A: Datasheet

Algorithm: yitu_4

Developer: Shanghai Yitu Technology

Submission Date: 2018_10_30

Template size: 2070 bytes

Template time (2.5 percentile): 865 msec

Template time (median): 898 msec

Template time (97.5 percentile): 986 msec

Investigation:

Frontal mugshot ranking 10 (out of 279) -- FNIR(1600000, 0, 1) = 0.0013 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 10 (out of 241) -- FNIR(1600000, 0, 1) = 0.0083 vs. lowest 0.0062 from sensetime_005

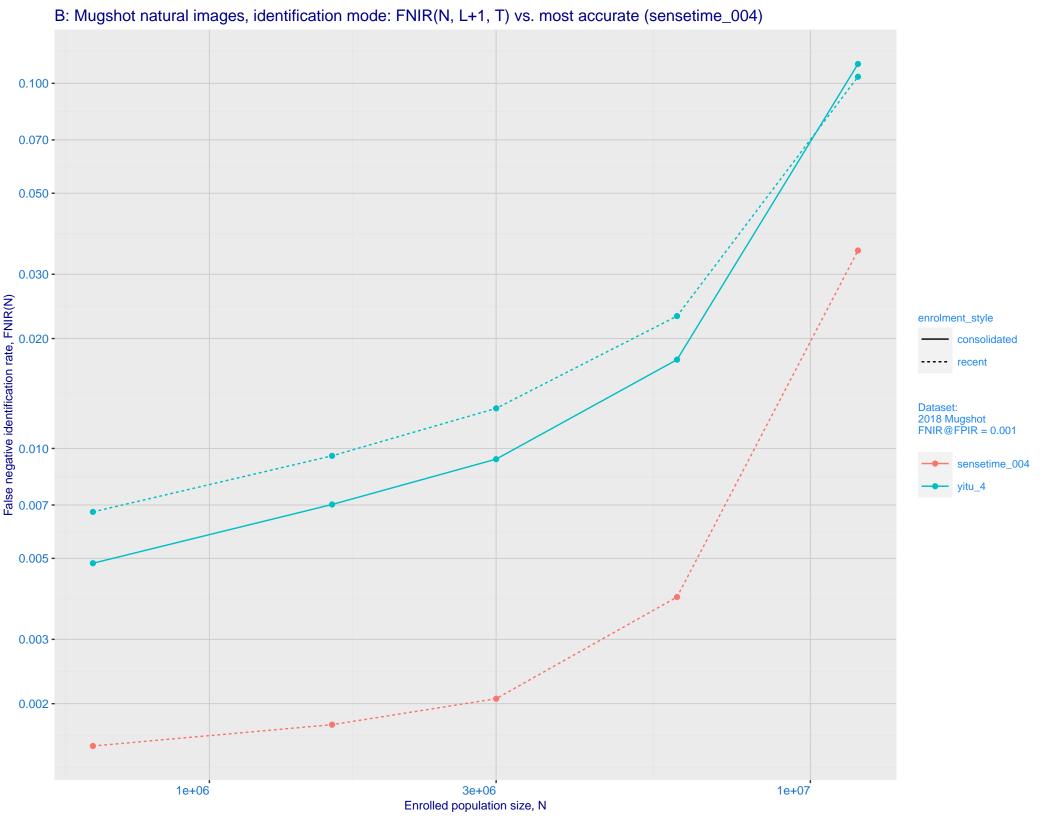
Mugshot profile ranking 121 (out of 210) -- FNIR(1600000, 0, 1) = 0.8660 vs. lowest 0.0587 from xforwardai_002

