A: Datasheet

Algorithm: idemia_6

Developer: Idemia

Submission Date: 2018_10_29

Template size: 352 bytes

Template time (2.5 percentile): 359 msec

Template time (median): 370 msec

Template time (97.5 percentile): 402 msec

Investigation:

Frontal mugshot ranking 138 (out of 279) -- FNIR(1600000, 0, 1) = 0.0096 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 178 (out of 241) -- FNIR(1600000, 0, 1) = 0.0723 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 180 (out of 210) — FNIR(1600000, 0, 1) = 0.9692 vs. lowest 0.0587 from xforwardai_002

Immigration visa-border ranking 96 (out of 168) — FNIR(1600000, 0, 1) = 0.0304 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 106 (out of 165) -- FNIR(1600000, 0, 1) = 0.2526 vs. lowest 0.0568 from cloudwalk_hr_000

Identification:

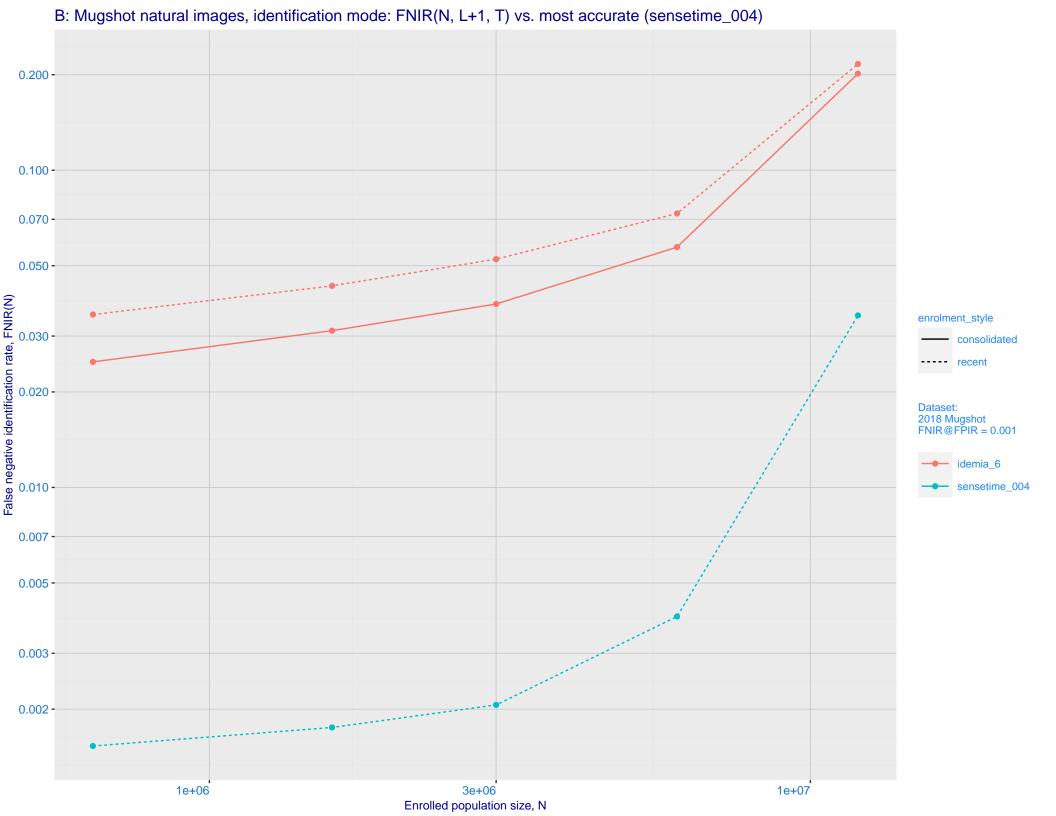
Frontal mugshot ranking 76 (out of 279) -- FNIR(1600000, T, L+1) = 0.0432, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

