A: Datasheet

Algorithm: tech5_001

Developer: Tech5 SA

Submission Date: 2019_08_19

Template size: 1536 bytes

Template time (2.5 percentile): 861 msec

Template time (median): 887 msec

Template time (97.5 percentile): 974 msec

Investigation:

Frontal mugshot ranking 119 (out of 329) -- FNIR(1600000, 0, 1) = 0.0040 vs. lowest 0.0009 from sensetime_006

Mugshot webcam ranking 102 (out of 291) -- FNIR(1600000, 0, 1) = 0.0166 vs. lowest 0.0057 from sensetime_006

Mugshot profile ranking 113 (out of 260) — FNIR(1600000, 0, 1) = 0.5841 vs. lowest 0.0550 from sensetime_006

Immigration visa-border ranking 92 (out of 218) -- FNIR(1600000, 0, 1) = 0.0066 vs. lowest 0.0009 from sensetime_006

Immigration visa-kiosk ranking 73 (out of 215) -- FNIR(1600000, 0, 1) = 0.1066 vs. lowest 0.0487 from cubox_000

Identification:

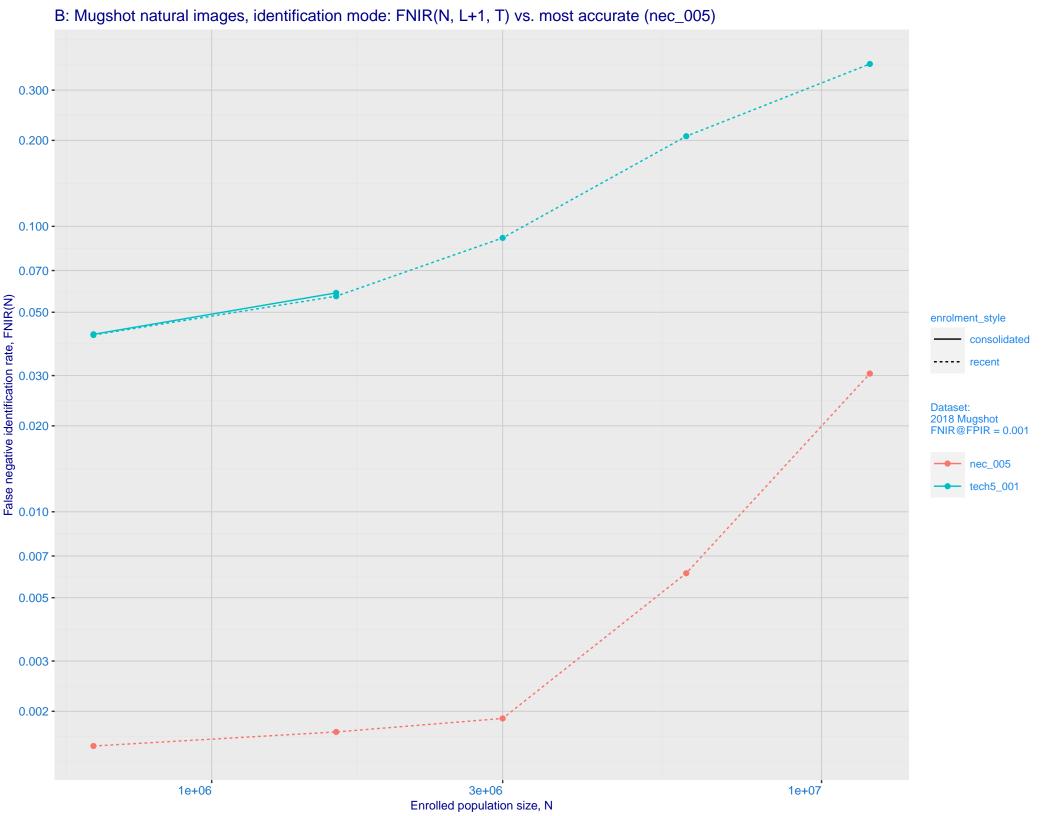
Frontal mugshot ranking 151 (out of 329) -- FNIR(1600000, T, L+1) = 0.0569, FPIR=0.001000 vs. lowest 0.0017 from nec_005

Mugshot webcam ranking 275 (out of 289) -- FNIR(1600000, T, L+1) = 0.9341, FPIR=0.001000 vs. lowest 0.0120 from nec_005

