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 57 (out of 329) -- FNIR(1600000, 0, 1) = 0.0018 vs. lowest 0.0009 from sensetime_006

Mugshot webcam ranking 58 (out of 291) -- FNIR(1600000, 0, 1) = 0.0115 vs. lowest 0.0057 from sensetime_006

Mugshot profile ranking 63 (out of 260) — FNIR(1600000, 0, 1) = 0.3041 vs. lowest 0.0550 from sensetime_006

Immigration visa-border ranking 36 (out of 218) -- FNIR(1600000, 0, 1) = 0.0026 vs. lowest 0.0009 from sensetime_006

Immigration visa-kiosk ranking 40 (out of 215) -- FNIR(1600000, 0, 1) = 0.0837 vs. lowest 0.0487 from cubox_000

Identification:

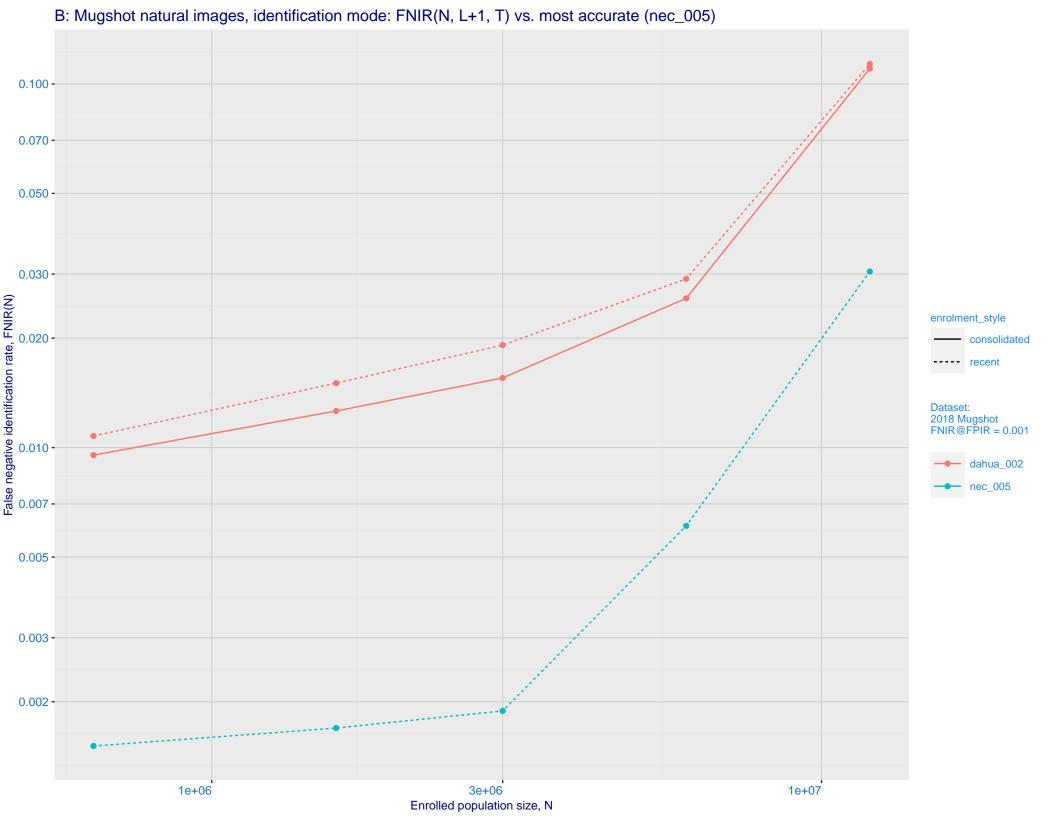
Frontal mugshot ranking 57 (out of 329) -- FNIR(1600000, T, L+1) = 0.0150, FPIR=0.001000 vs. lowest 0.0017 from nec_005

