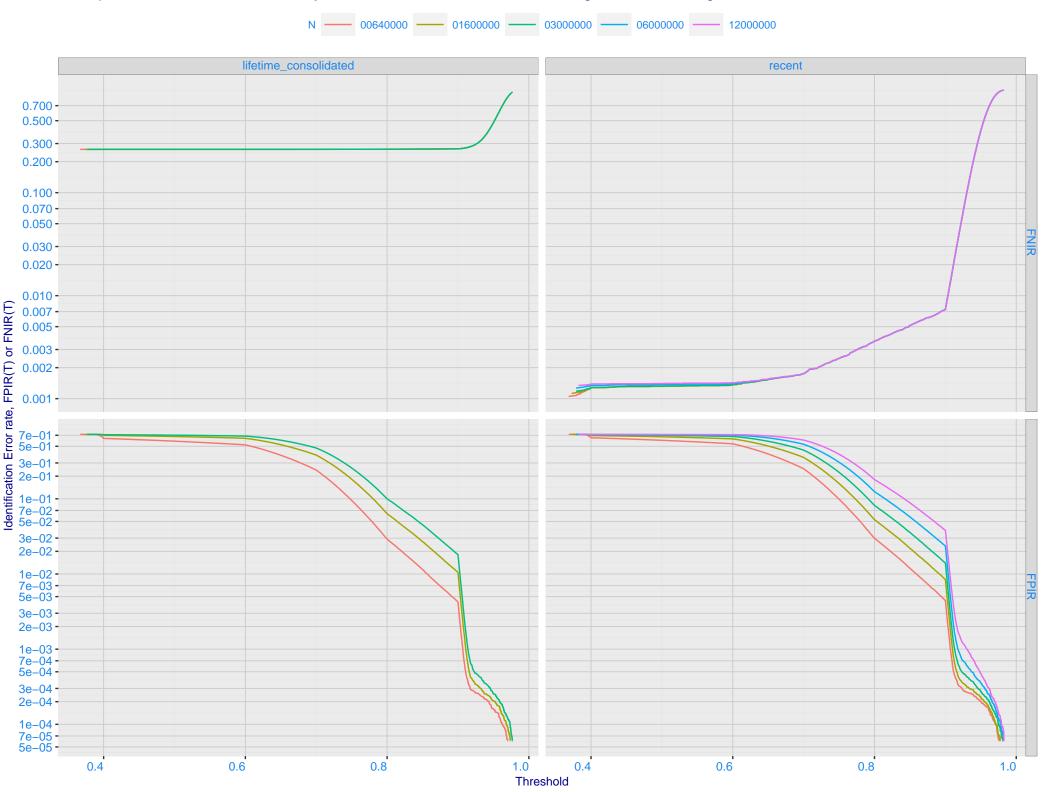
Immigration visa-border ranking 27 (out of 146) -- FNIR(1600000, T, L+1) = 0.0308, FPIR=0.001000 vs. lowest 0.0049 from hr\_000