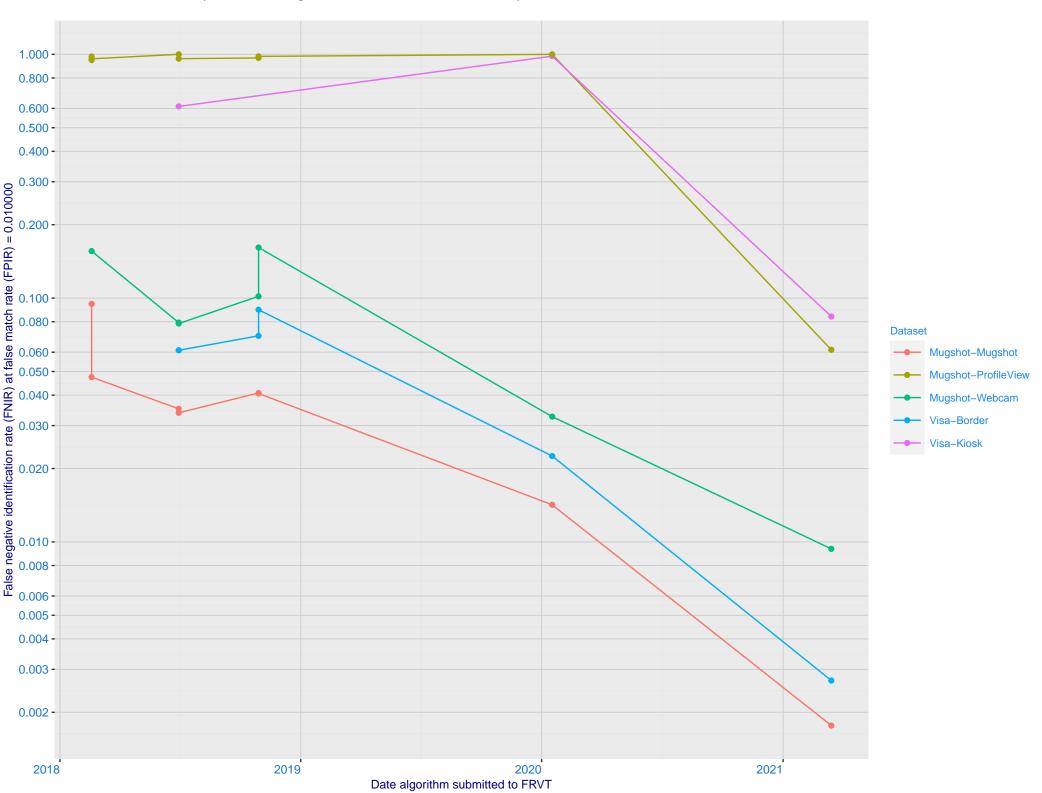
Mugshot webcam ranking 145 (out of 236) -- FNIR(1600000, T, L+1) = 0.2249, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 68 (out of 209) — FNIR(1600000, T, L+1) = 0.9823, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 92 (out of 167) -- FNIR(1600000, T, L+1) = 0.1439, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa-kiosk ranking 91 (out of 162) — FNIR(1600000, T, L+1) = 0.7396, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk_hr_000

