A: Datasheet

Algorithm: dahua_002

Developer: Dahua Technology Co Ltd

Submission Date: 2019_12_02

Template size: 2048 bytes

Template time (2.5 percentile): 682 msec

Template time (median): 686 msec

Template time (97.5 percentile): 750 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 28 (out of 241) -- FNIR(1600000, 0, 1) = 0.0115 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 34 (out of 210) -- FNIR(1600000, 0, 1) = 0.3041 vs. lowest 0.0587 from xforwardai_002

Immigration visa-border ranking 14 (out of 168) — FNIR(1600000, 0, 1) = 0.0026 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 16 (out of 165) -- FNIR(1600000, 0, 1) = 0.0837 vs. lowest 0.0568 from cloudwalk_hr_000

Identification:

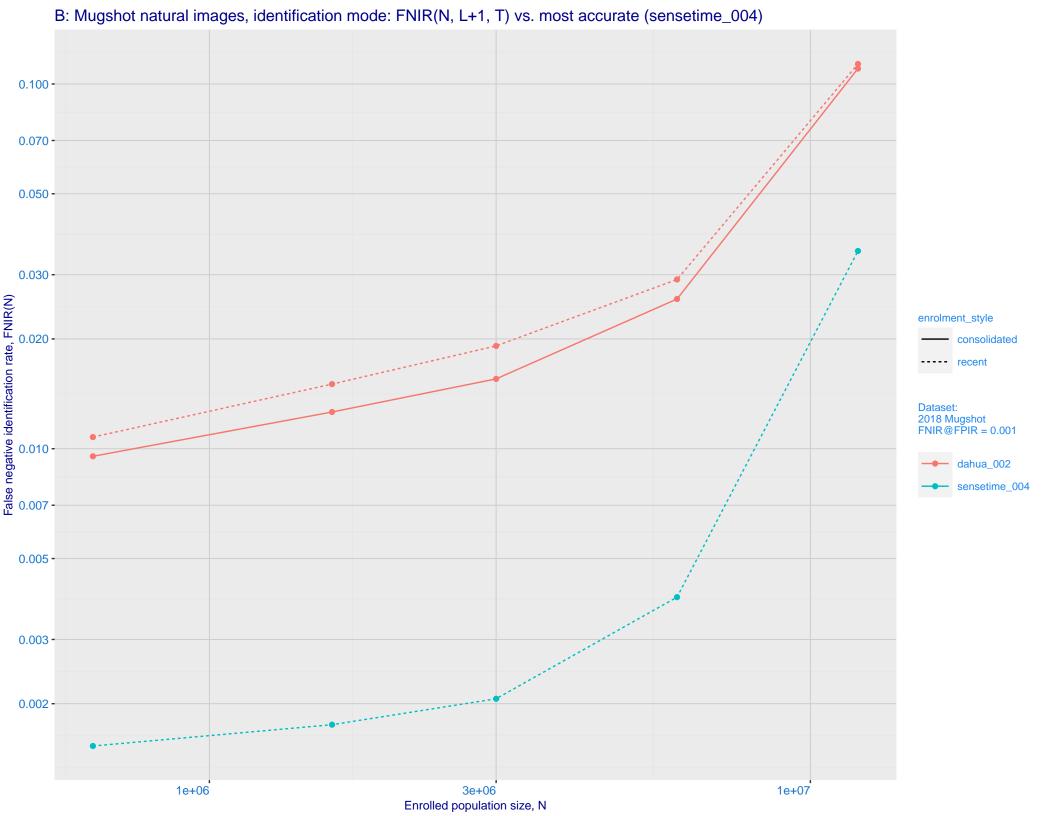
Frontal mugshot ranking 31 (out of 279) -- FNIR(1600000, T, L+1) = 0.0150, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 26 (out of 236) -- FNIR(1600000, T, L+1) = 0.0461, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

