A: Datasheet

Algorithm: yitu_2

Developer: Shanghai Yitu Technology

Submission Date: 2018_06_21

Template size: 4138 bytes

Template time (2.5 percentile): 802 msec

Template time (median): 871 msec

Template time (97.5 percentile): 966 msec

Investigation:

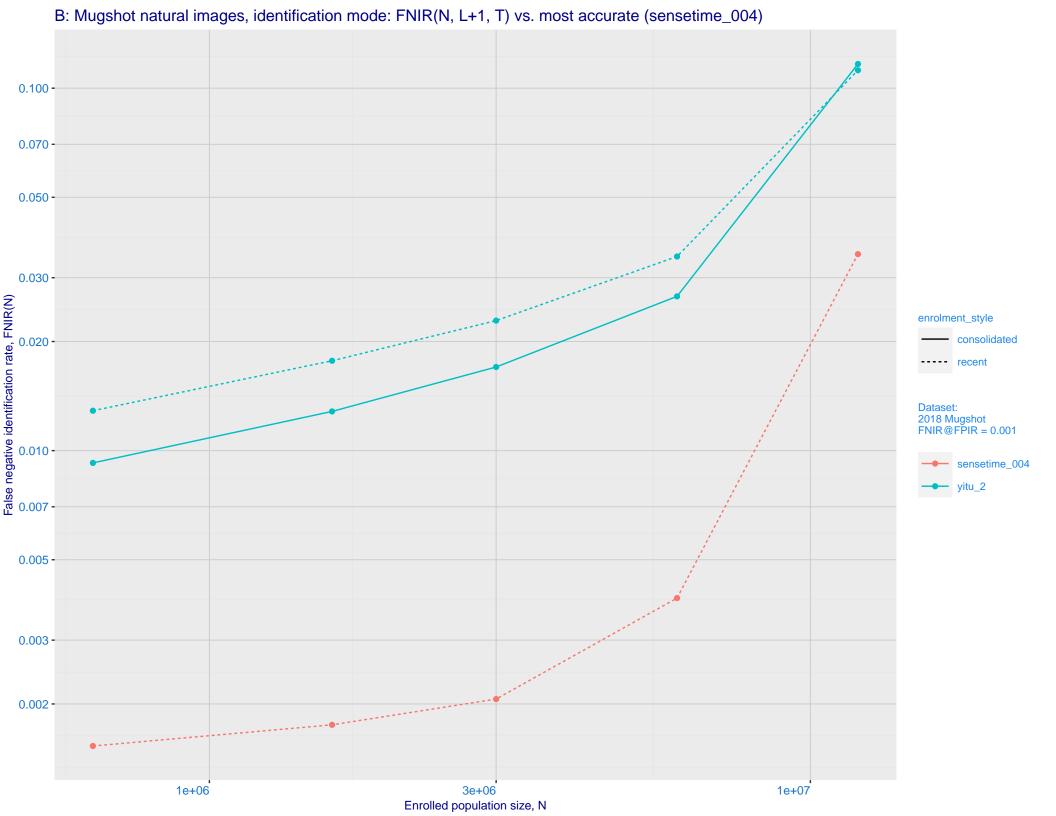
Frontal mugshot ranking 27 (out of 279) -- FNIR(1600000, 0, 1) = 0.0018 vs. lowest 0.0009 from sensetime_005

