## A: Datasheet

Algorithm: gorilla\_005

Developer: Gorilla Technology

Submission Date: 2021\_02\_22

Template size: 6288 bytes

Template time (2.5 percentile): 481 msec

Template time (median): 483 msec

Template time (97.5 percentile): 489 msec

Investigation:

Frontal mugshot ranking 103 (out of 329) -- FNIR(1600000, 0, 1) = 0.0032 vs. lowest 0.0009 from sensetime\_006

Mugshot webcam ranking 114 (out of 291) -- FNIR(1600000, 0, 1) = 0.0180 vs. lowest 0.0057 from sensetime\_006

Mugshot profile ranking 45 (out of 260) -- FNIR(1600000, 0, 1) = 0.2086 vs. lowest 0.0550 from sensetime\_006

Immigration visa-border ranking 84 (out of 218) -- FNIR(1600000, 0, 1) = 0.0060 vs. lowest 0.0009 from sensetime\_006

Immigration visa-kiosk ranking 93 (out of 215) -- FNIR(1600000, 0, 1) = 0.1243 vs. lowest 0.0487 from cubox\_000

Identification:

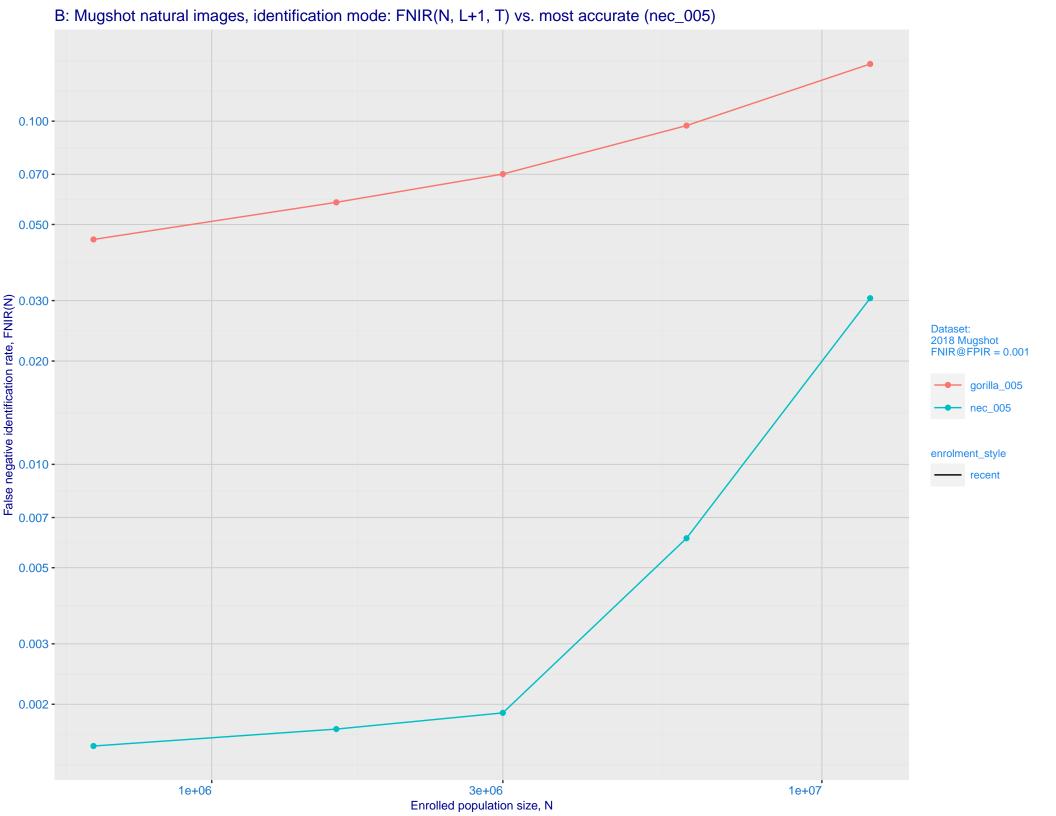
Frontal mugshot ranking 154 (out of 329) -- FNIR(1600000, T, L+1) = 0.0580, FPIR=0.001000 vs. lowest 0.0017 from nec\_005