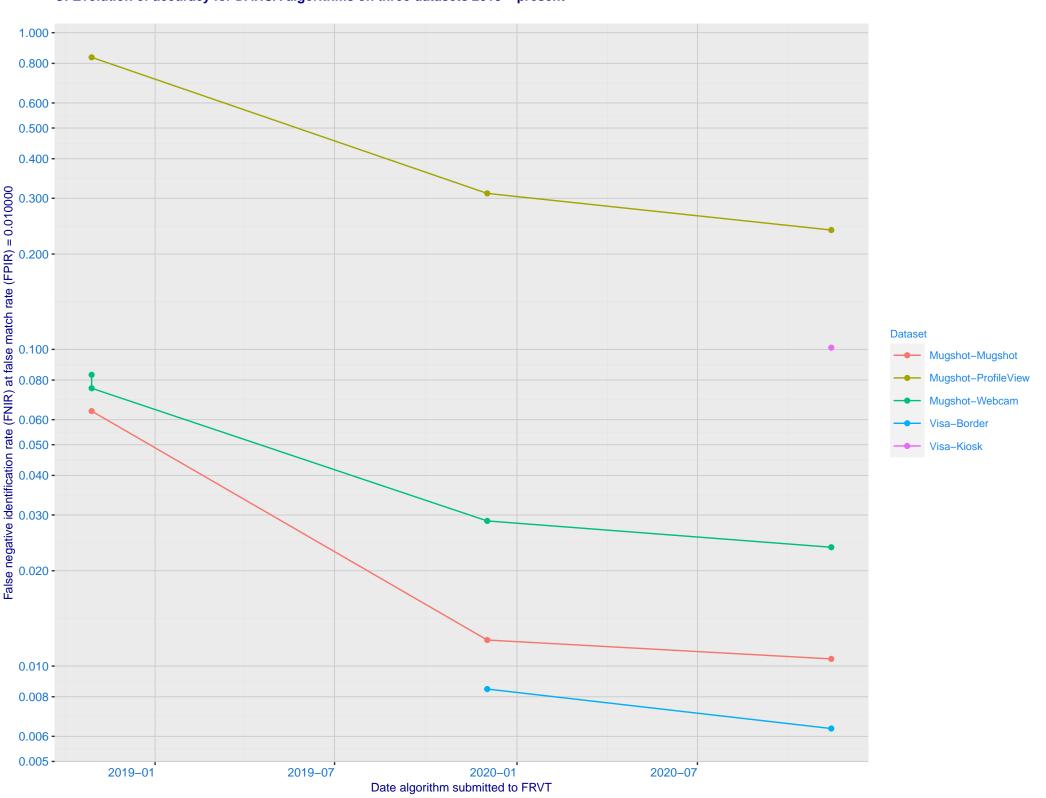
Mugshot profile ranking 16 (out of 209) — FNIR(1600000, T, L+1) = 0.6382, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 20 (out of 167) -- FNIR(1600000, T, L+1) = 0.0170, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa-kiosk ranking 14 (out of 162) -- FNIR(1600000, T, L+1) = 0.1596, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk_hr_000



