A: Datasheet

Algorithm: ntechlab_007

Developer: N-Tech Lab

Submission Date: 2019_06_25

Template size: 3348 bytes

Template time (2.5 percentile): 791 msec

Template time (median): 795 msec

Template time (97.5 percentile): 1016 msec

Investigation:

Frontal mugshot ranking 90 (out of 329) -- FNIR(1600000, 0, 1) = 0.0027 vs. lowest 0.0009 from sensetime_006

Mugshot webcam ranking 65 (out of 291) -- FNIR(1600000, 0, 1) = 0.0125 vs. lowest 0.0057 from sensetime_006

Mugshot profile ranking 67 (out of 260) -- FNIR(1600000, 0, 1) = 0.3259 vs. lowest 0.0550 from sensetime_006

Immigration visa-border ranking 67 (out of 218) -- FNIR(1600000, 0, 1) = 0.0044 vs. lowest 0.0009 from sensetime_006

Immigration visa-kiosk ranking 72 (out of 215) -- FNIR(1600000, 0, 1) = 0.1066 vs. lowest 0.0487 from cubox_000

Identification:

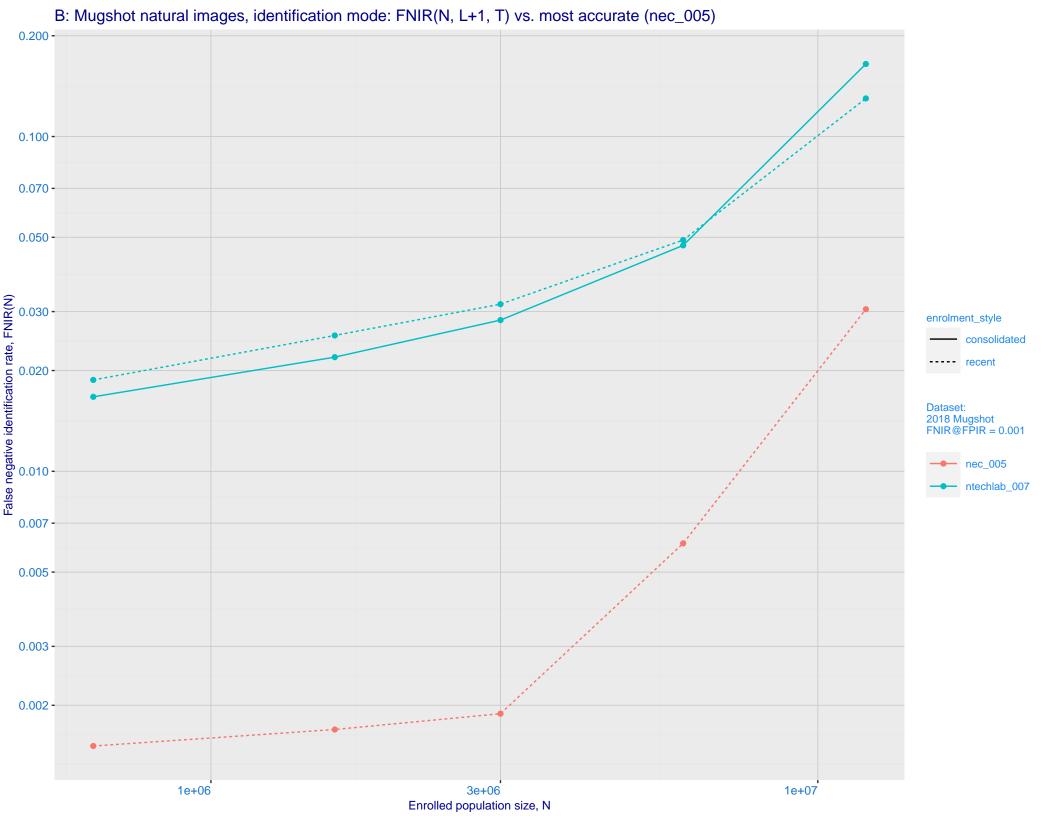
Frontal mugshot ranking 86 (out of 329) -- FNIR(1600000, T, L+1) = 0.0255, FPIR=0.001000 vs. lowest 0.0017 from nec_005