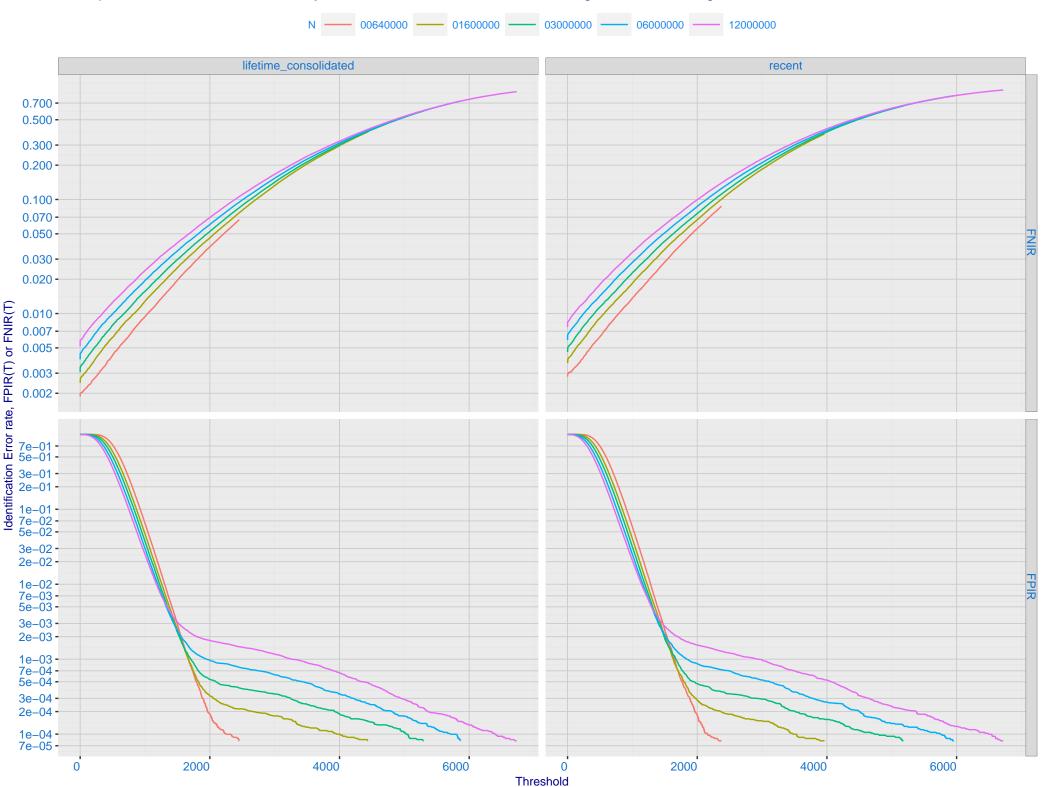




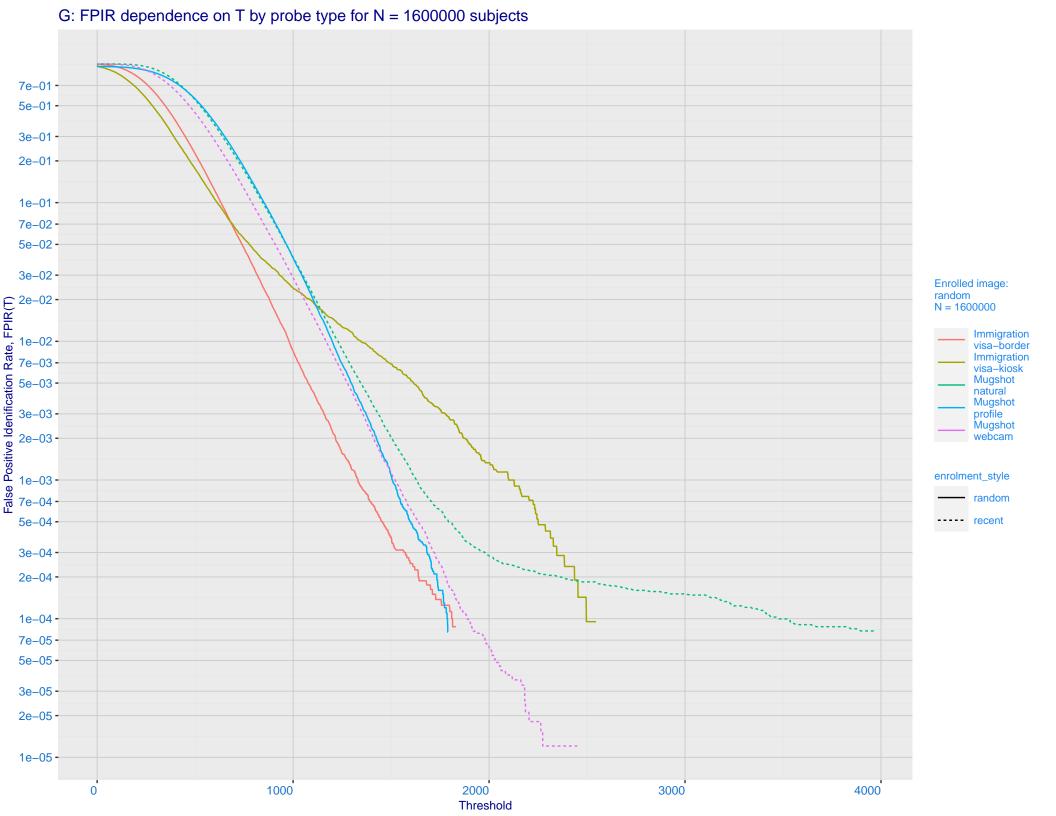
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 idemia 6 0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.0001 - 0.500 - 0.200 enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 sensetime 004 0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