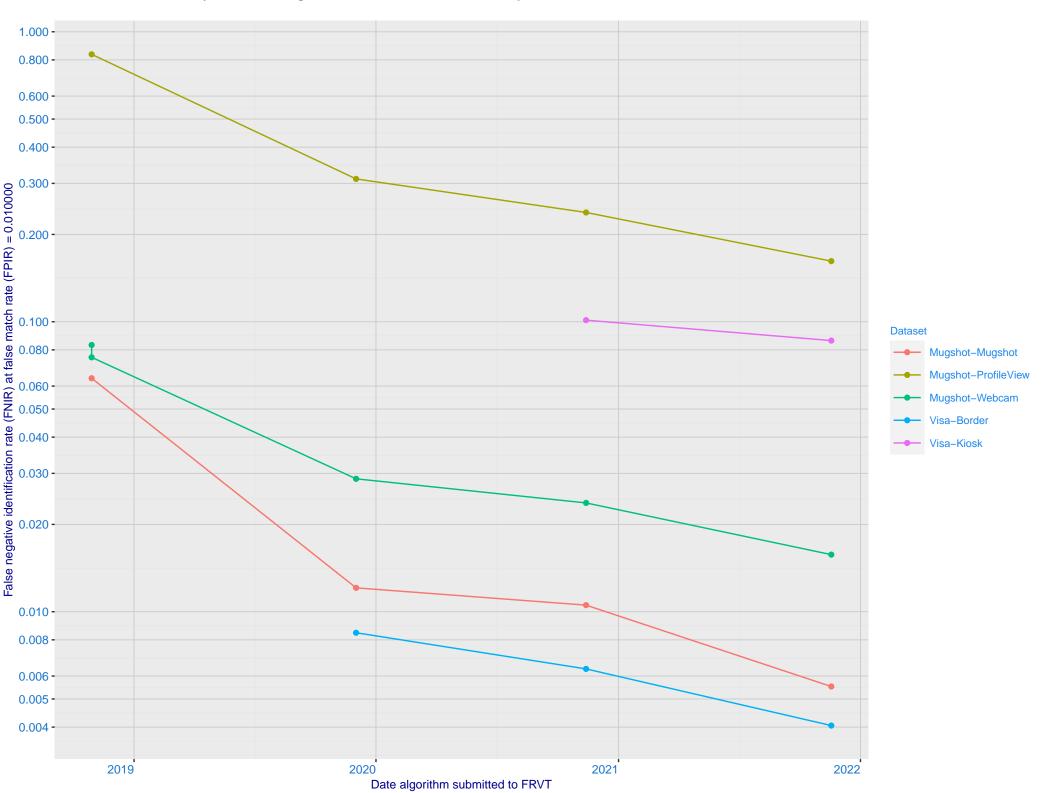
Mugshot webcam ranking 47 (out of 289) -- FNIR(1600000, T, L+1) = 0.0461, FPIR=0.001000 vs. lowest 0.0120 from nec_005

Mugshot profile ranking 29 (out of 259) — FNIR(1600000, T, L+1) = 0.6382, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 39 (out of 217) -- FNIR(1600000, T, L+1) = 0.0170, FPIR=0.001000 vs. lowest 0.0032 from paravision_009

Immigration visa-kiosk ranking 32 (out of 212) -- FNIR(1600000, T, L+1) = 0.1596, FPIR=0.001000 vs. lowest 0.0728 from paravision_009