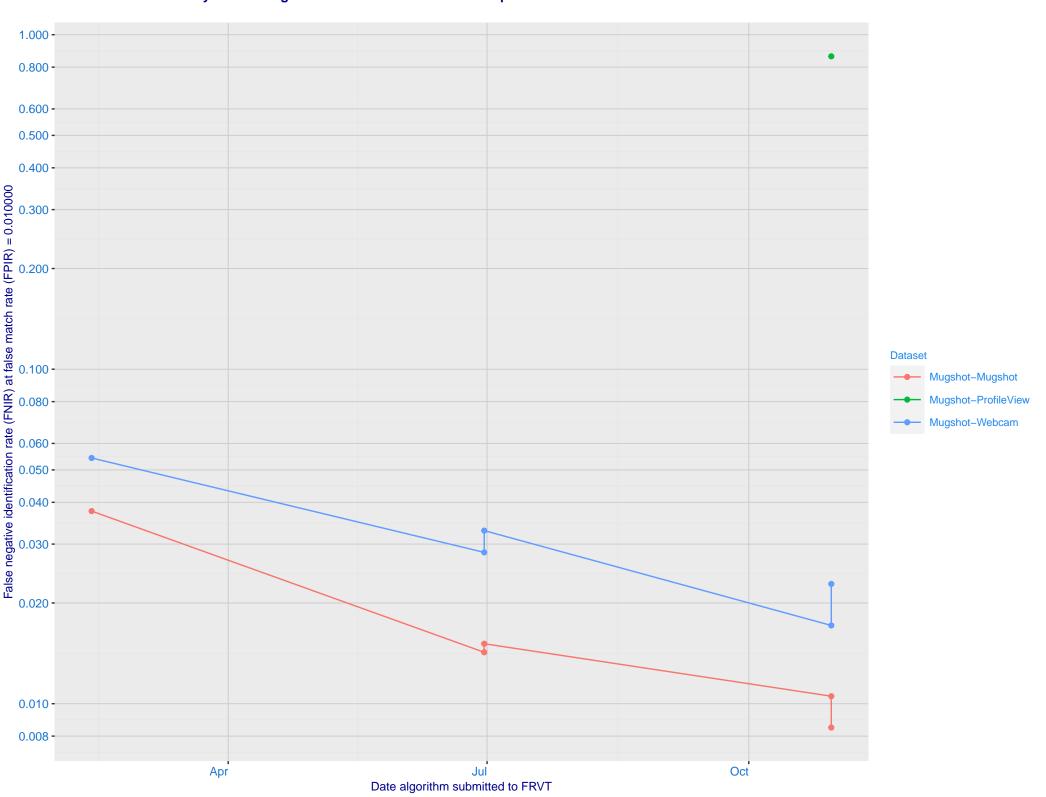
Identification:

Frontal mugshot ranking 17 (out of 279) -- FNIR(1600000, T, L+1) = 0.0095, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 14 (out of 236) -- FNIR(1600000, T, L+1) = 0.0271, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

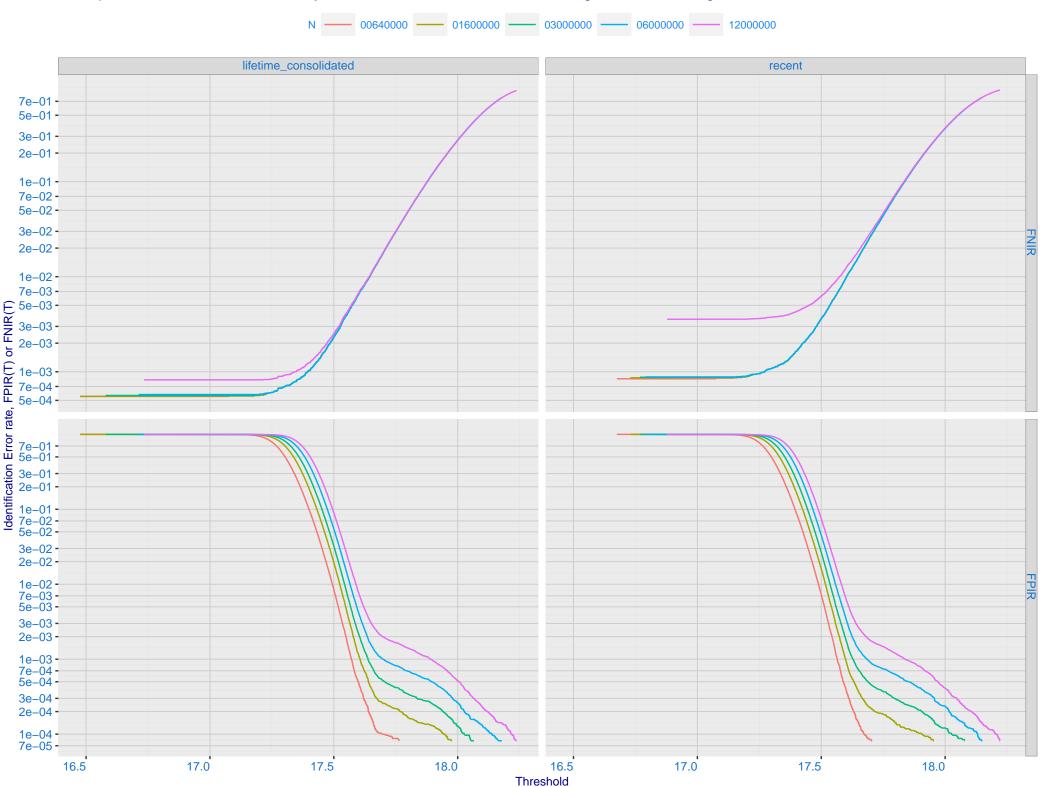
Mugshot profile ranking 41 (out of 209) -- FNIR(1600000, T, L+1) = 0.9365, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000