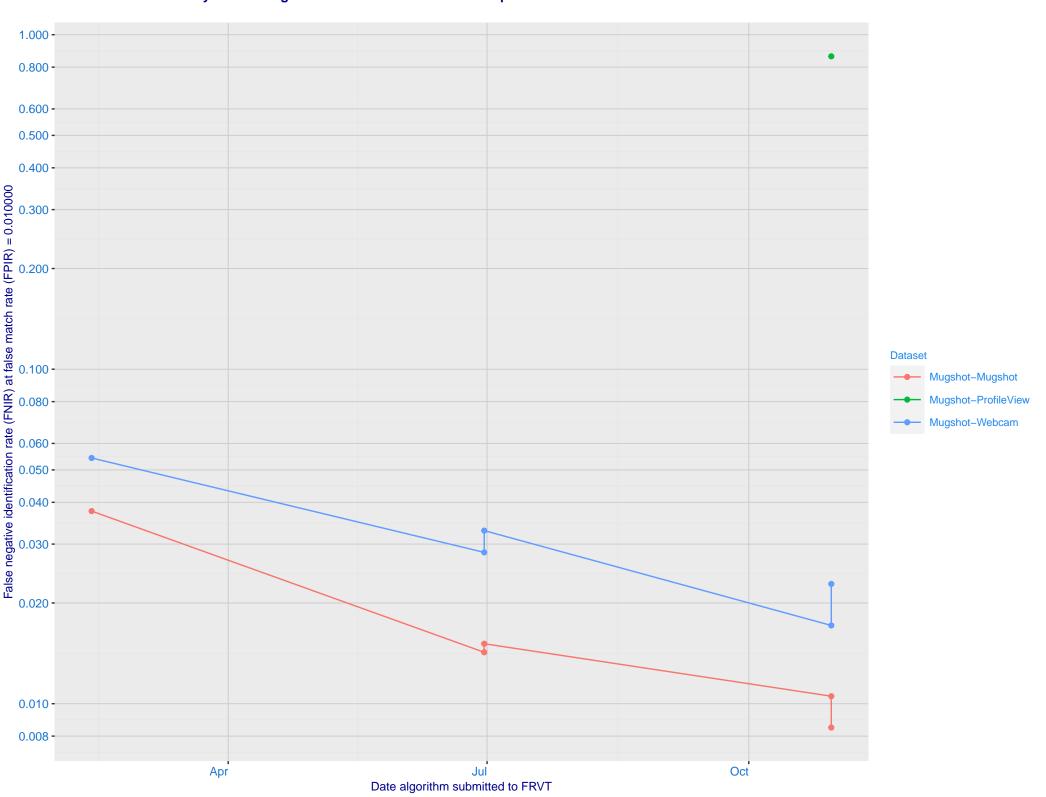
Mugshot webcam ranking 20 (out of 241) -- FNIR(1600000, 0, 1) = 0.0102 vs. lowest 0.0062 from sensetime_005

Identification:

Frontal mugshot ranking 35 (out of 279) -- FNIR(1600000, T, L+1) = 0.0177, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 27 (out of 236) -- FNIR(1600000, T, L+1) = 0.0485, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