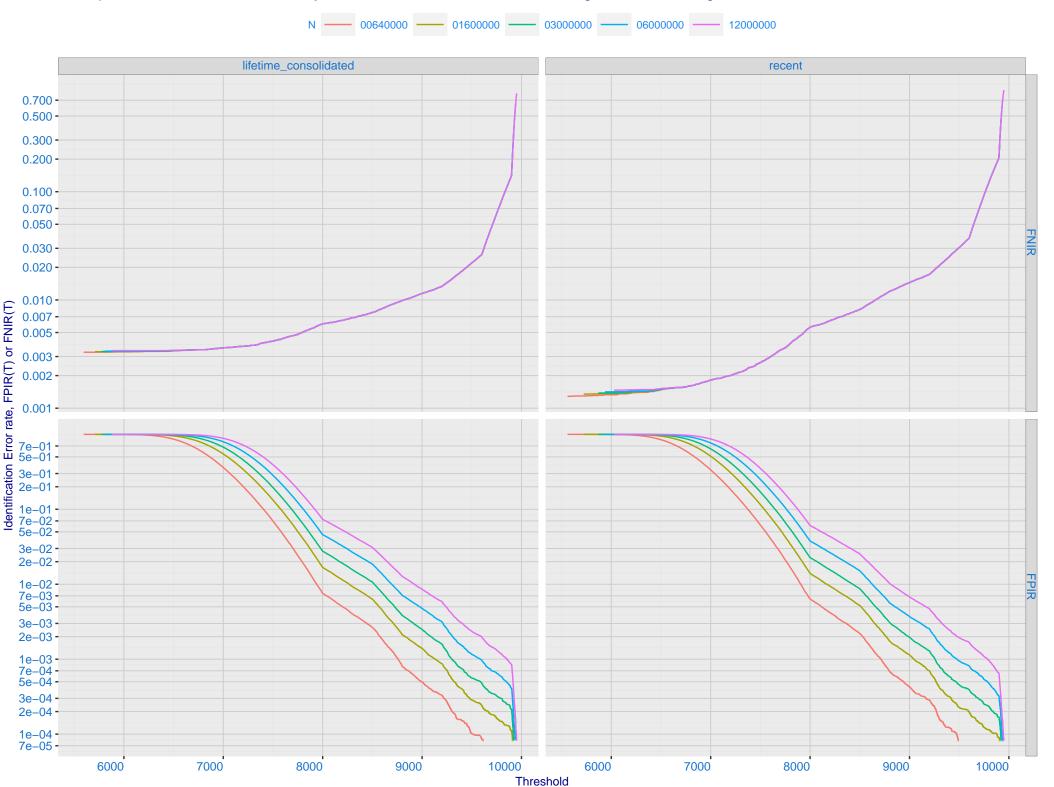




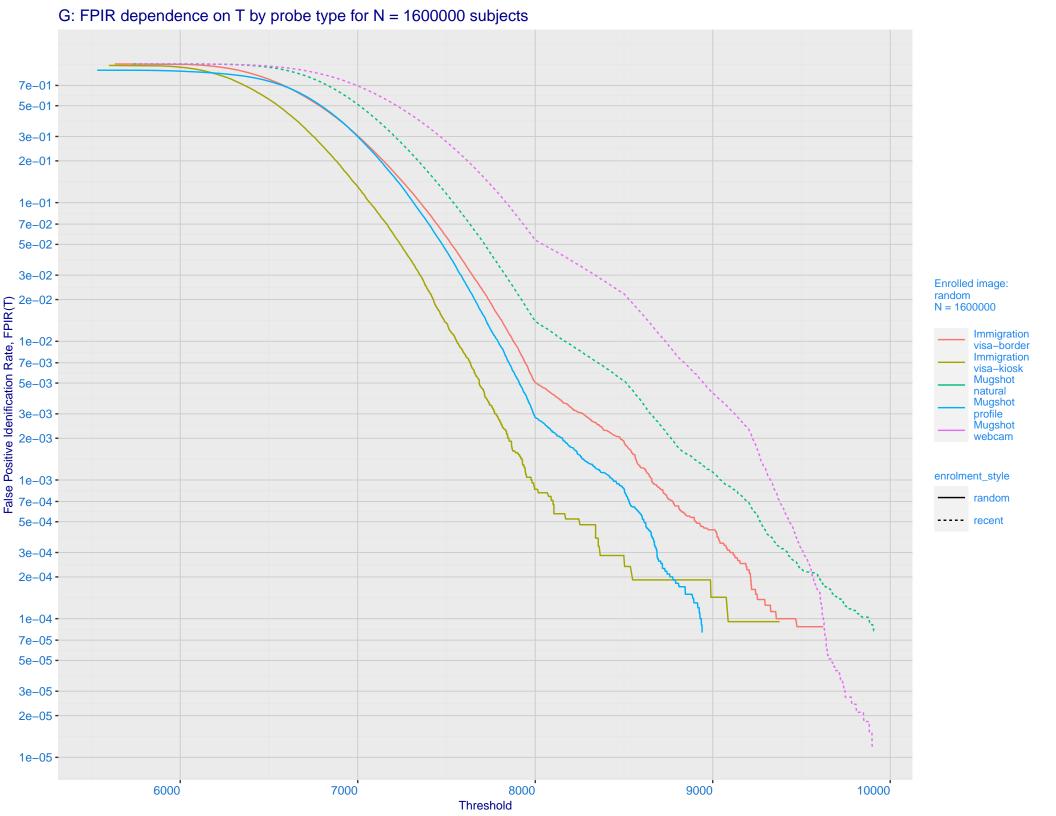
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration **Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 dahua 002 0.030 -0.020 -0.010 -0.007 - 0.005 - 0.003 - 0.002 - 0.001 - 0.700 - 0.500 - 0.200 - 0.100 enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -1e-03e-04e-03e-03e-03e-02e-03e-01e+001e-03e-04e-03e-03e-02e-03e-01e+001e-03e-01e+001e-03e-04e-03e-03e-02e-01e+00