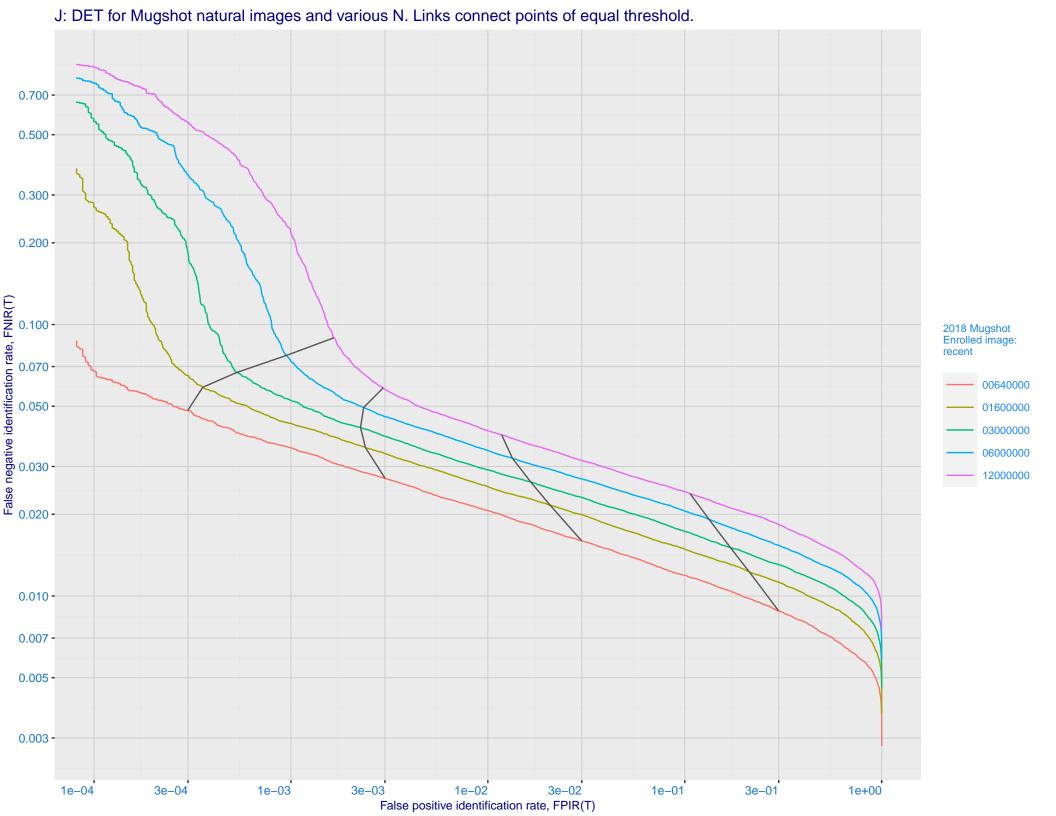
\\\ \e^{-0}\frac{3}{2}e^{-0}\frac{1}{2}e^{-0}\frac{3}{2}e^{-0}\frac{1}{2}e