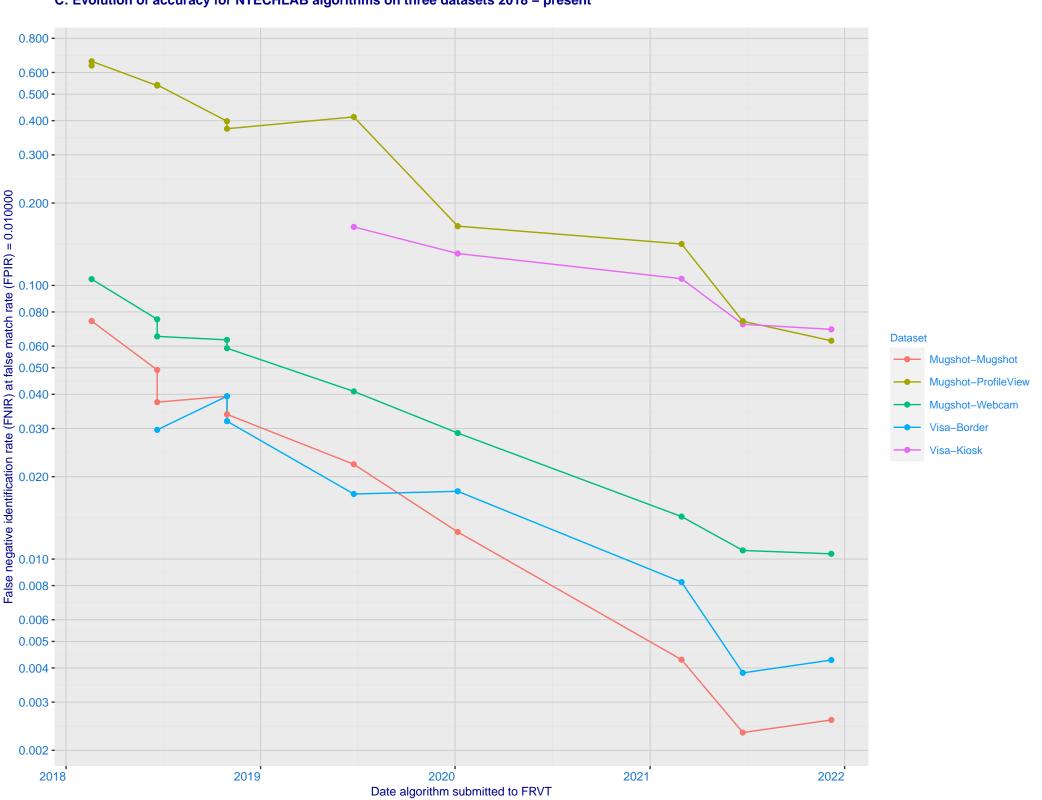
Mugshot webcam ranking 77 (out of 289) -- FNIR(1600000, T, L+1) = 0.0668, FPIR=0.001000 vs. lowest 0.0120 from nec_005

Mugshot profile ranking 36 (out of 259) — FNIR(1600000, T, L+1) = 0.7499, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 70 (out of 217) -- FNIR(1600000, T, L+1) = 0.0323, FPIR=0.001000 vs. lowest 0.0032 from paravision_009

