## A: Datasheet

Algorithm: realnetworks\_2

Developer: Realnetworks Inc

Submission Date: 2018\_10\_30

Template size: 4104 bytes

Template time (2.5 percentile): 236 msec

Template time (median): 242 msec

Template time (97.5 percentile): 264 msec

Investigation:

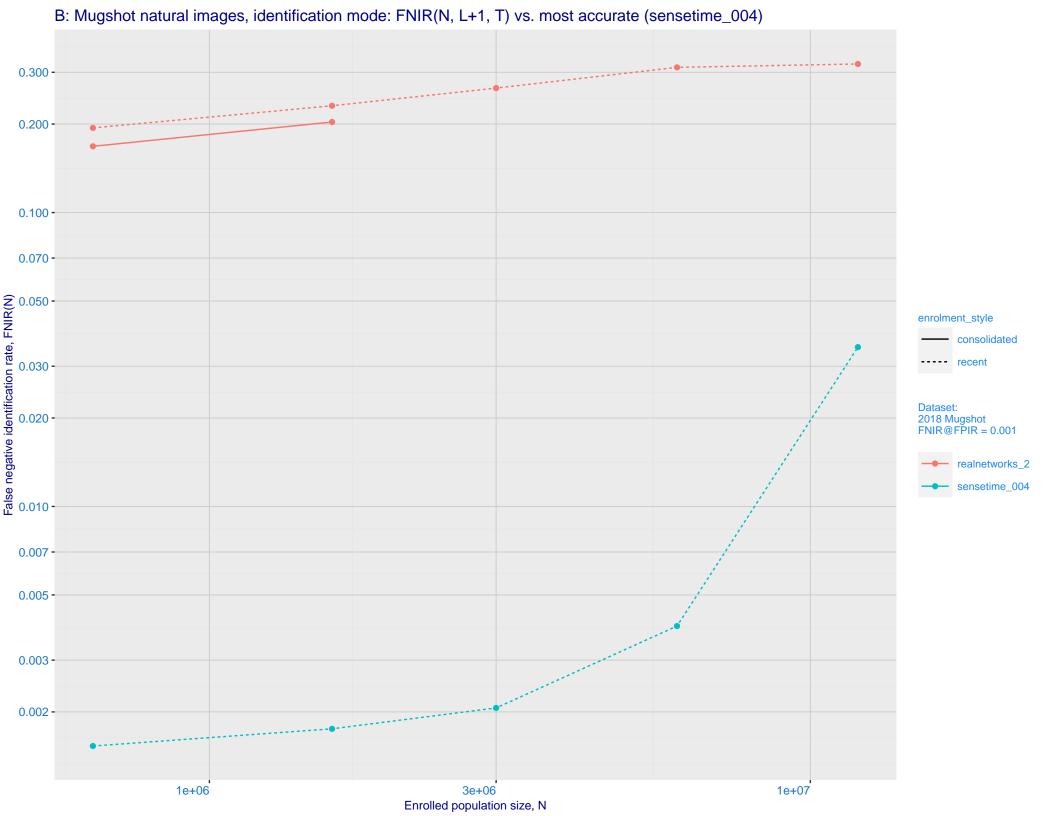
Frontal mugshot ranking 202 (out of 279) -- FNIR(1600000, 0, 1) = 0.0393 vs. lowest 0.0009 from sensetime\_005