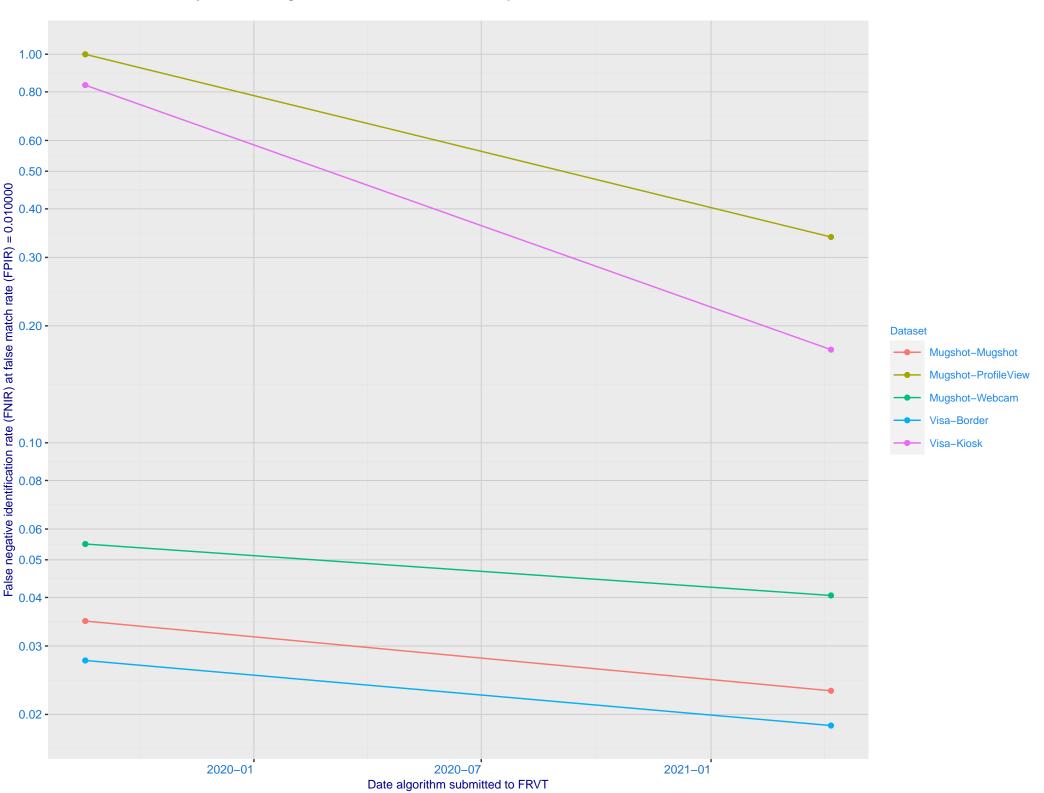
Mugshot profile ranking 248 (out of 259) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 151 (out of 217) -- FNIR(1600000, T, L+1) = 0.2443, FPIR=0.001000 vs. lowest 0.0032 from paravision_009