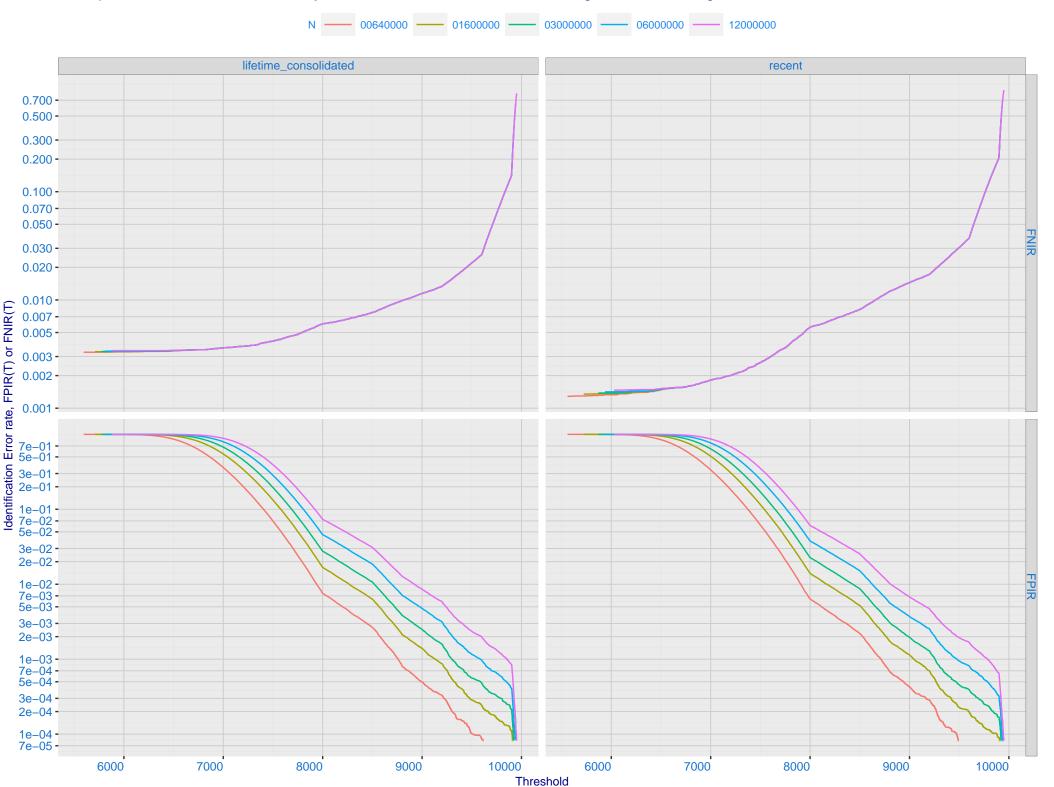
C: Evolution of accuracy for DAHUA algorithms on three datasets 2018 – present



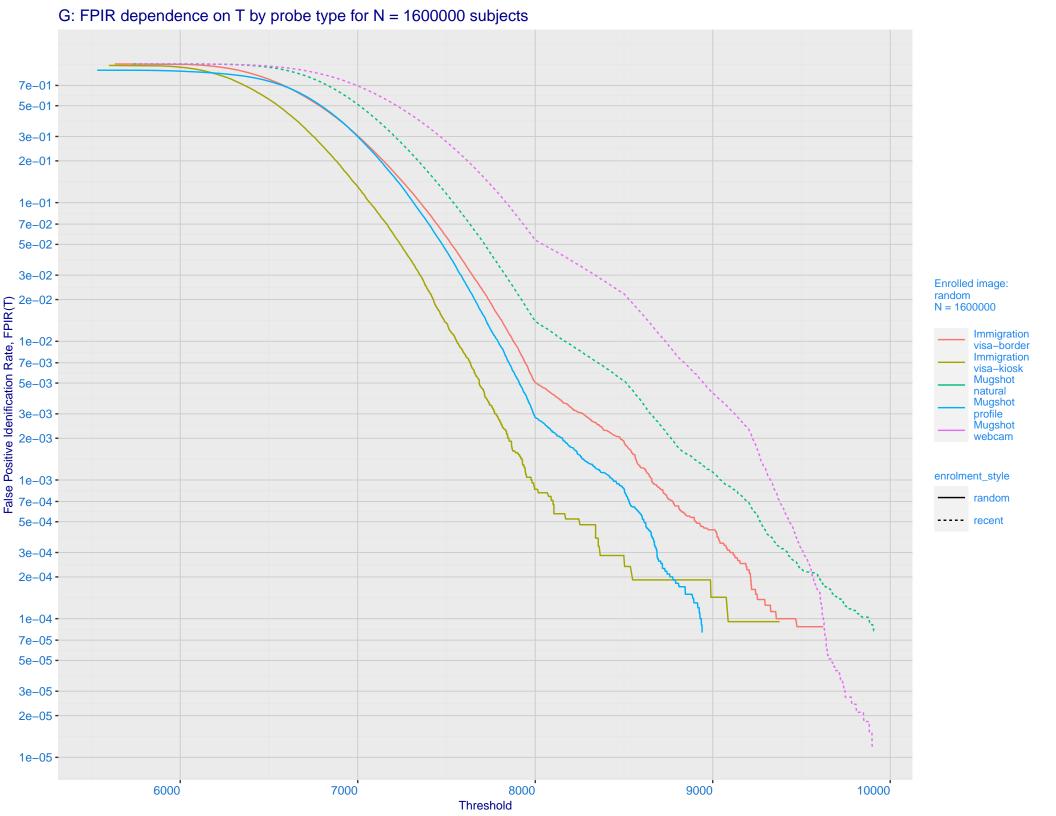
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.500 - 0.500 - 0.200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