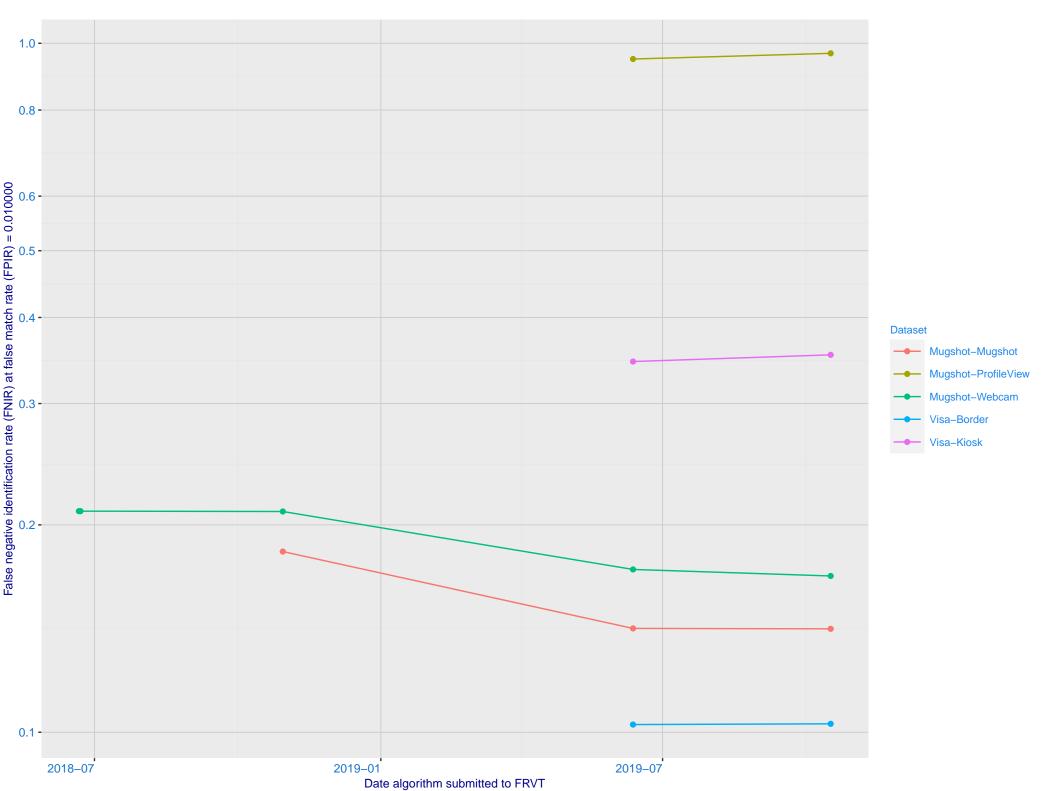
Mugshot webcam ranking 183 (out of 241) -- FNIR(1600000, 0, 1) = 0.0775 vs. lowest 0.0062 from sensetime\_005

Identification:

Frontal mugshot ranking 192 (out of 279) -- FNIR(1600000, T, L+1) = 0.2308, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