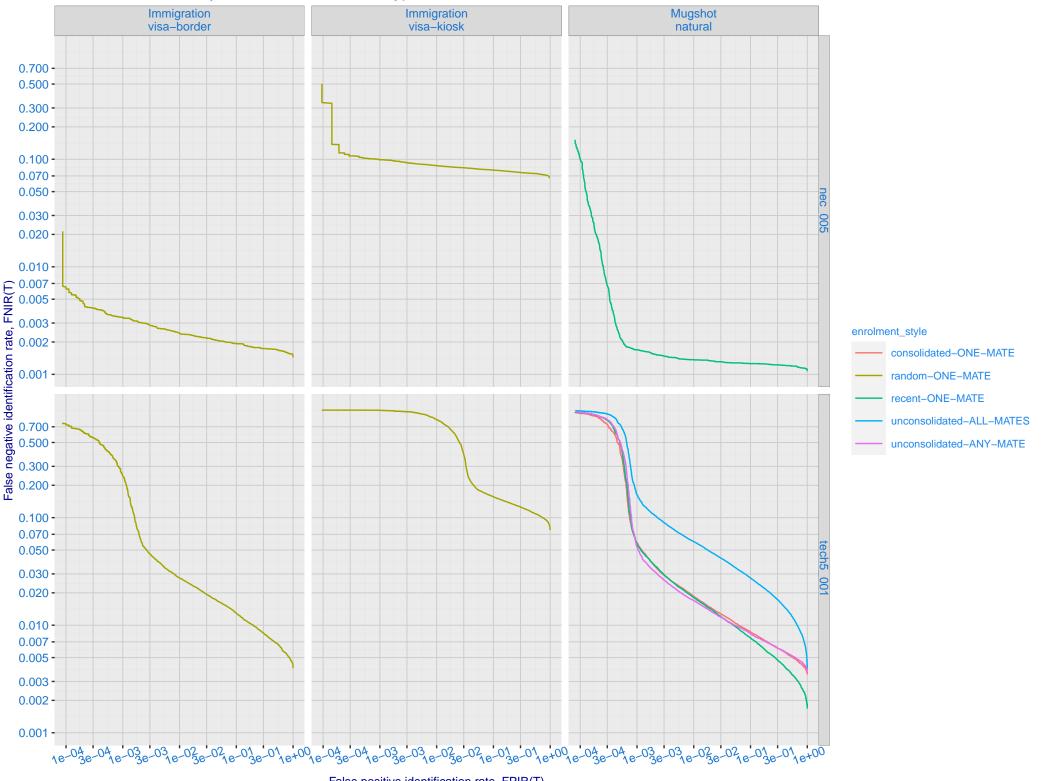
Immigration visa-kiosk ranking 187 (out of 212) -- FNIR(1600000, T, L+1) = 0.9945, FPIR=0.001000 vs. lowest 0.0728 from paravision_009



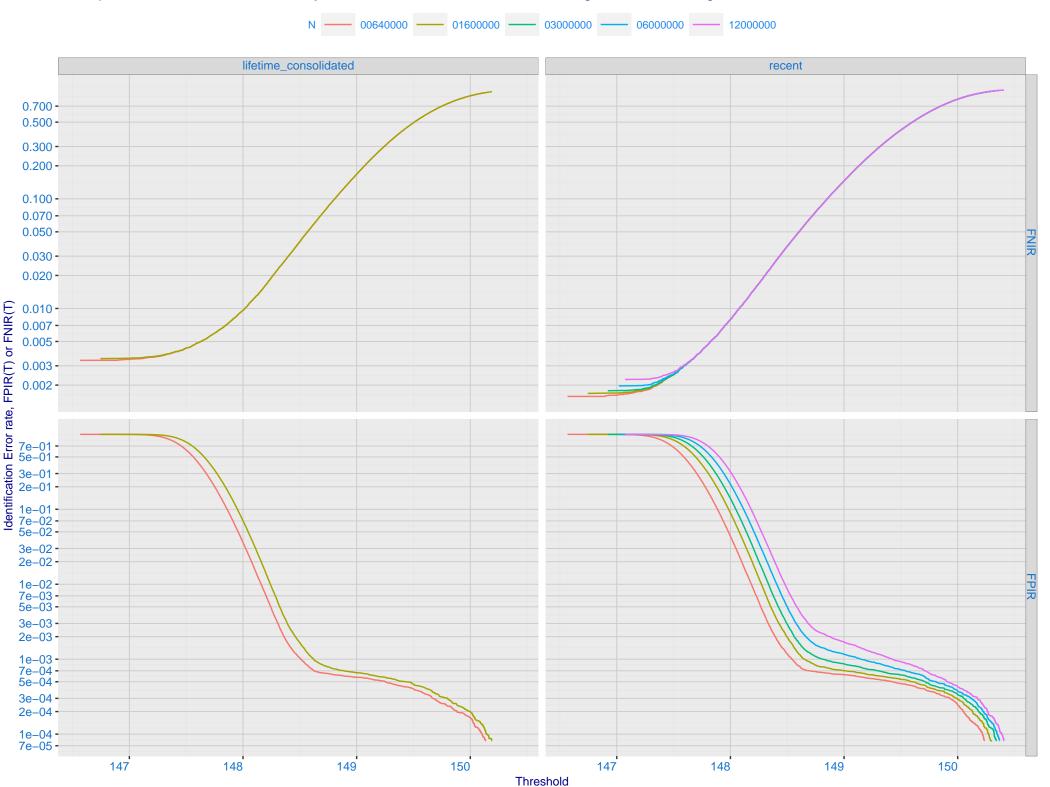
C: Evolution of accuracy for TECH5 algorithms on three datasets 2018 – present