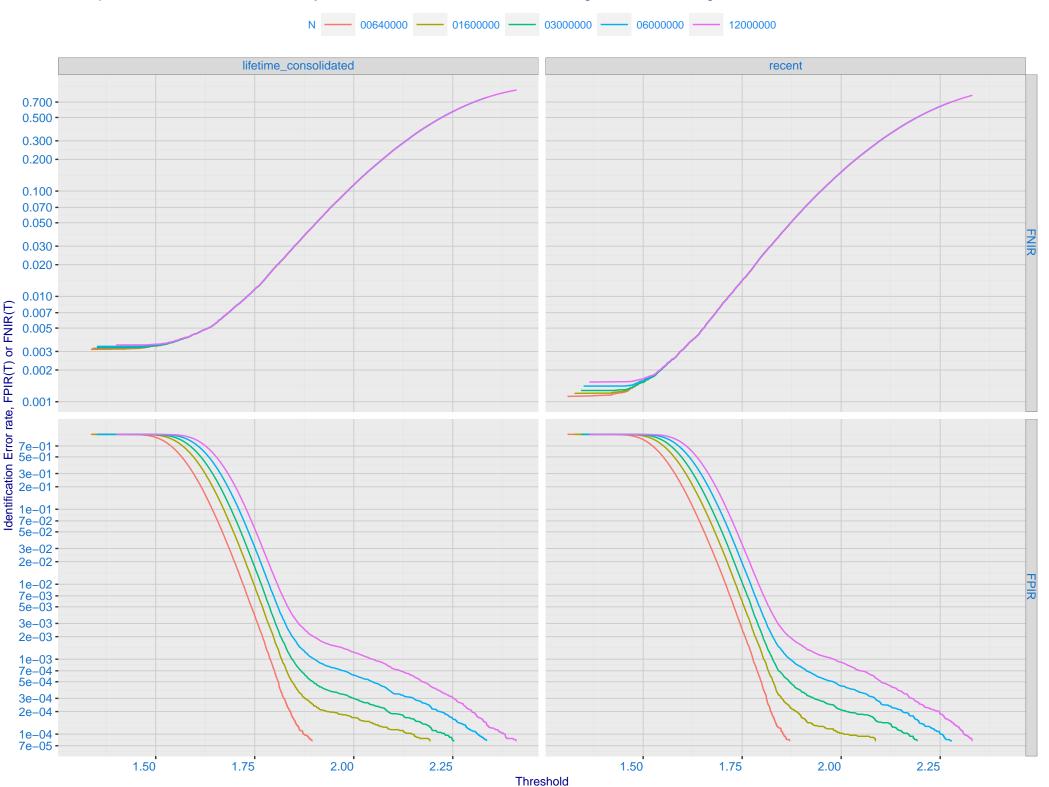
Immigration visa-kiosk ranking 53 (out of 212) -- FNIR(1600000, T, L+1) = 0.2241, FPIR=0.001000 vs. lowest 0.0728 from paravision_009