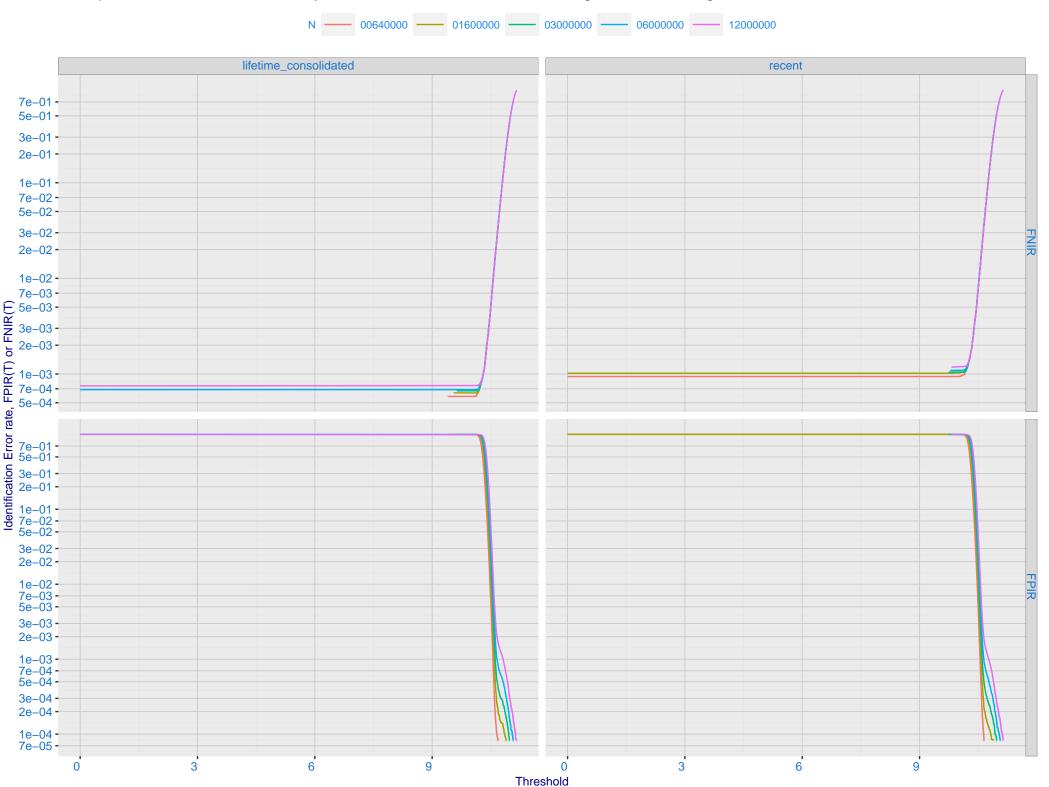




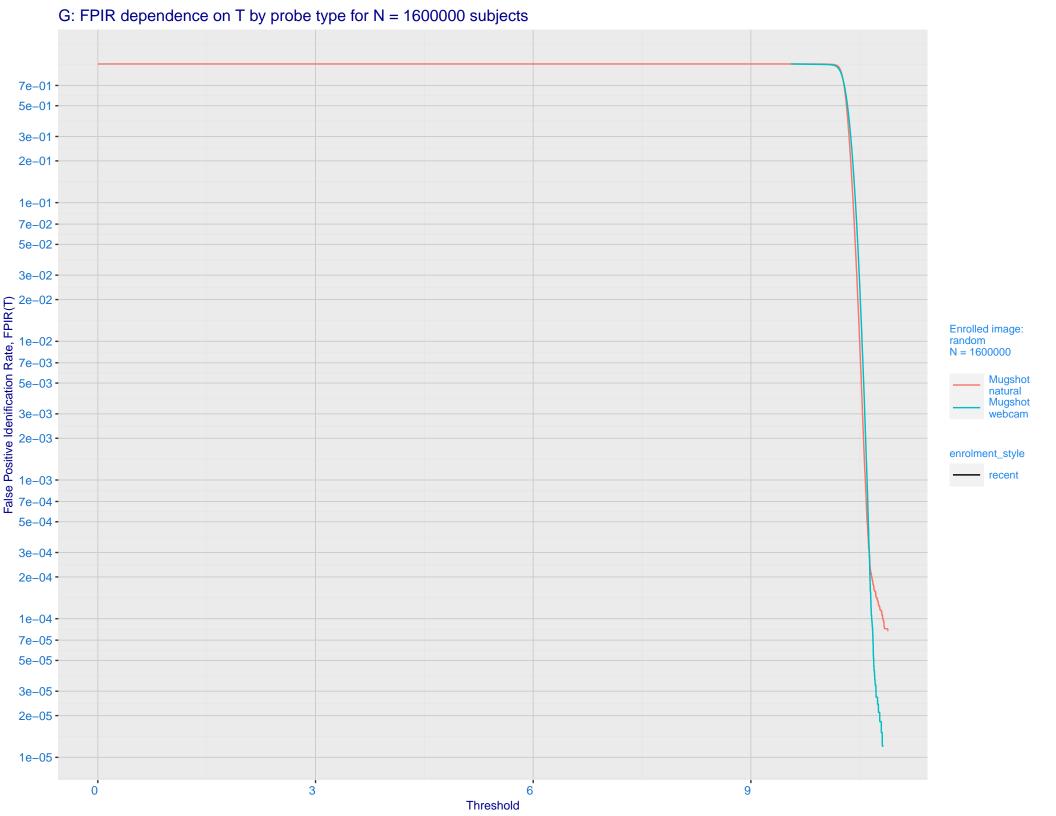
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.700 - 0.500 - 0.200 - 0.100 enrolment_style consolidated-ONE-MATE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