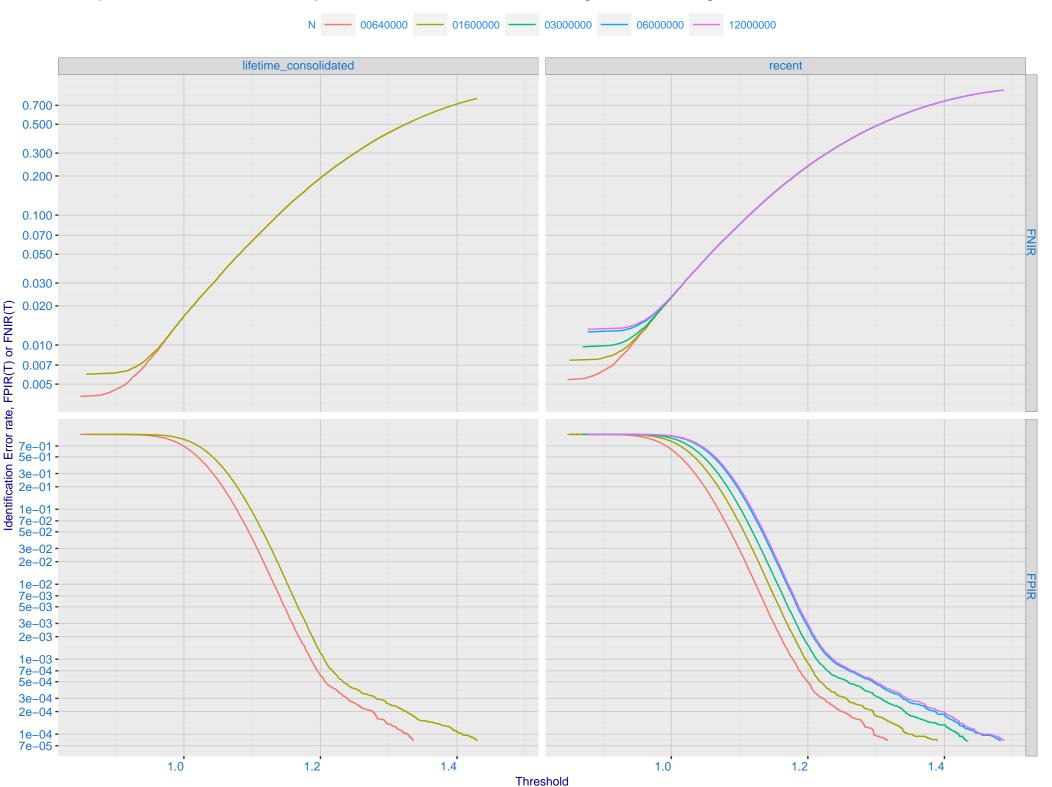
Mugshot webcam ranking 171 (out of 236) -- FNIR(1600000, T, L+1) = 0.3149, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003