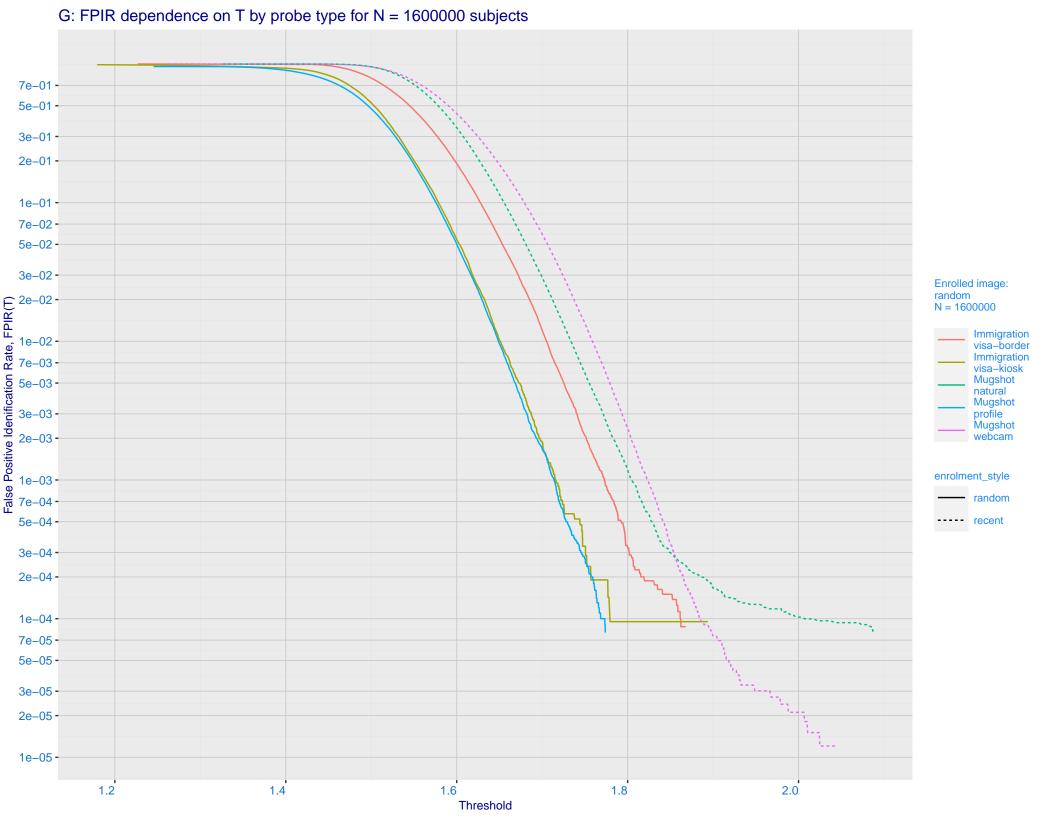


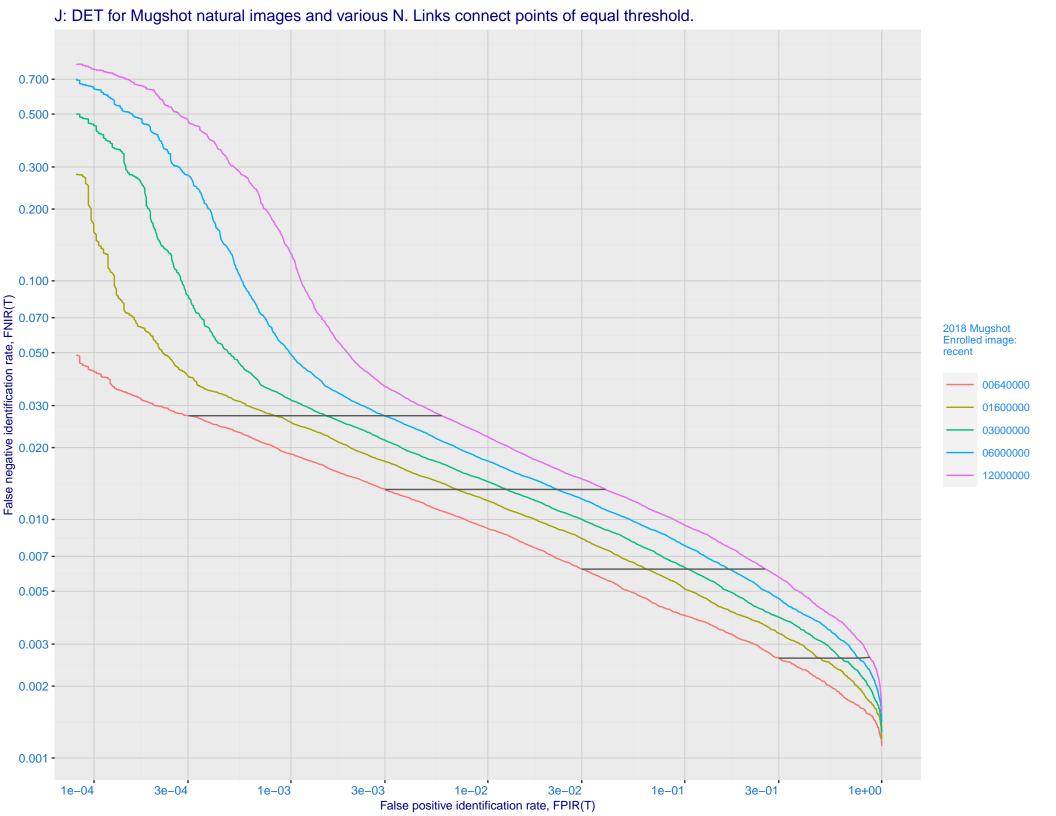
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration **Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 0.070 -0.050 ntechlab 007 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