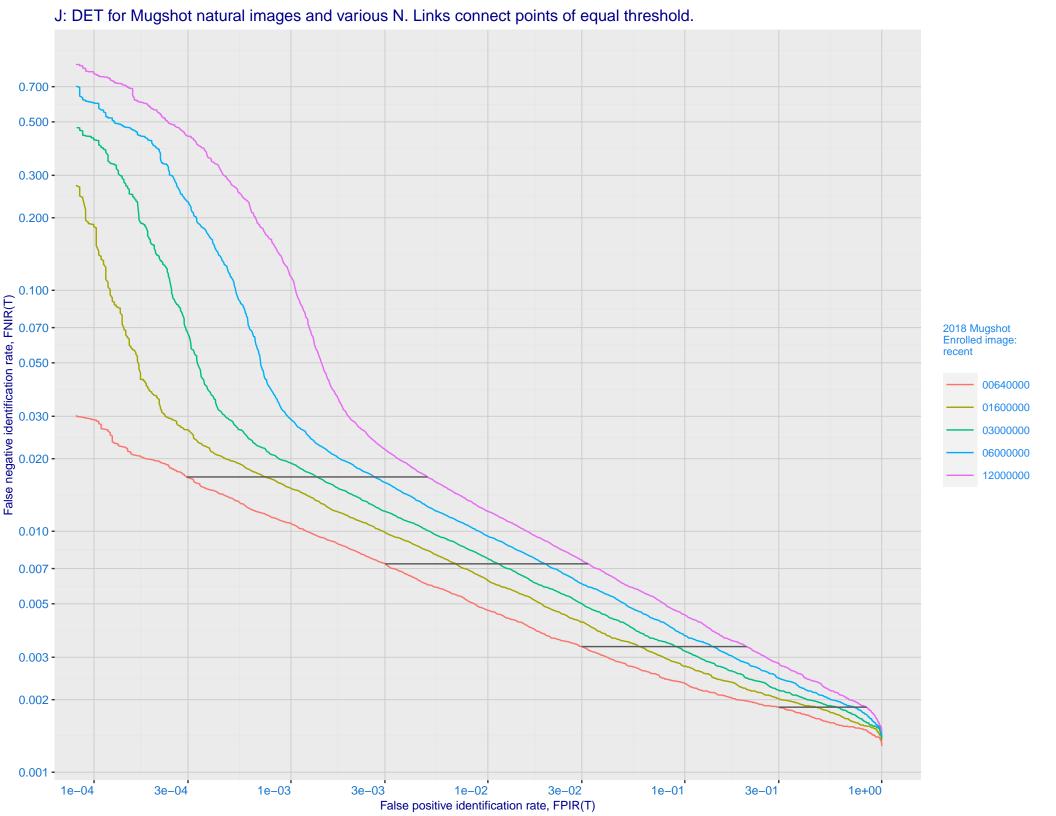
False positive identification rate, FPIR(T)