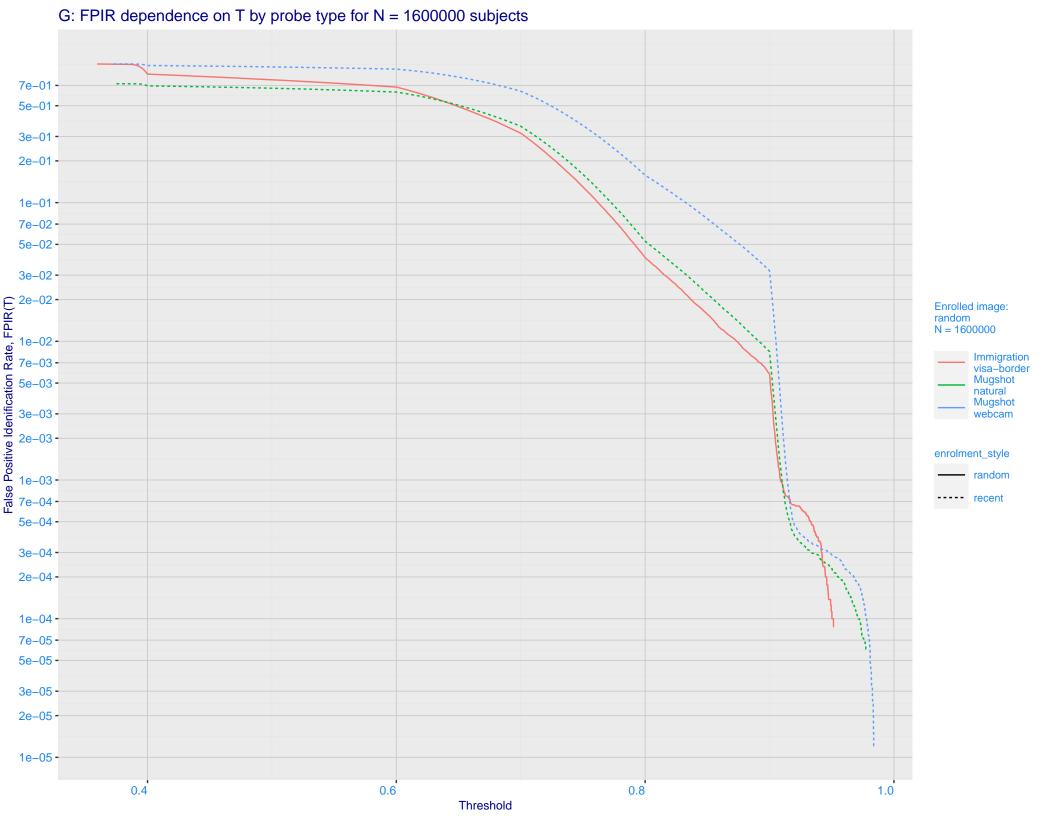


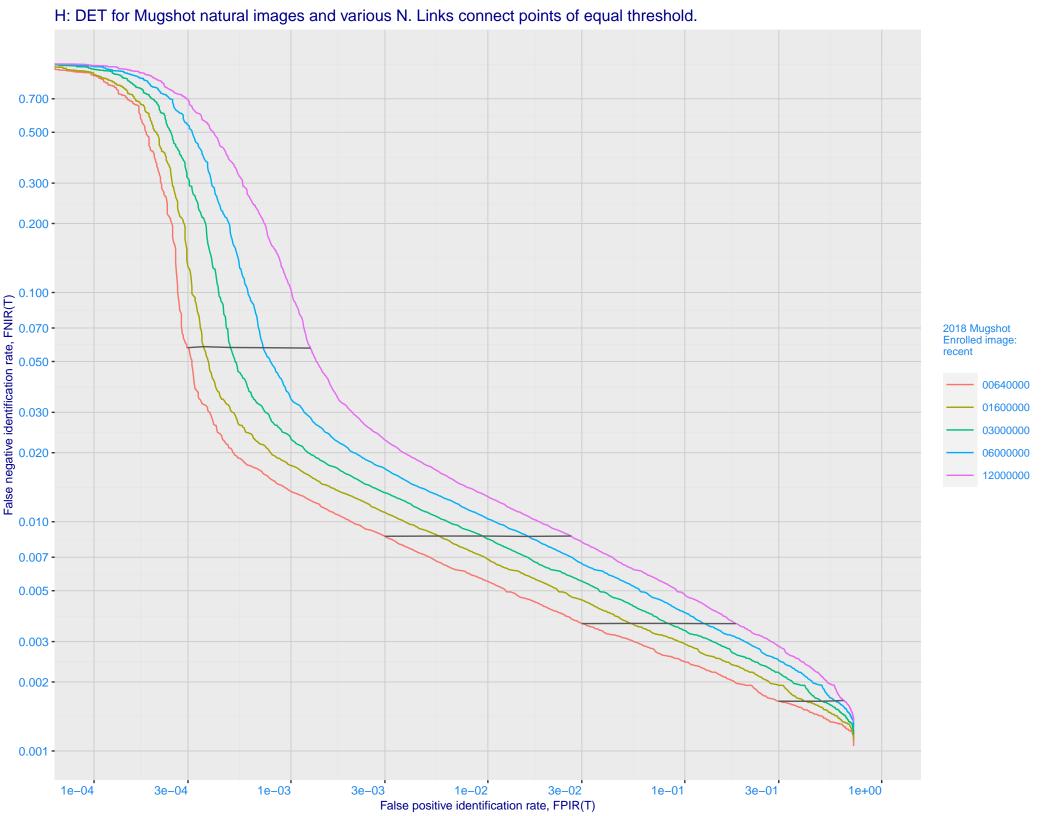
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style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