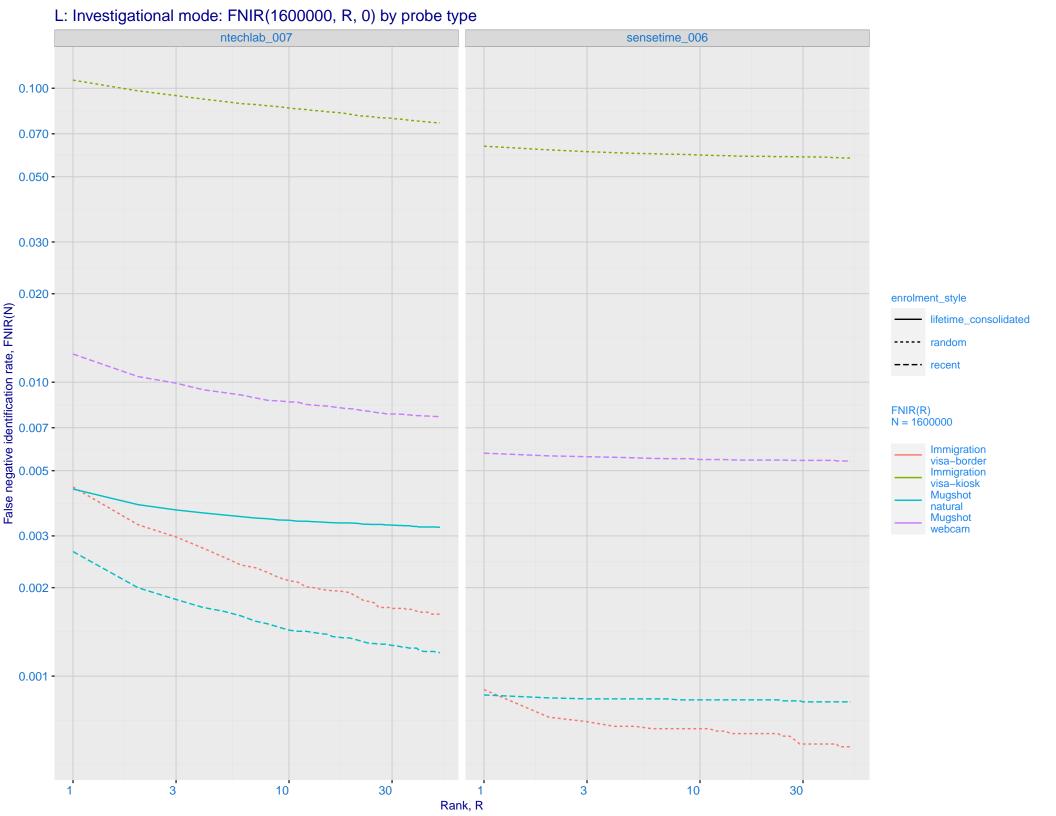


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

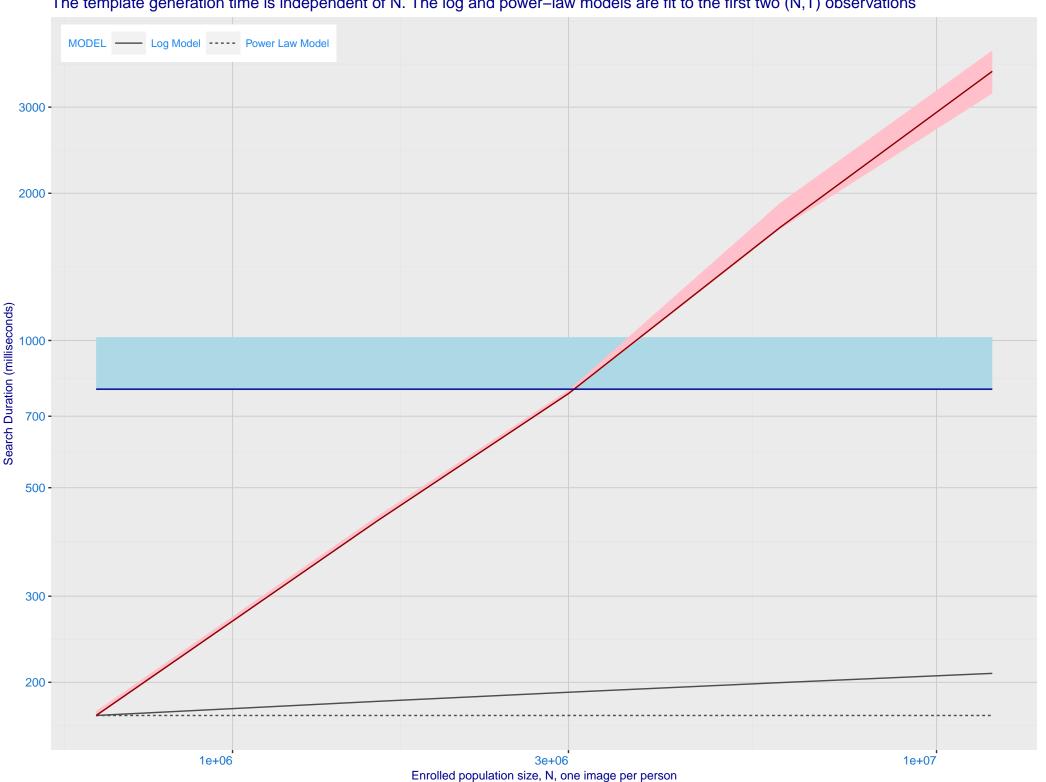




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_006) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.0050 - 0.050 enrolment_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 ntechlab_007 sensetime_006 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