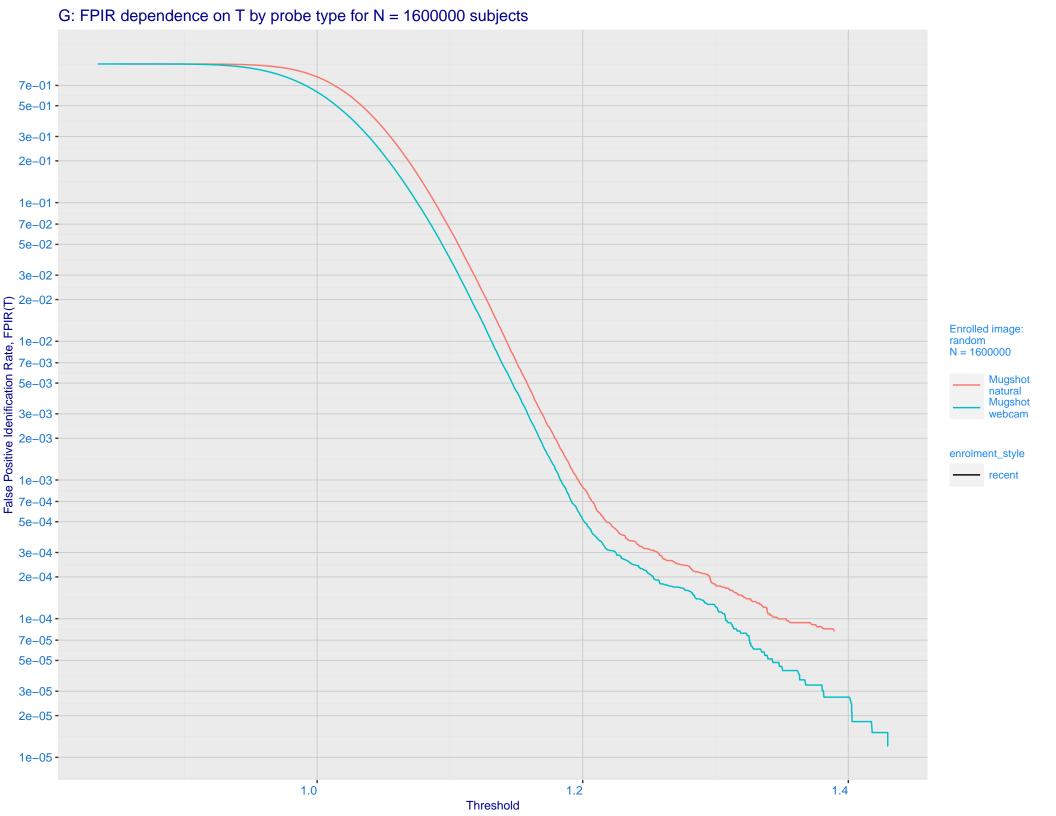


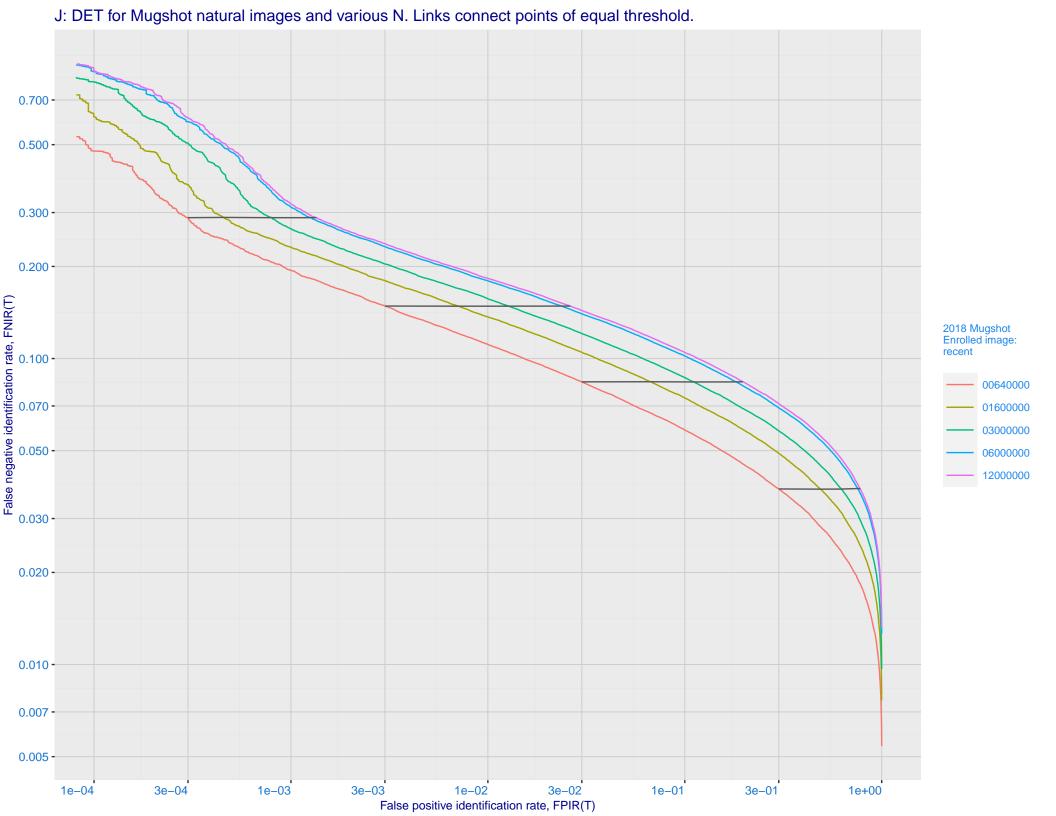
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 realnetworks 2 0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.000 - 0.500 - 0.200 - 0. enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 sensetime 004 0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