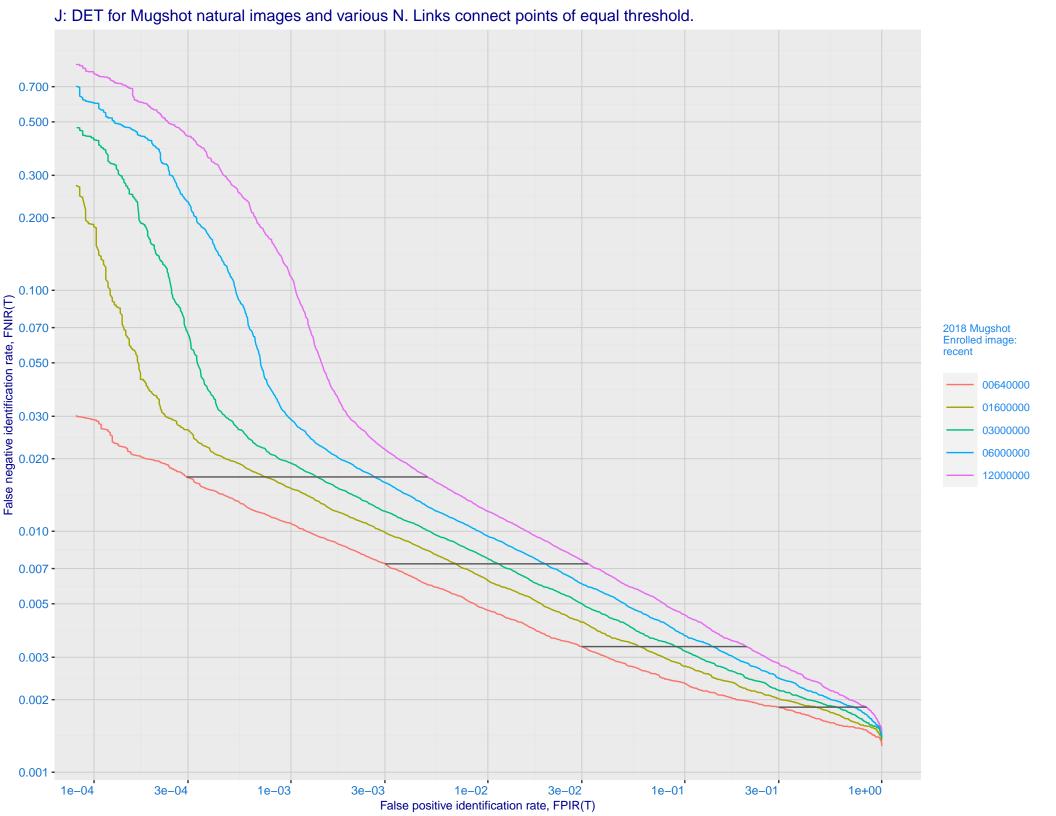
False positive identification rate, FPIR(T)