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

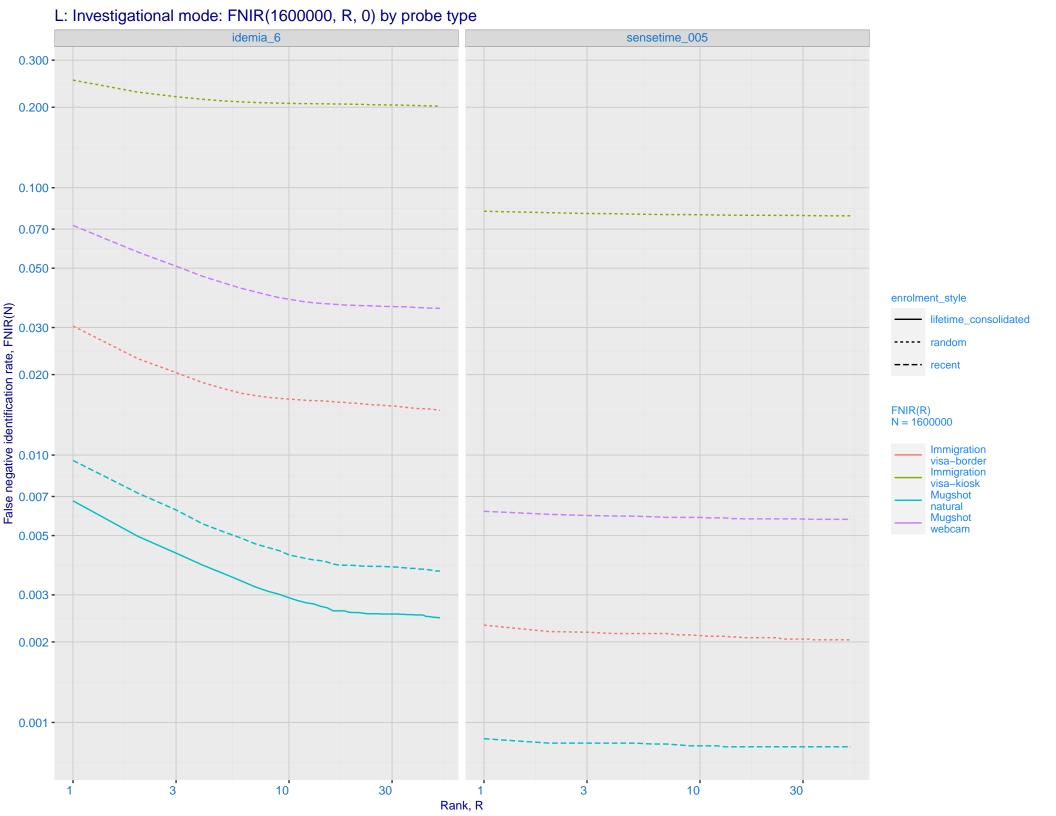


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

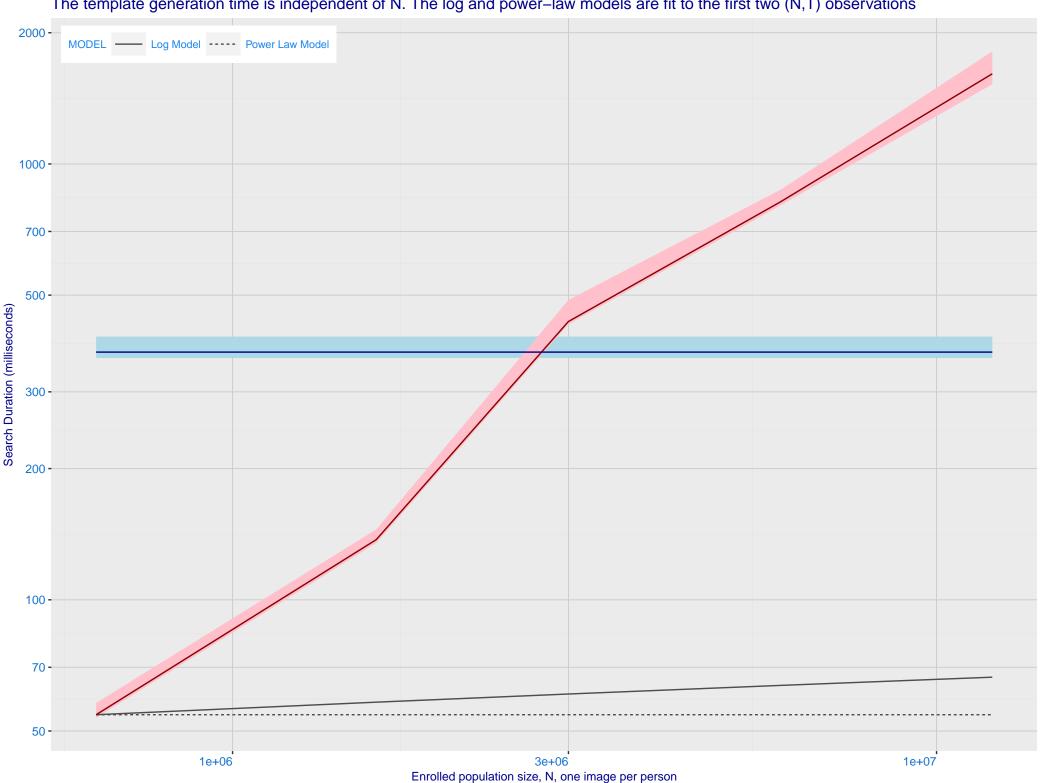




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Palse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.300 - 0.100 - 0.070 - 