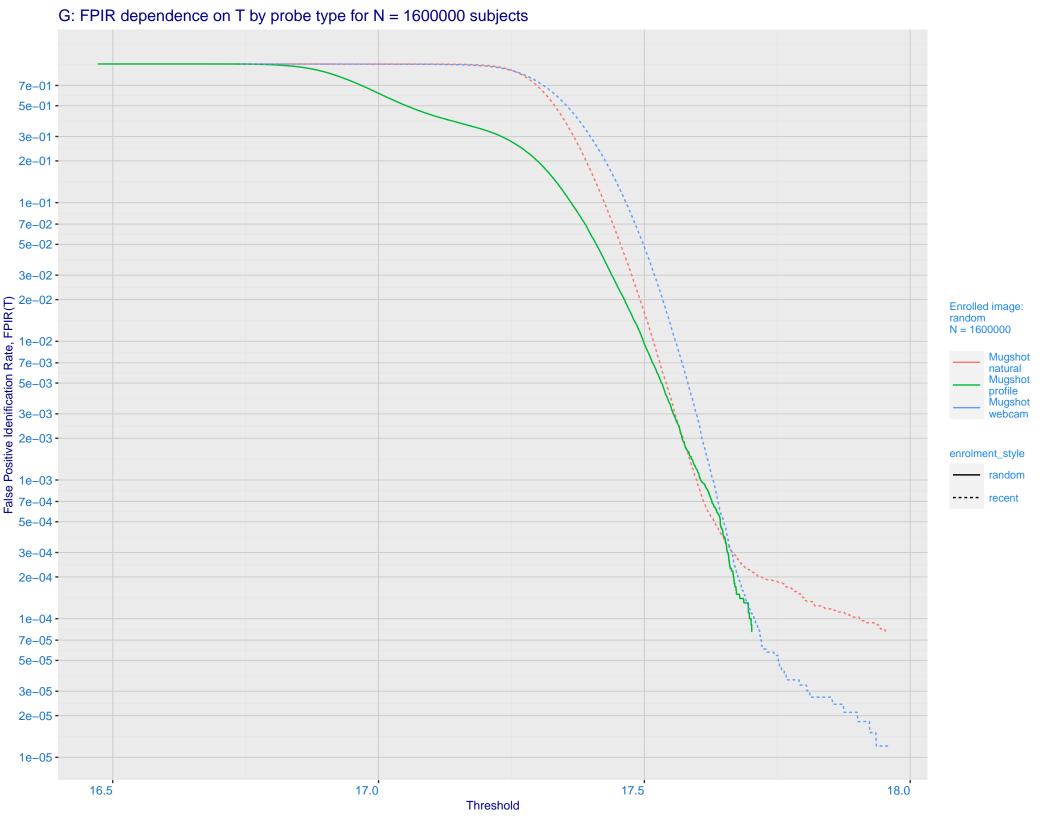


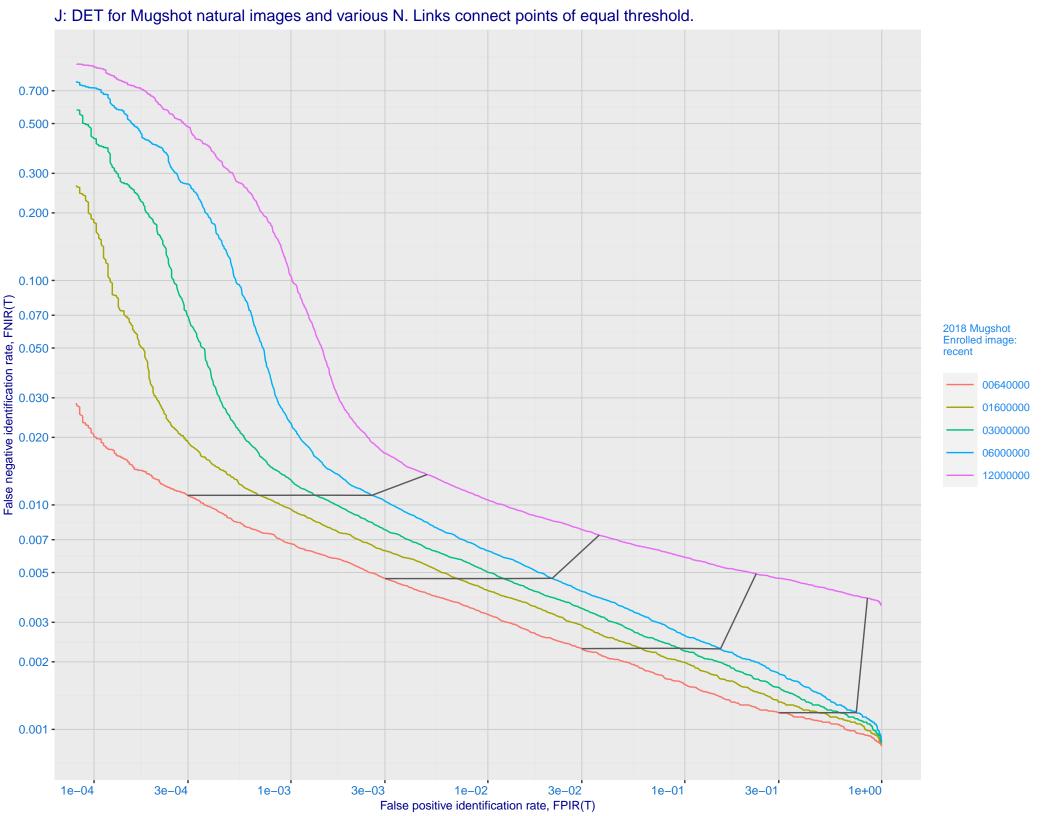
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 sensetime 004 0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(T) 0.003 - 0.001 - 0.700 - 0.500 - 0.200 - 0.100 - 0. enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 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