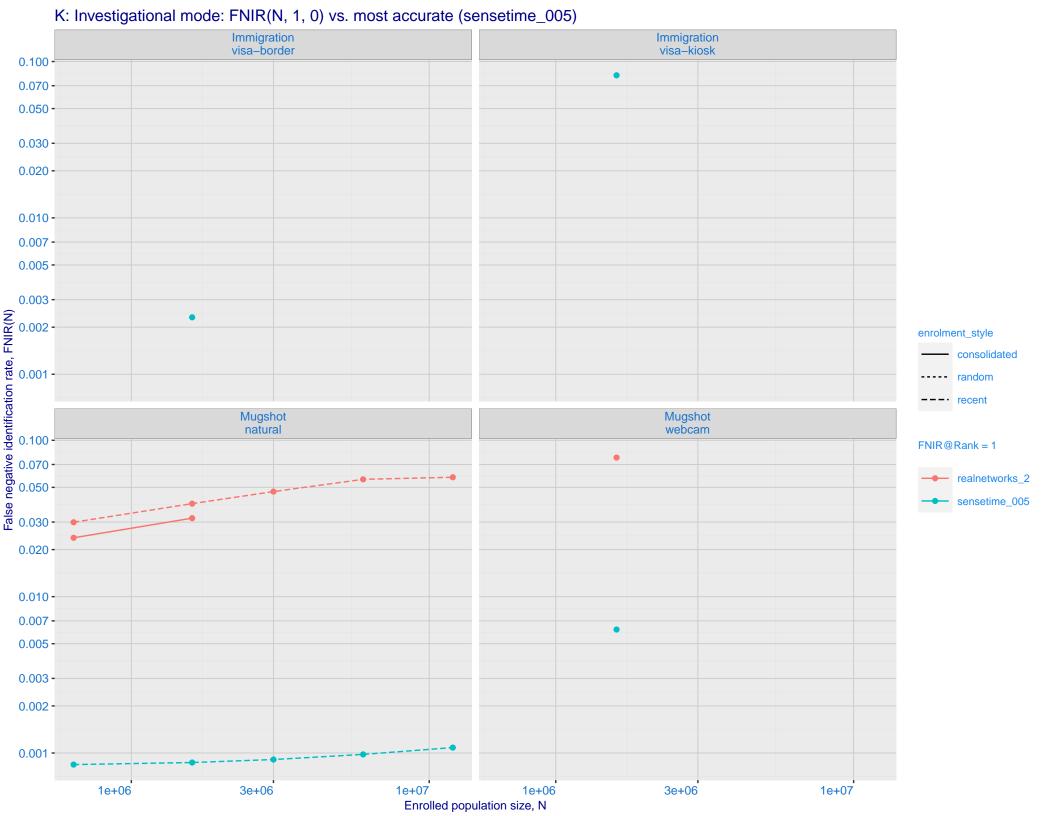
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