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

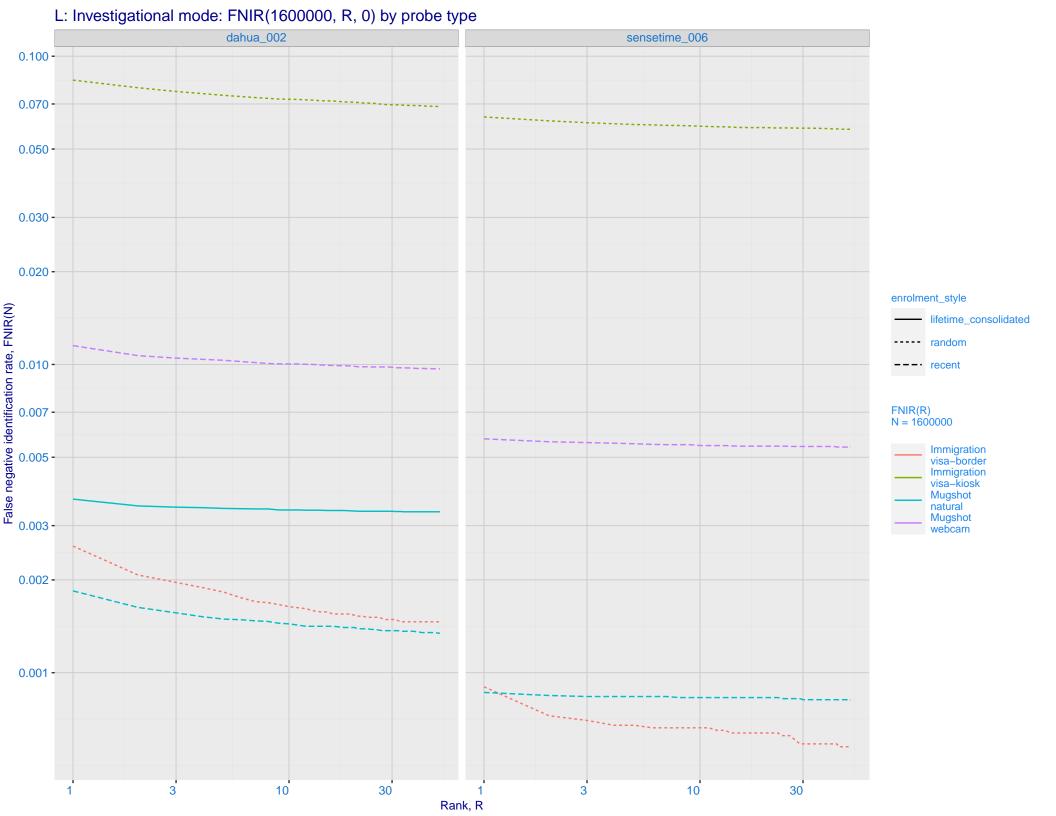


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 · 2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