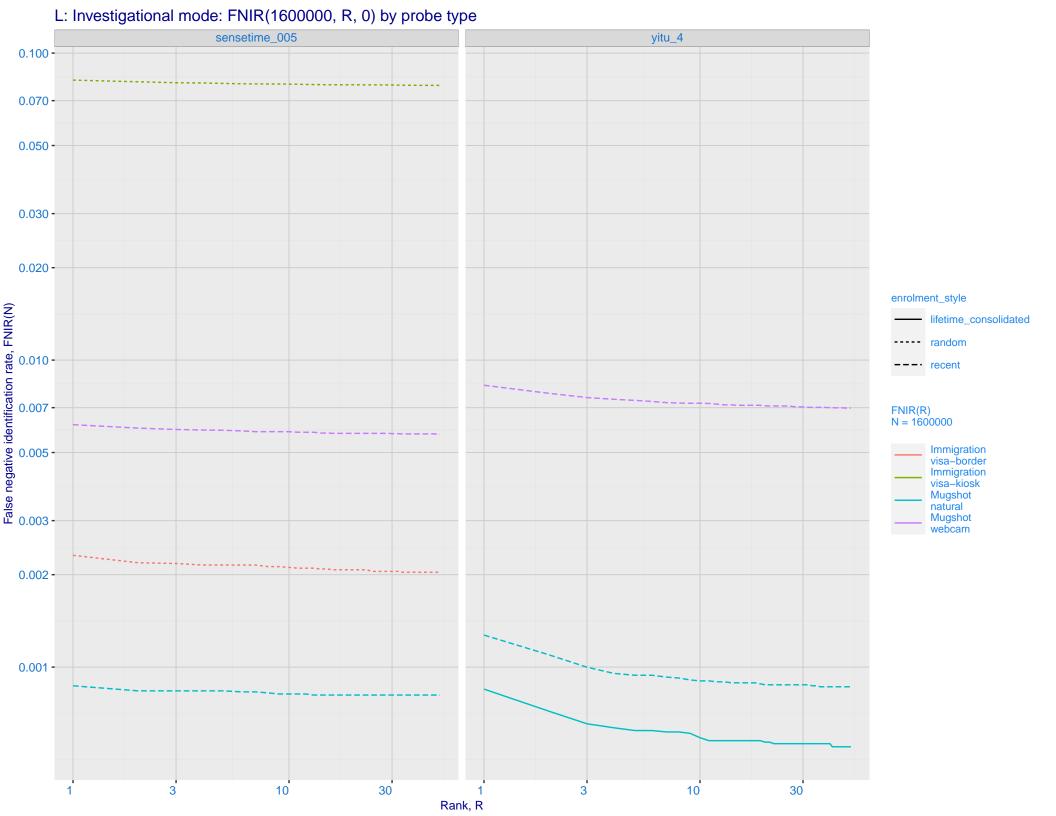


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

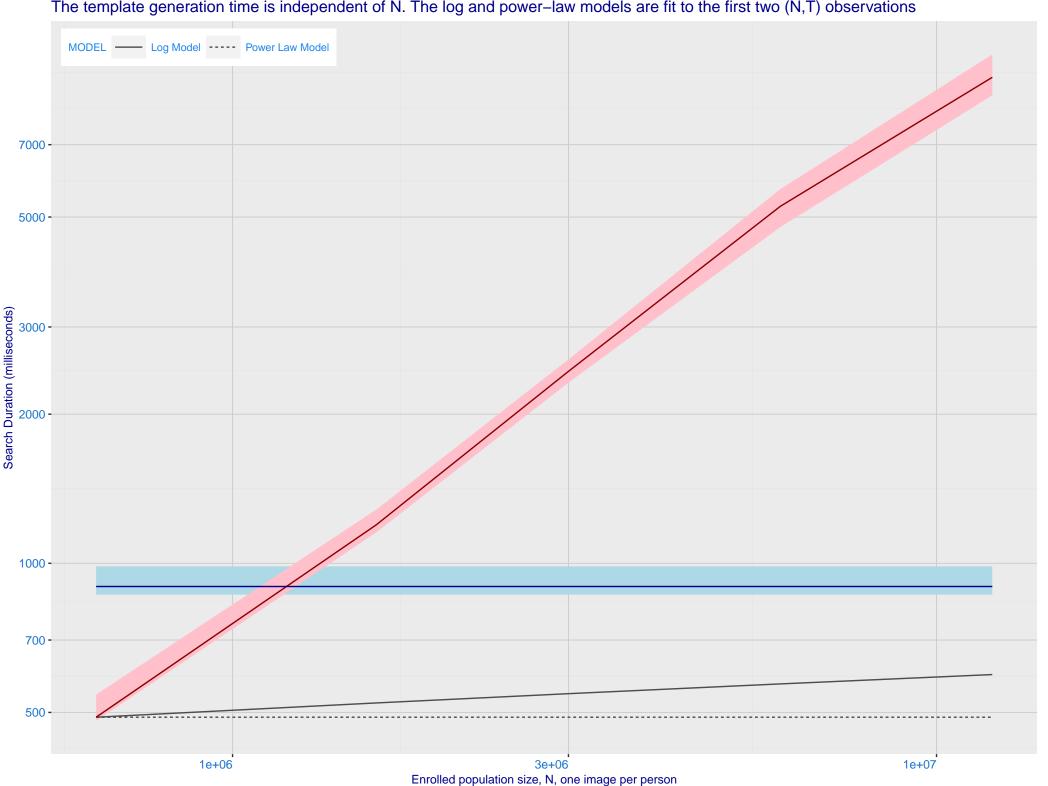




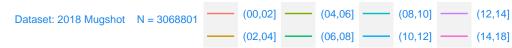
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) - 0.001 - 0.100 - 0.050 - 0.050 - 0.030 enrolment_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 sensetime_005 yitu_4 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