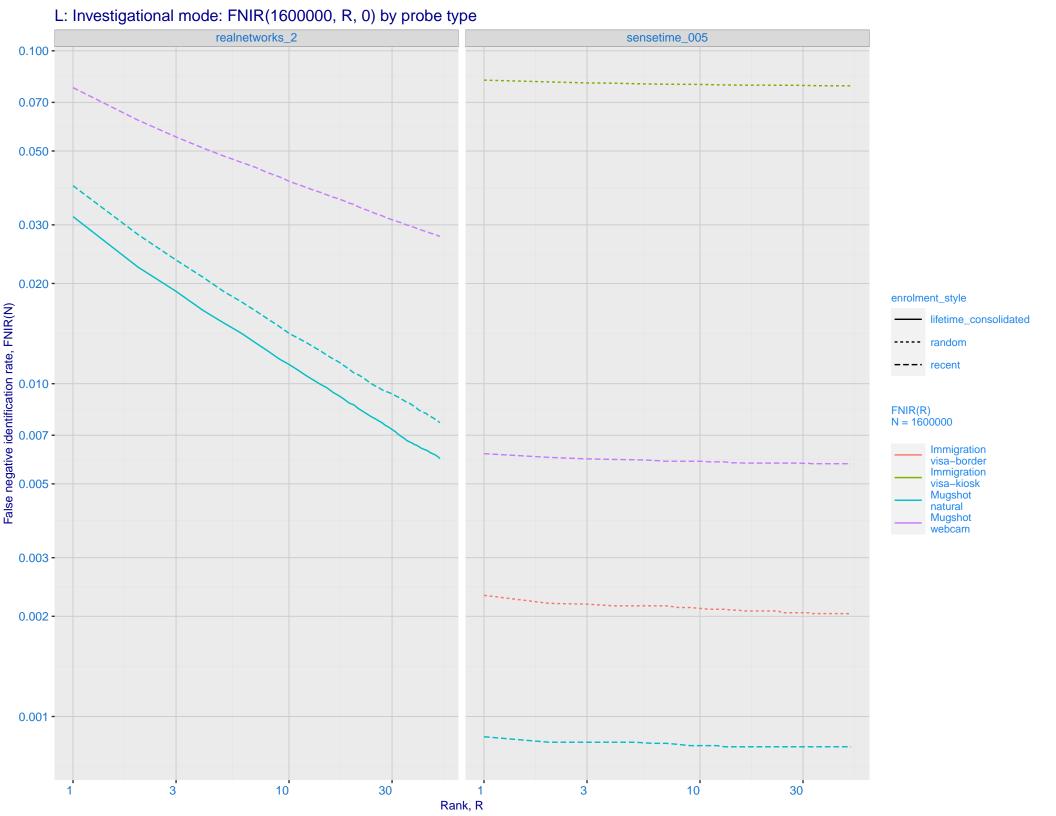


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 · 1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 - 5e-02 -**Enrolled images:** recent N = 1600000 % 3e-02 -2e-02 -1e-02 -Mugshot natural Mugshot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