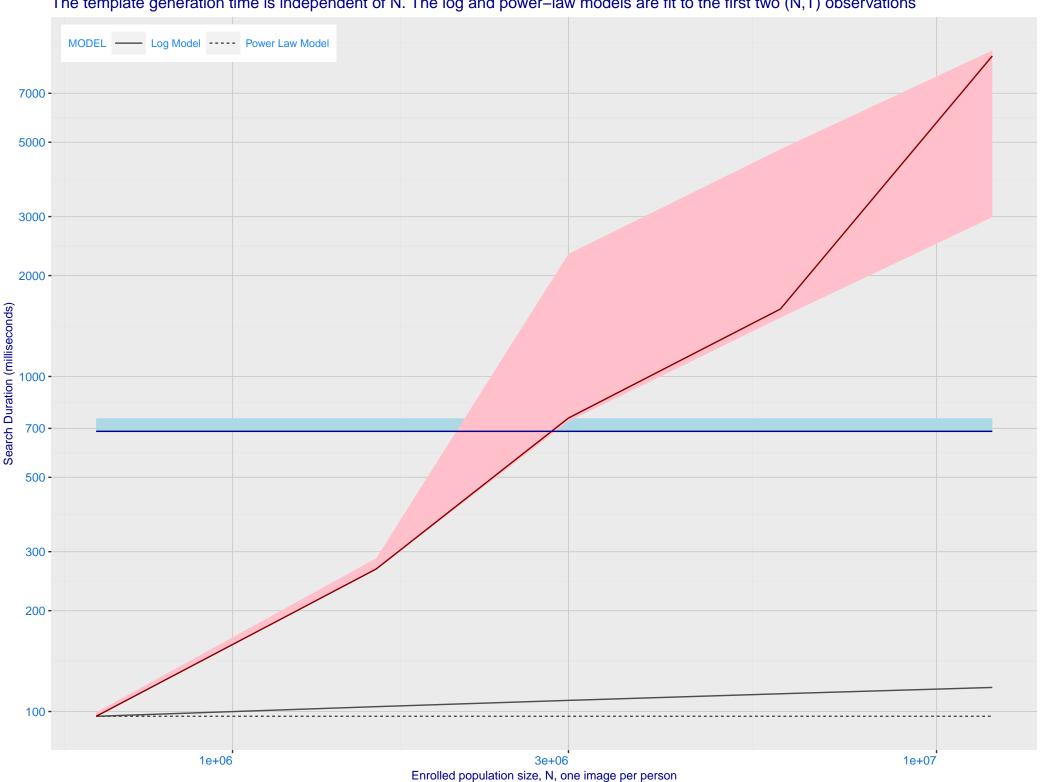




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_006) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 dahua_002 sensetime_006 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

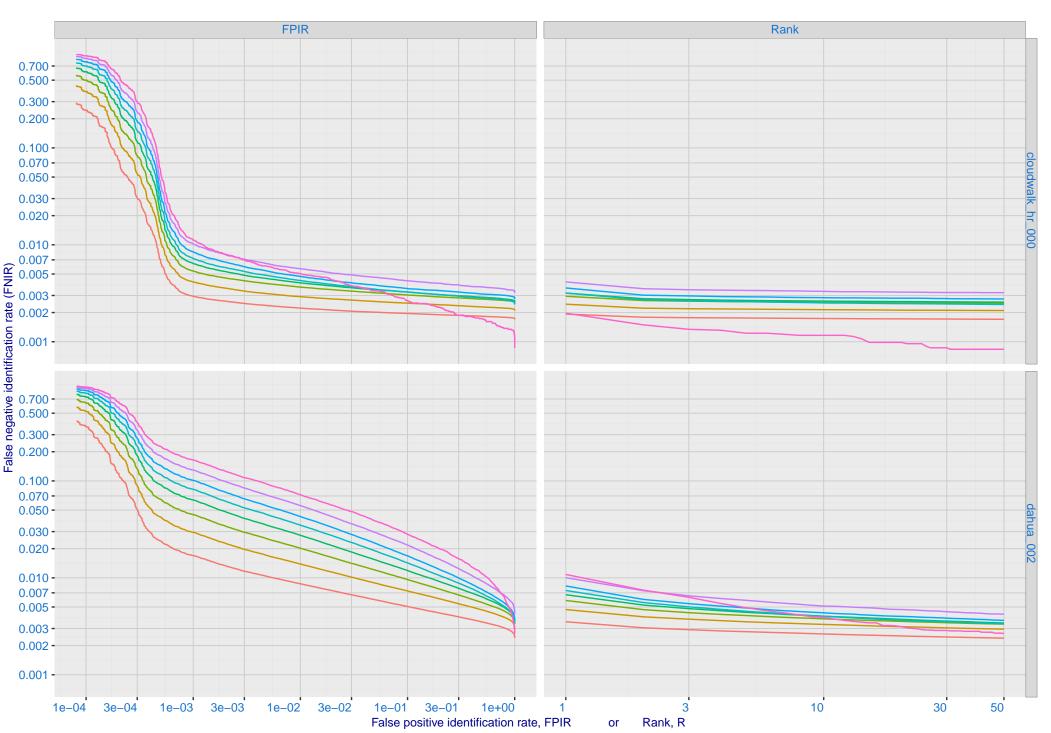


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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