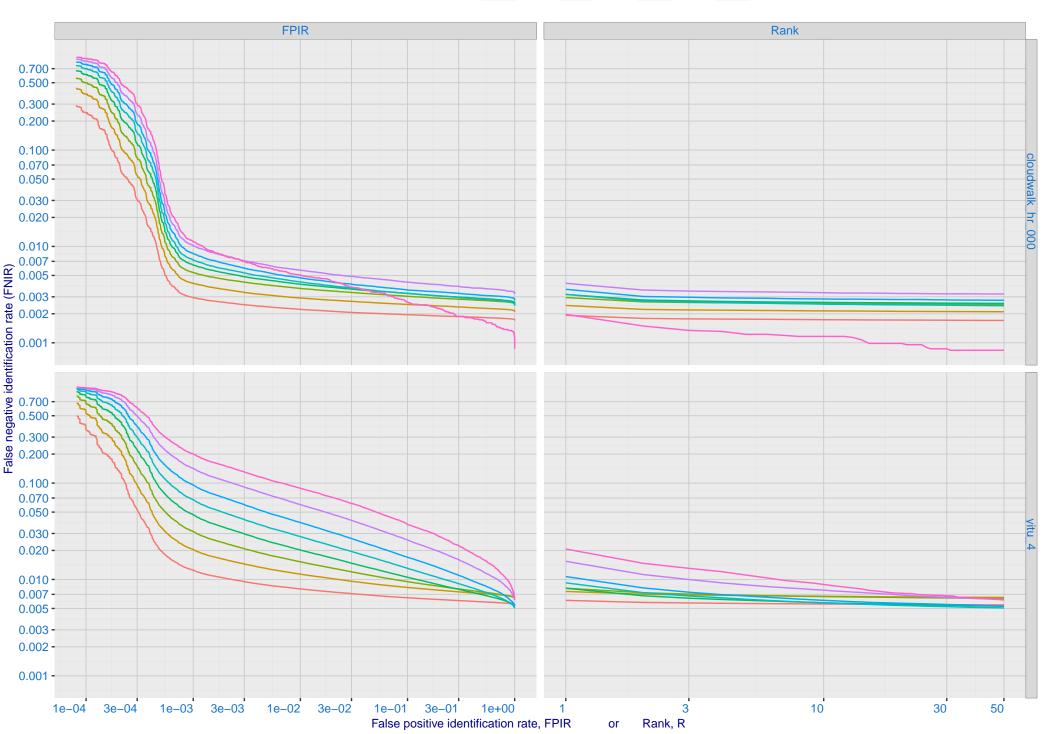


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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 18.5 -Dataset: 2018 Mugshot N= 3.1M Color encodes FNIR (Rank = 1) 18.0 -0.15 0.10 0.05 0.00 **TVAL** - FPIR = 0.001 FPIR = 0.003 17.0 -FPIR = 0.010FPIR = 0.030 16.5 -

(08,10]

Time lapse between search and initial encounter enrollment (years)

(10,12]

(12,14]

(14,18]

(06,08]

(04,06]

(00,02]

(02,04]