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

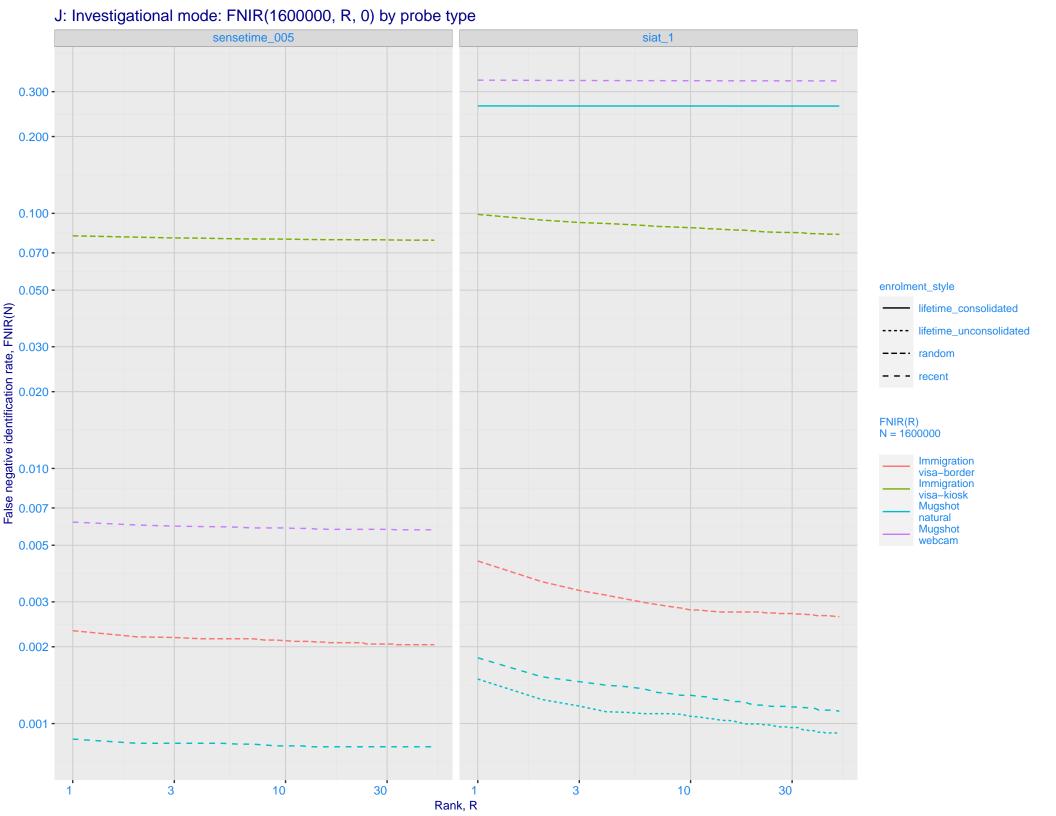


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

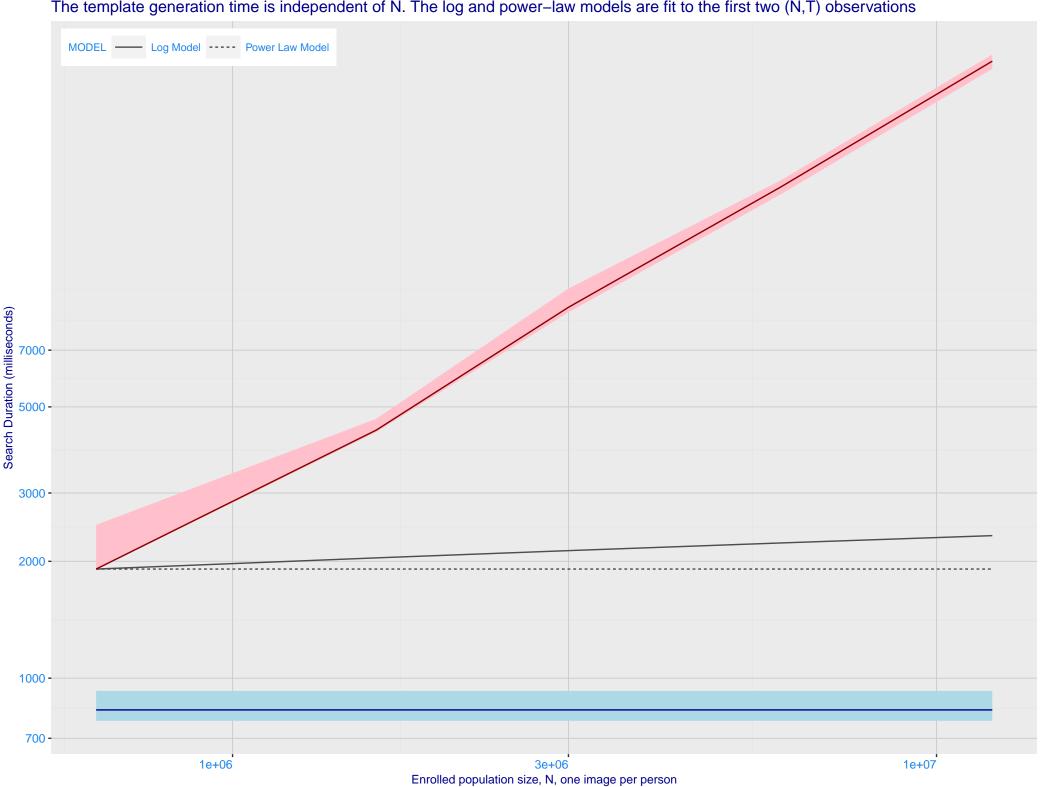


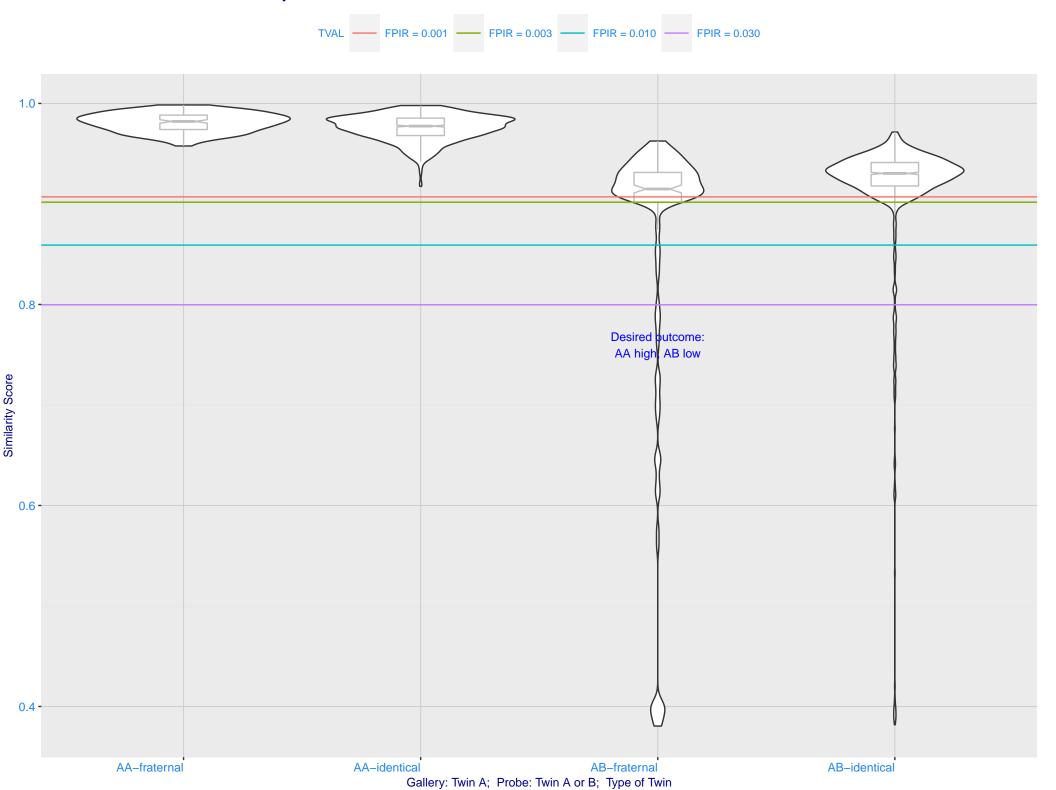


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Palse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.300 - 0.200 - 0.100 - 0. FNIR@Rank = 1 sensetime\_005 siat\_1 Mugshot Mugshot webcam enrolment\_style natural consolidated ---- random -- recent - - unconsolidated 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