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

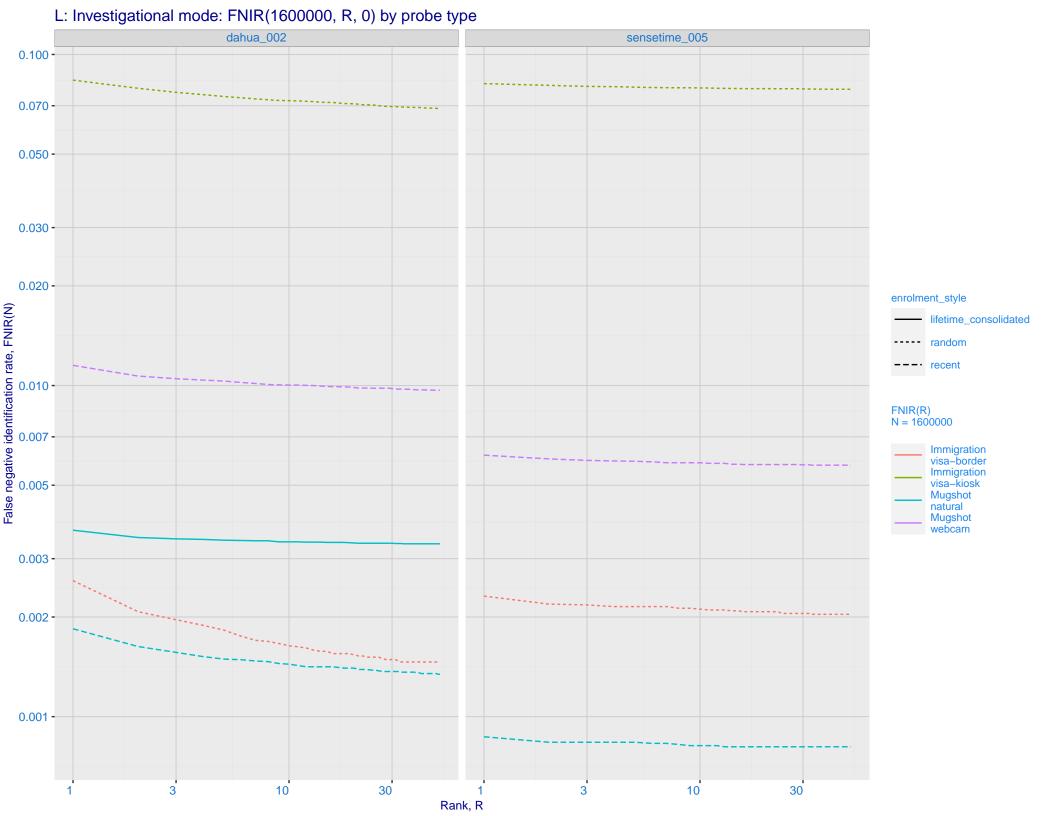


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 · 2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