0. FNIR@Rank = 1 idemia_6 sensetime_005 Mugshot Mugshot webcam natural enrolment_style consolidated ---- random --- recent 0.050 -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

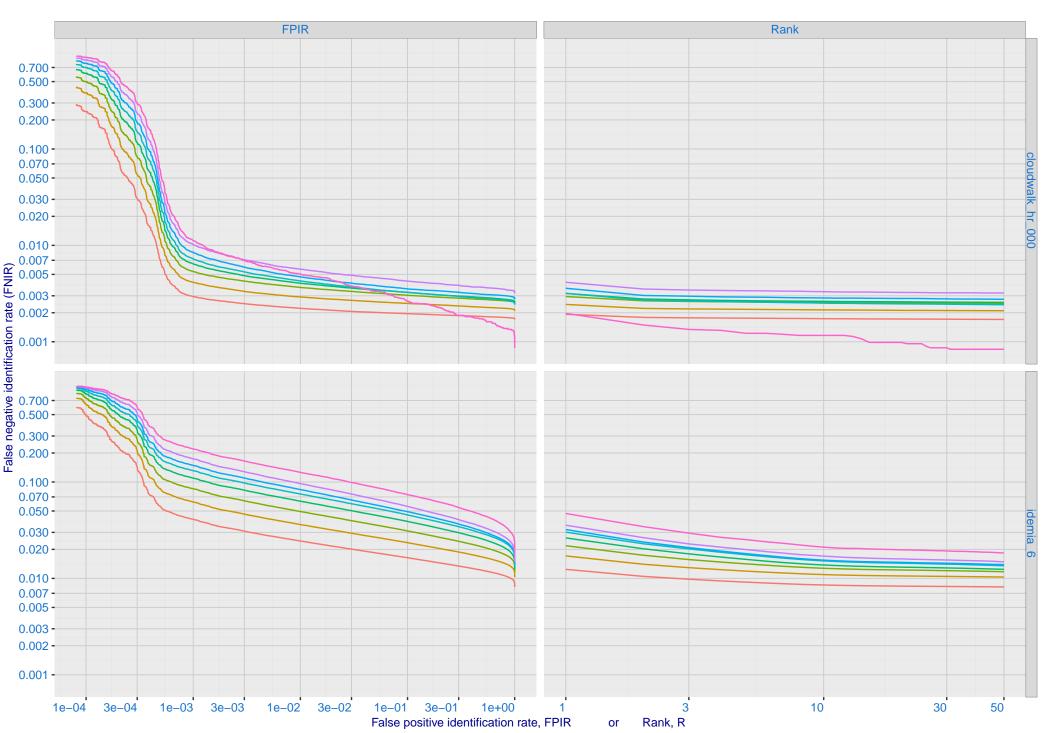


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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