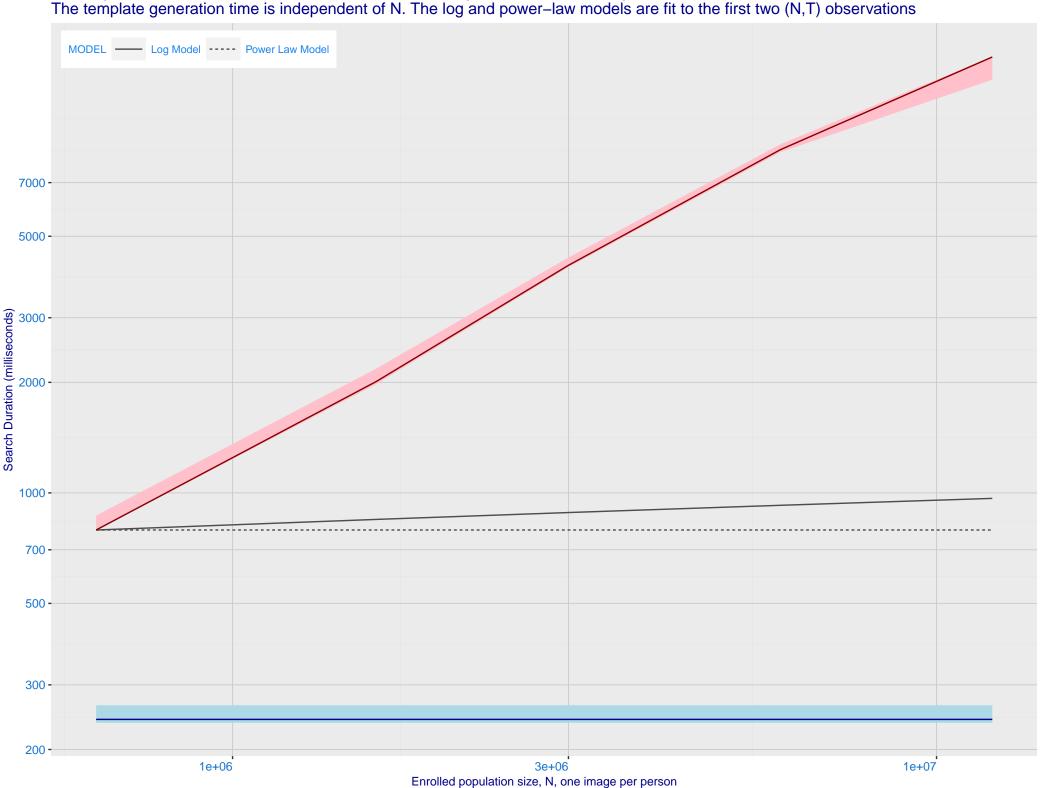




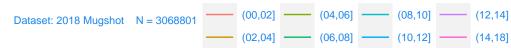


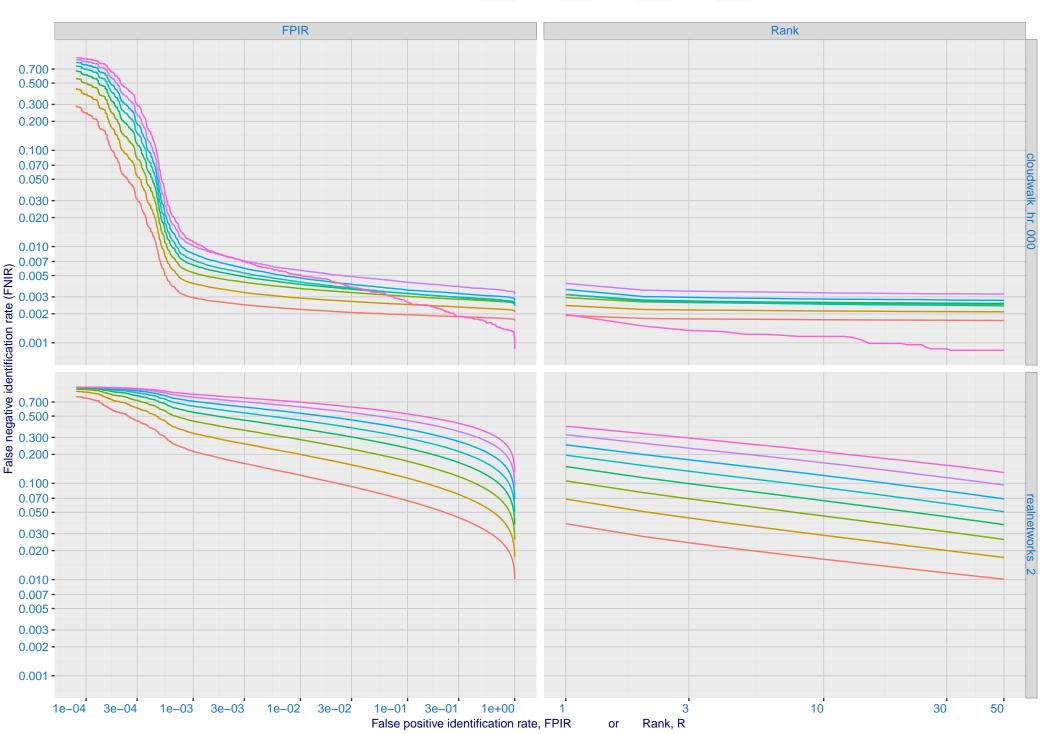


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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 2.00 -Dataset: 2018 Mugshot N= 3.1M Color encodes FNIR (Rank = 1) 1.75 -0.15 0.10 1.50 -0.05 0.00 **TVAL** - FPIR = 0.001 1.25 -FPIR = 0.003 FPIR = 0.010FPIR = 0.030 1.00 -

(08,10]

Time lapse between search and initial encounter enrollment (years)

(10,12]

(12,14]

(14,18]

(06,08]

(00,02]

(02,04]

(04,06]