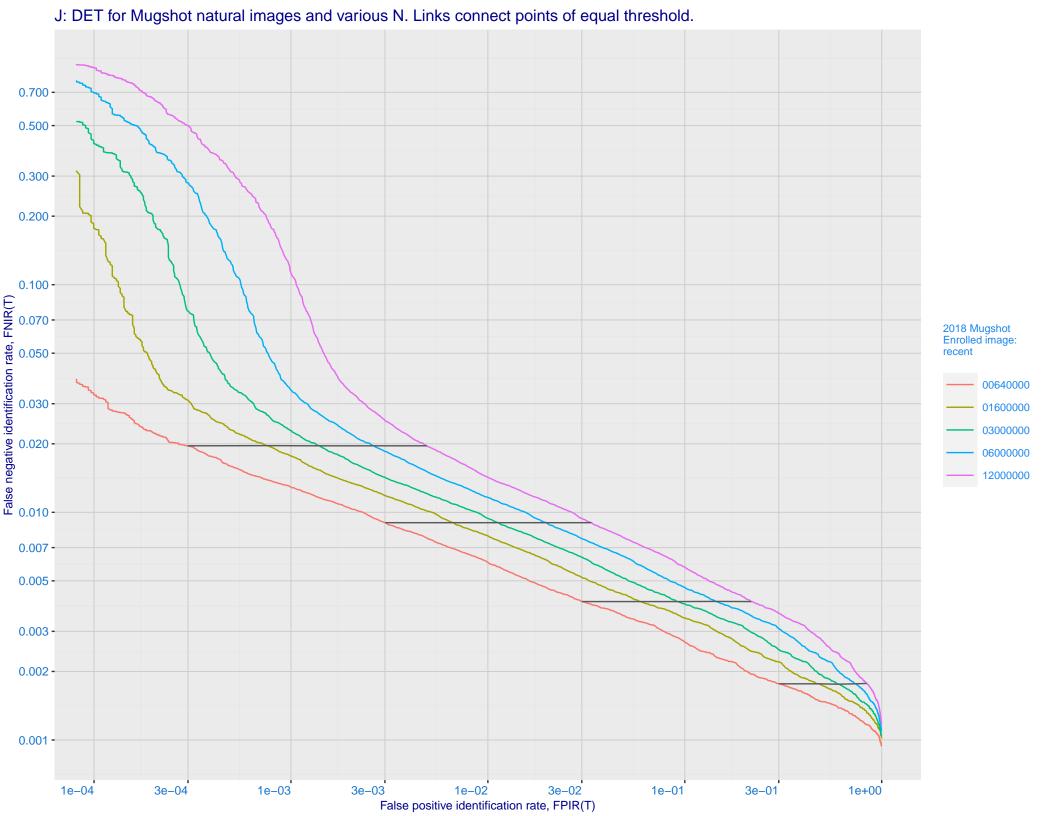
False positive identification rate, FPIR(T)