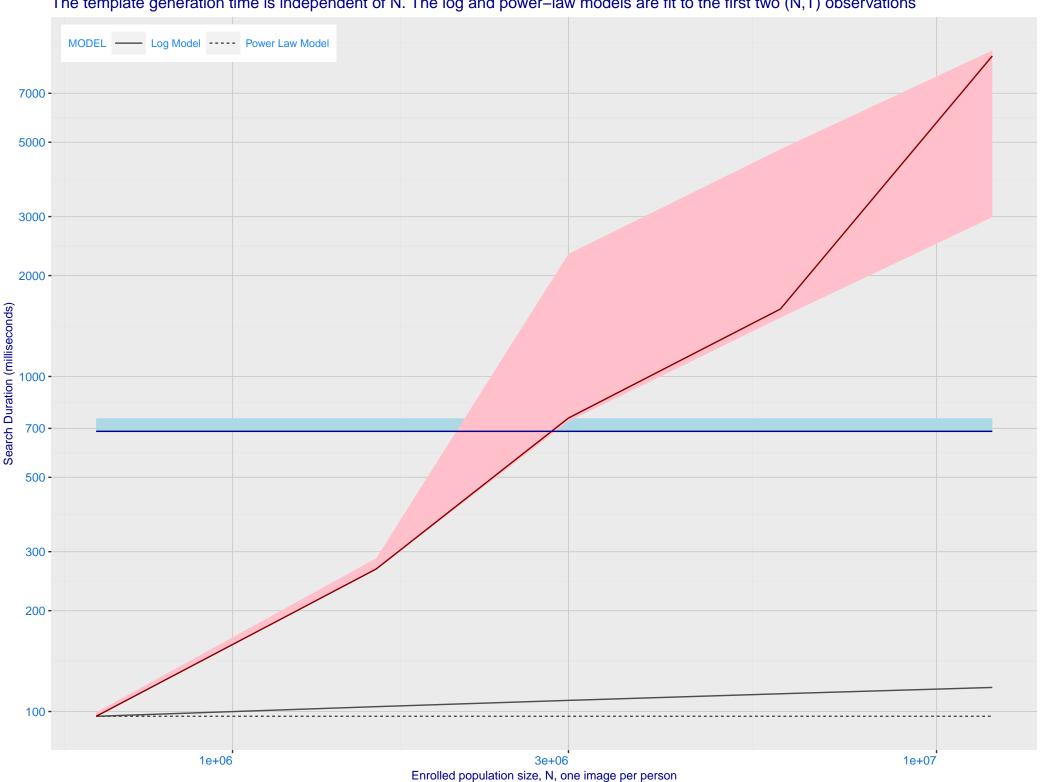




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. FNIR@Rank = 1 dahua_002 sensetime_005 Mugshot webcam Mugshot natural enrolment_style consolidated ---- random --- recent 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

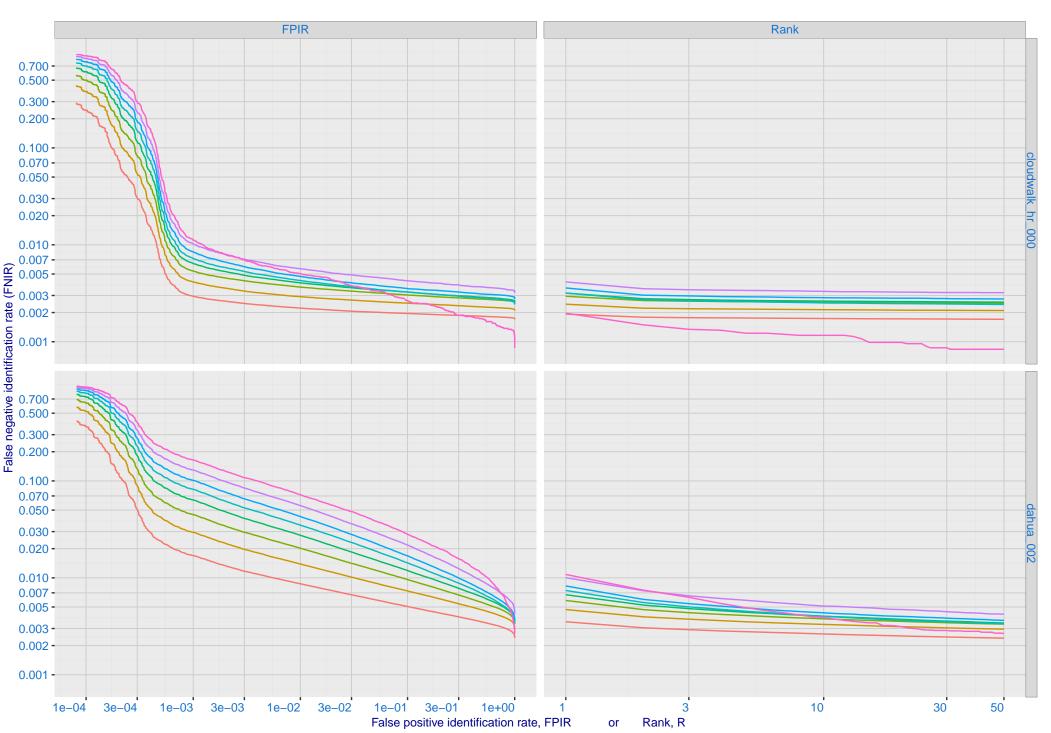


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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