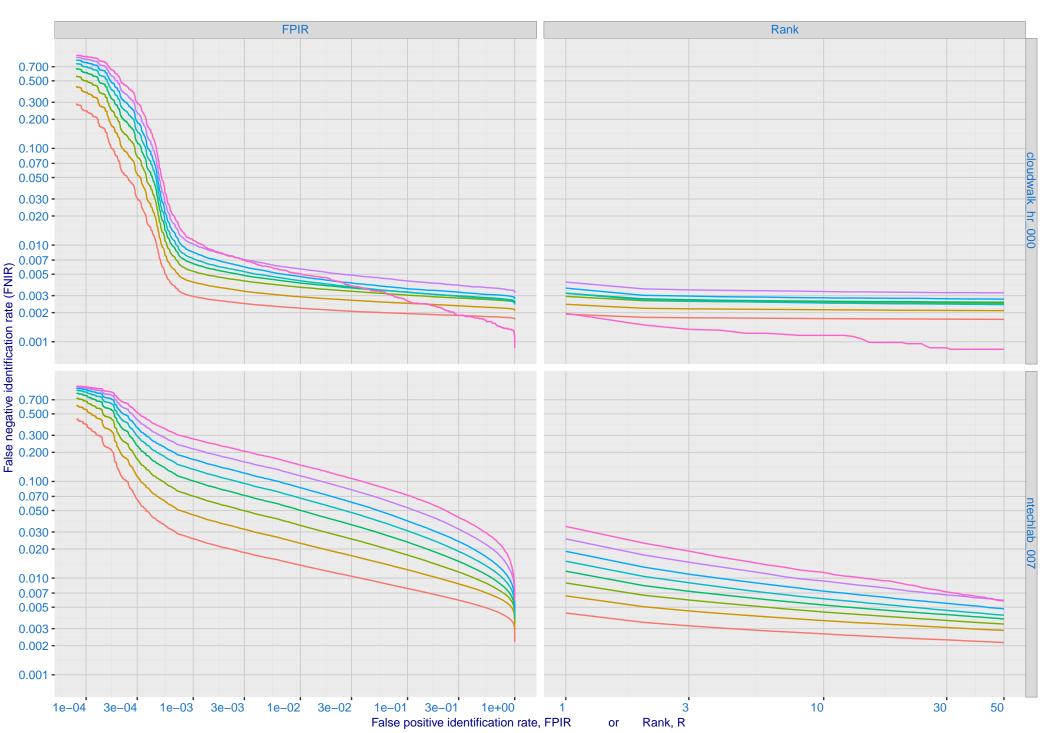


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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 Dataset: 2018 Mugshot N= 3.1M Color encodes FNIR (Rank = 1) 2.4 -0.15 0.10 0.05 0.00 TVAL - FPIR = 0.001 - FPIR = 0.003 FPIR = 0.010 1.6 -FPIR = 0.030 1.2 -(02,04](04,06](08,10](12,14](00,02](06,08](10,12](14,18]

Time lapse between search and initial encounter enrollment (years)