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

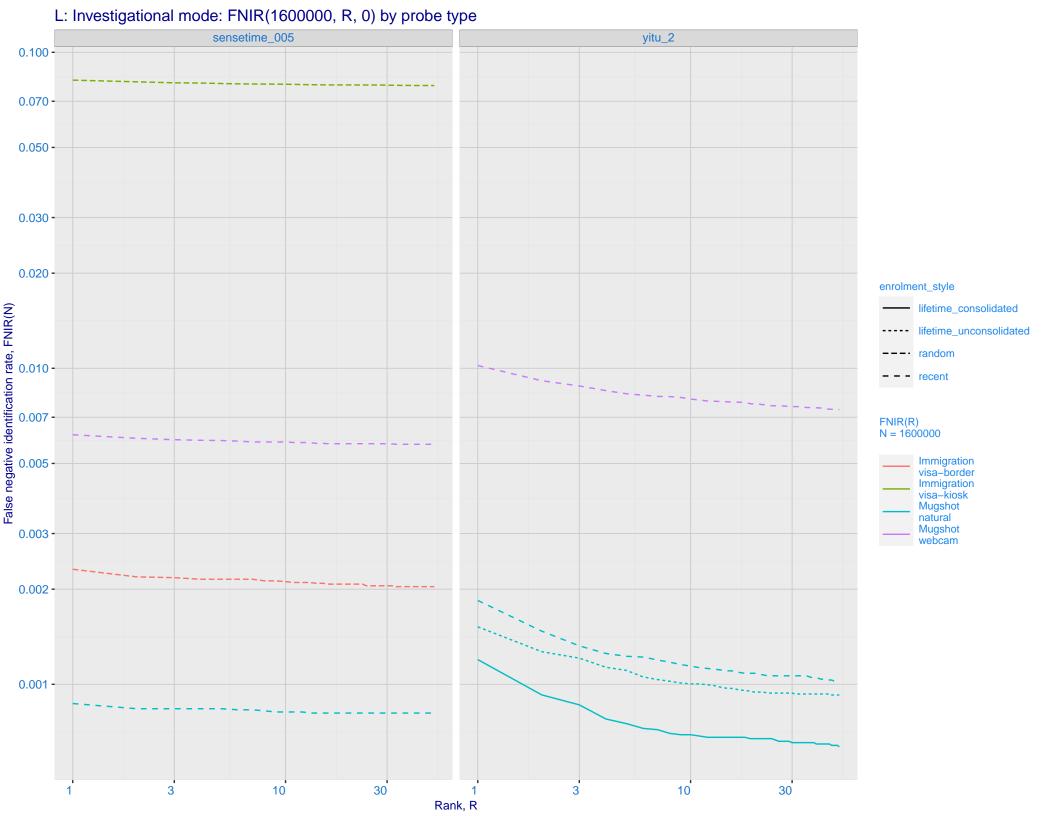


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

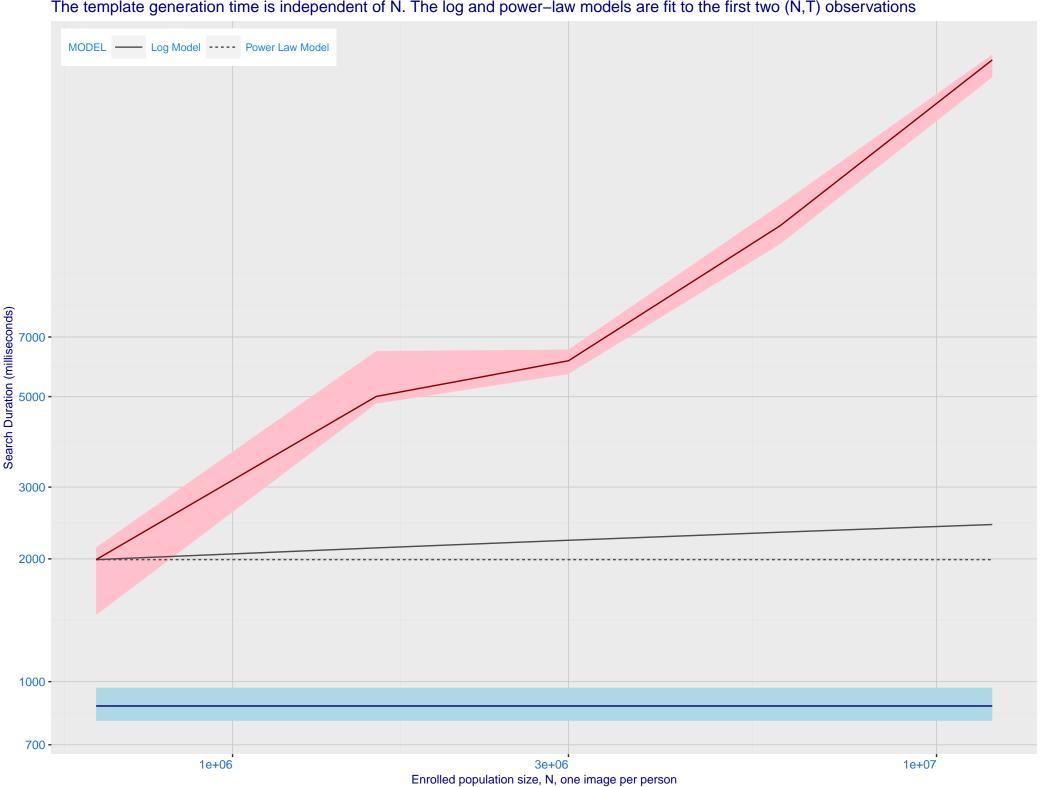


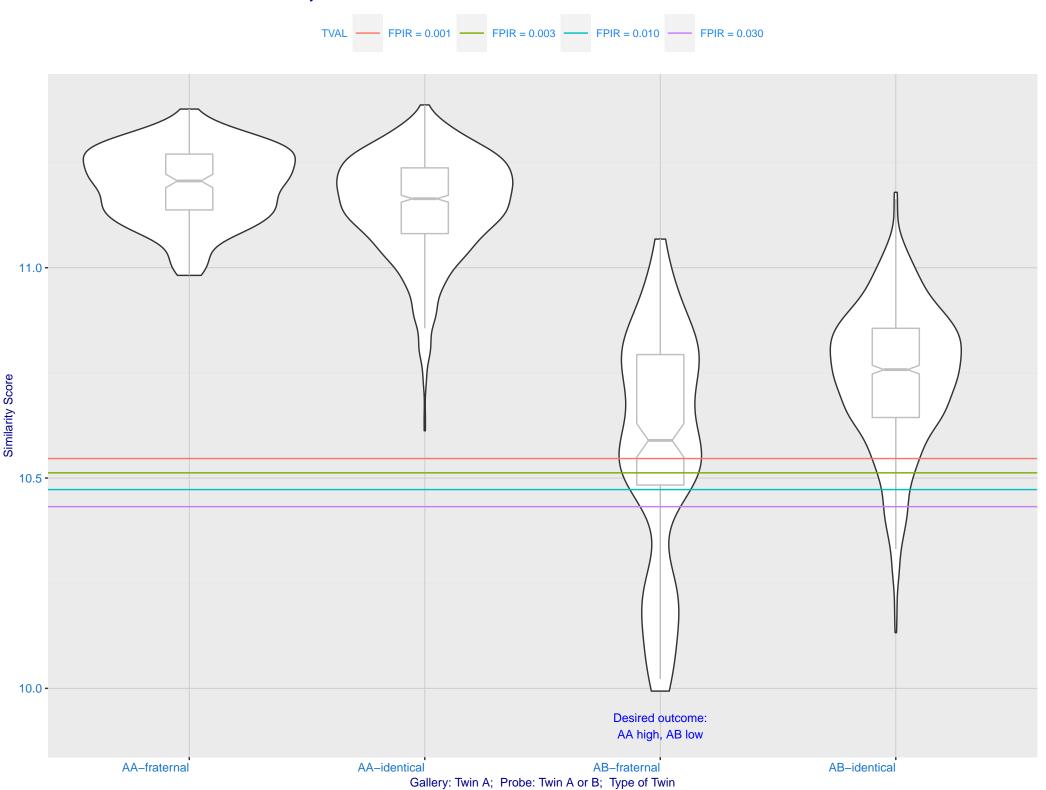


K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent - - - unconsolidated Mugshot Mugshot webcam natural FNIR@Rank = 1 sensetime_005 yitu_2 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