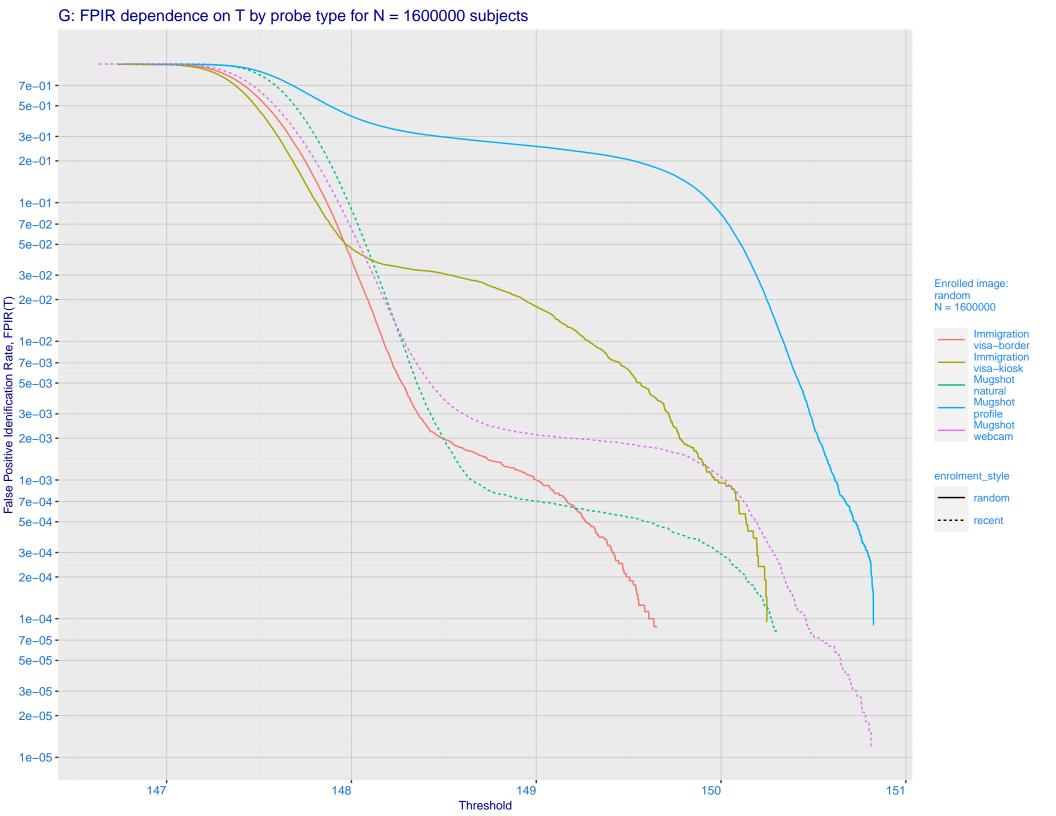
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration visa-border visa-kiosk