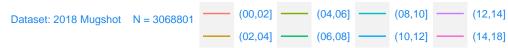


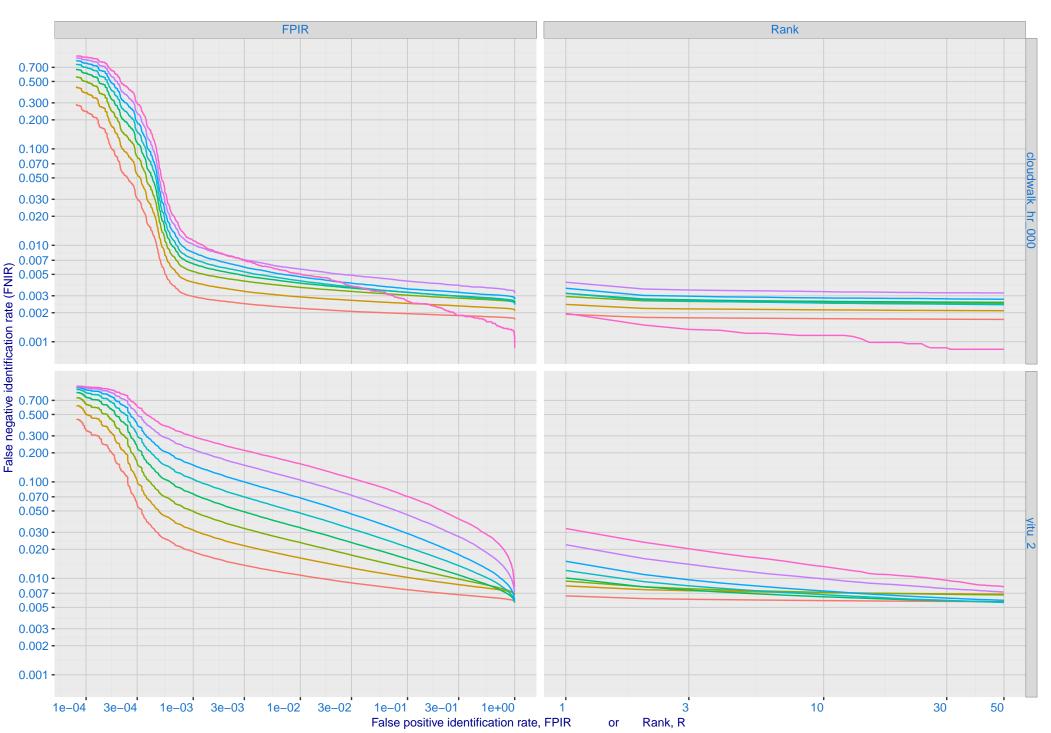
M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations





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 12 -Dataset: 2018 Mugshot N = 3.1MColor encodes FNIR (Rank = 1) 0.20 0.15 0.10 0.05 0.00 **TVAL** - FPIR = 0.001 - FPIR = 0.003 FPIR = 0.0103 -FPIR = 0.030 0 -(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)