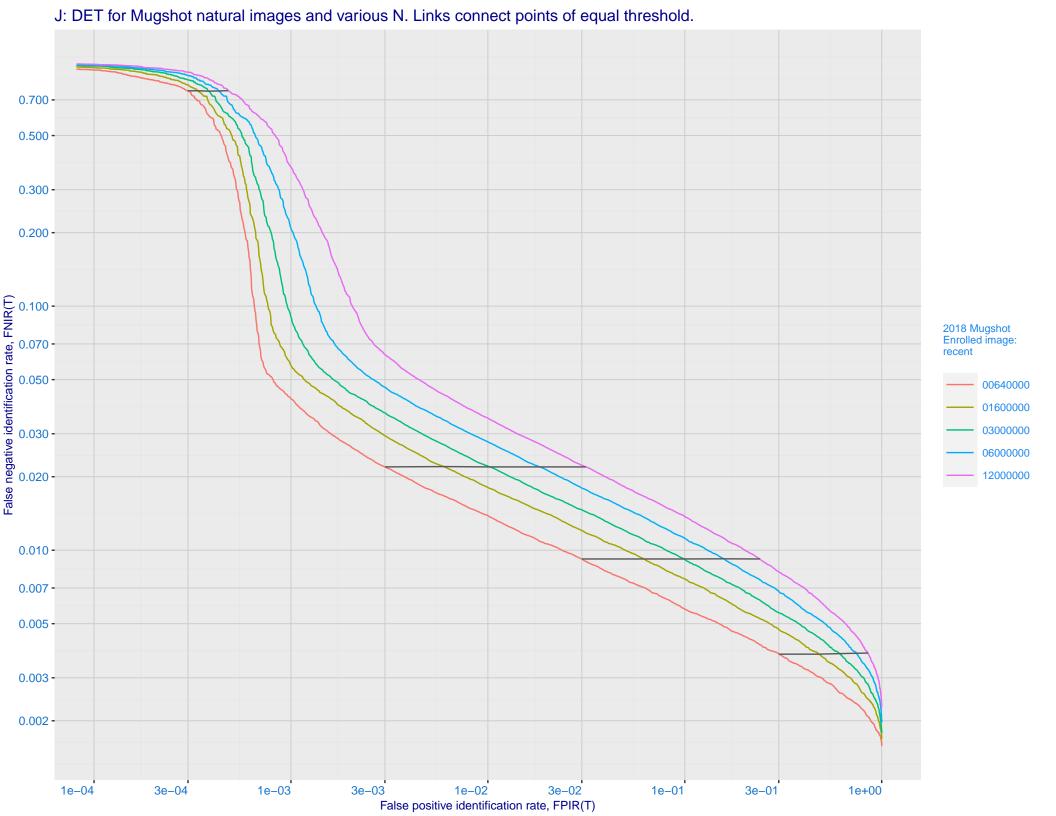


E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

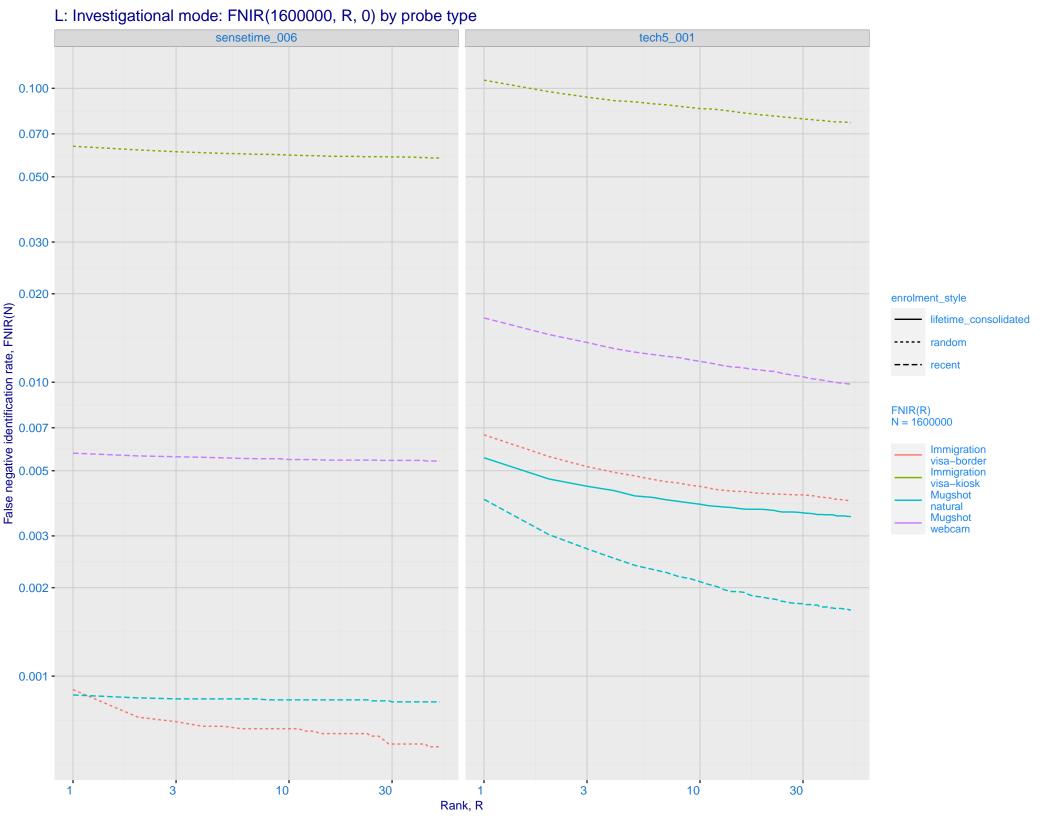


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

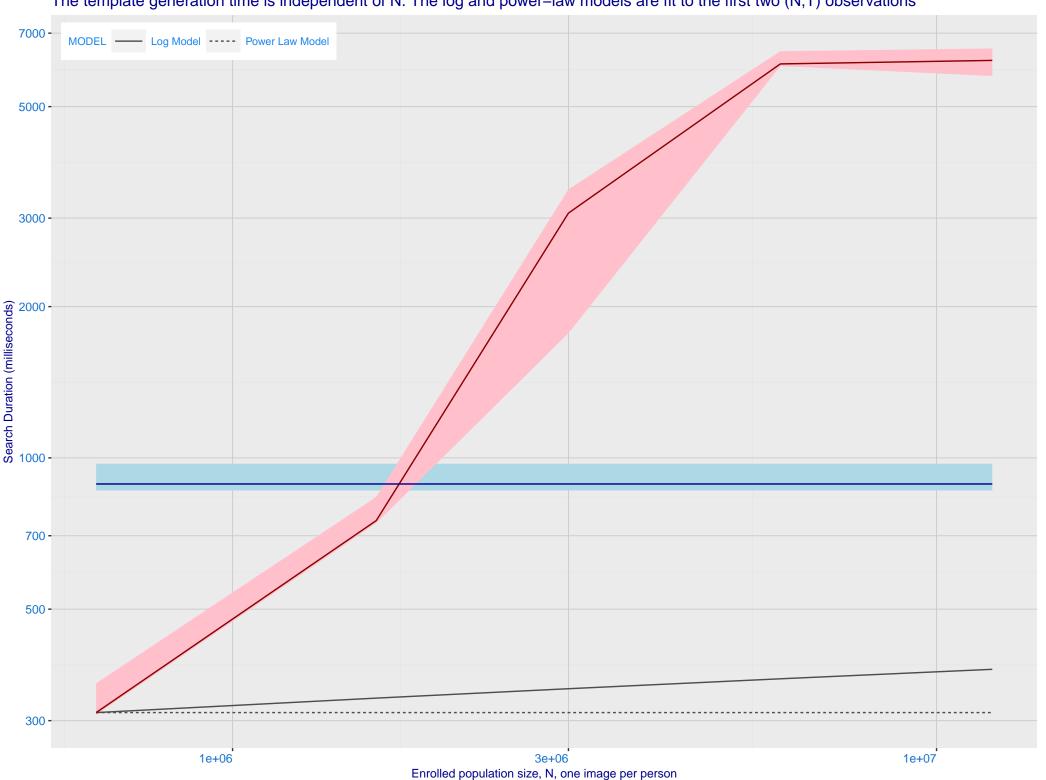


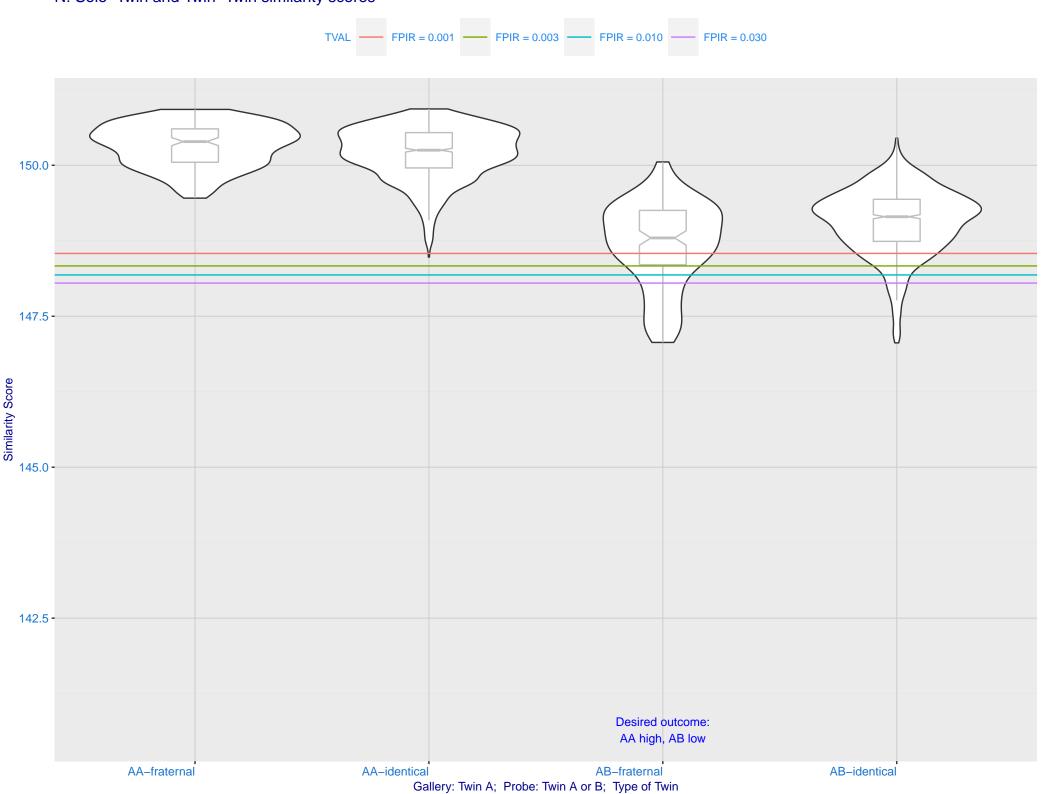


K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_006) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.0050 - 0.050 enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 sensetime_006 - tech5_001 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

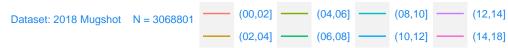


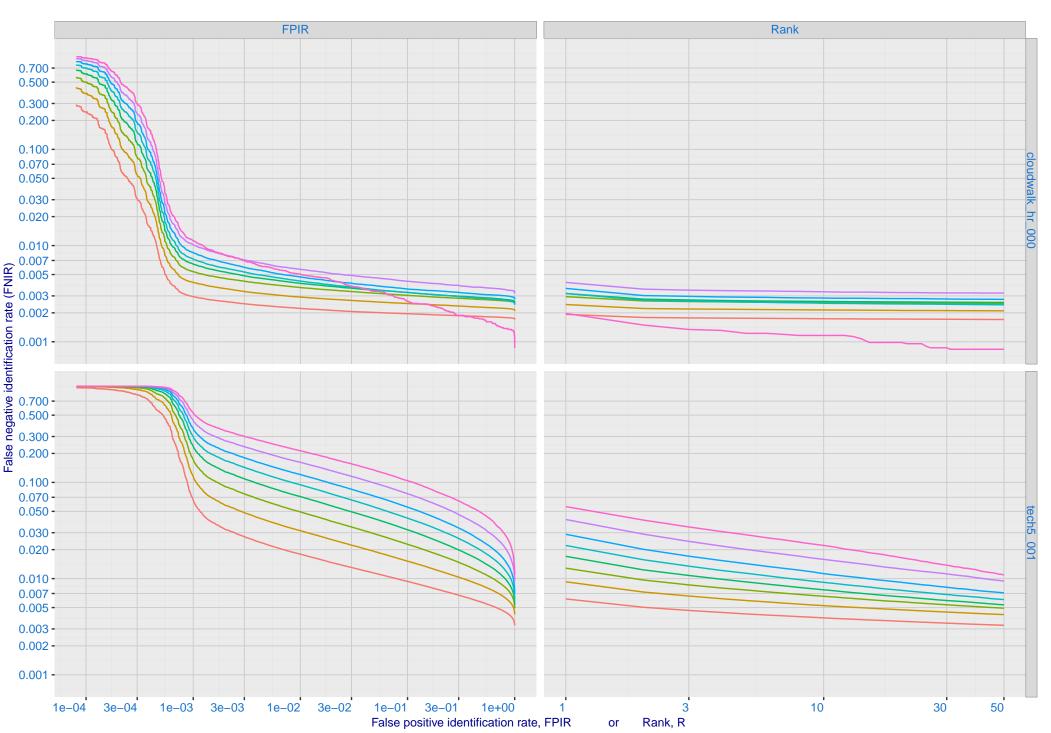
M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations





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





R: Decline of genuine scores with ageing, with some eventually dropping below typical thresholds shown by the horizontal lines 151 -Dataset: 2018 Mugshot N= 3.1M Color encodes FNIR (Rank = 1) 150 -0.15 0.10 149 -0.05 0.00 TVAL - FPIR = 0.001 FPIR = 0.003 148 -FPIR = 0.010FPIR = 0.030 147 -(00,02](02,04](04,06](06,08](08,10](10,12](12,14](14,18]Time lapse between search and initial encounter enrollment (years)