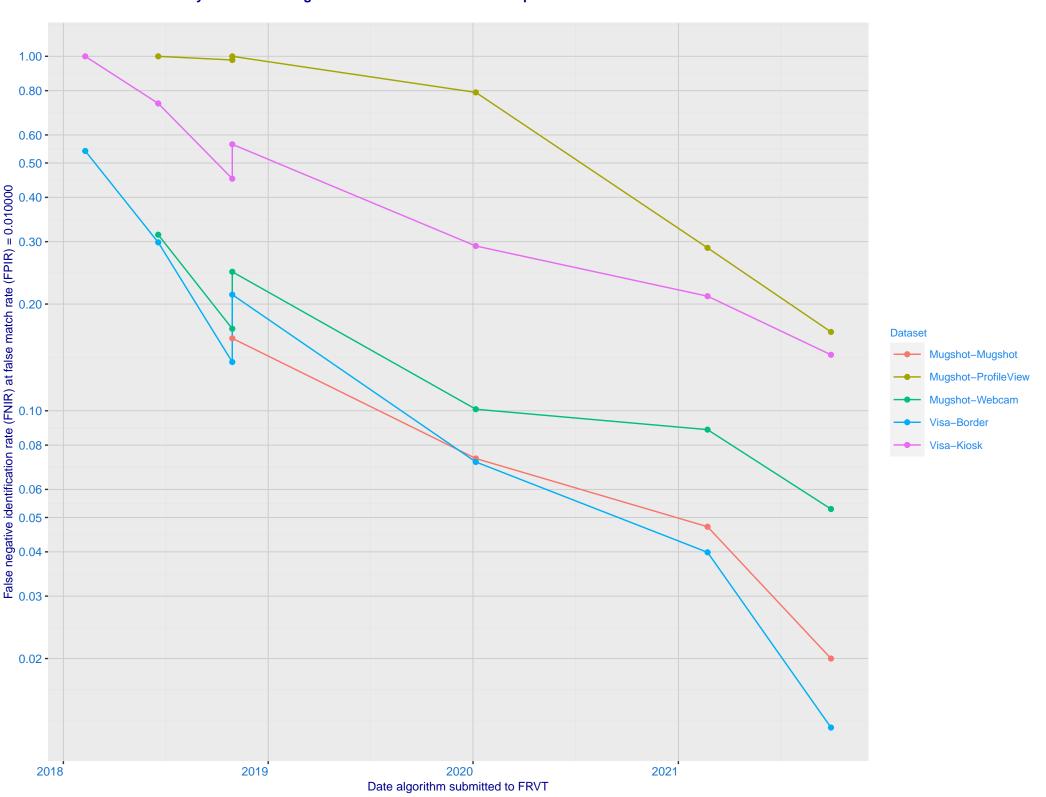
Mugshot webcam ranking 155 (out of 289) -- FNIR(1600000, T, L+1) = 0.1423, FPIR=0.001000 vs. lowest 0.0120 from nec\_005

Mugshot profile ranking 33 (out of 259) -- FNIR(1600000, T, L+1) = 0.7005, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

Immigration visa-border ranking 121 (out of 217) -- FNIR(1600000, T, L+1) = 0.0878, FPIR=0.001000 vs. lowest 0.0032 from paravision\_009

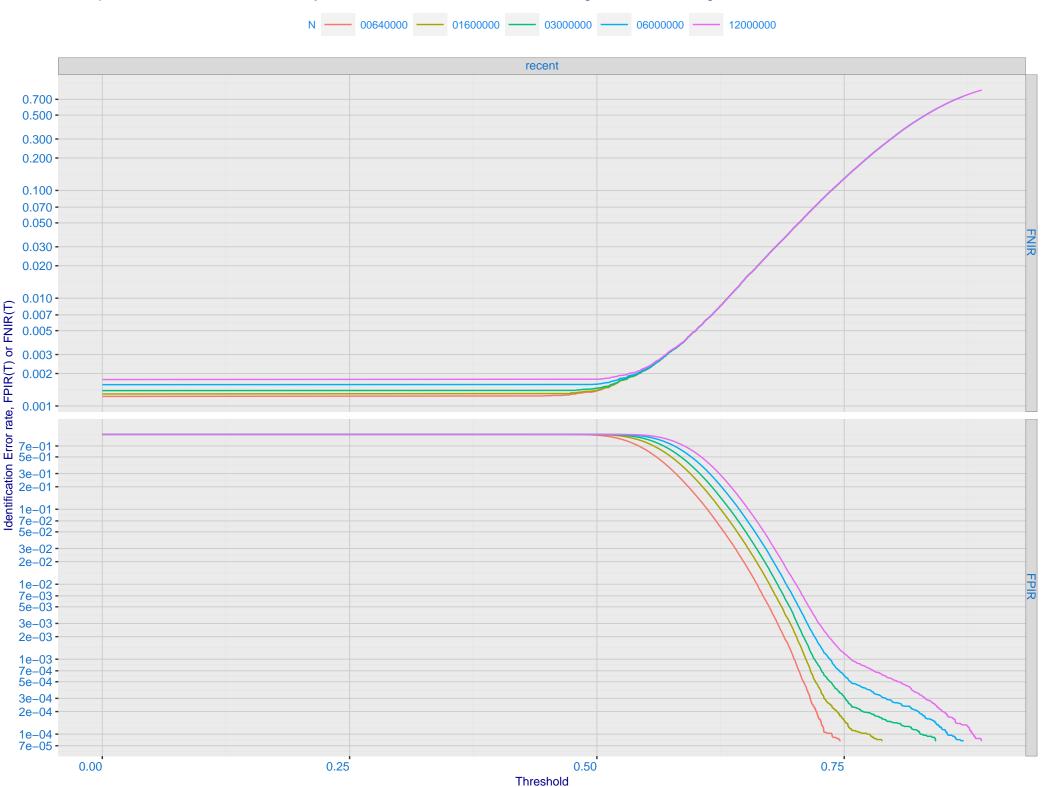
Immigration visa-kiosk ranking 79 (out of 212) -- FNIR(1600000, T, L+1) = 0.3173, FPIR=0.001000 vs. lowest 0.0728 from paravision\_009



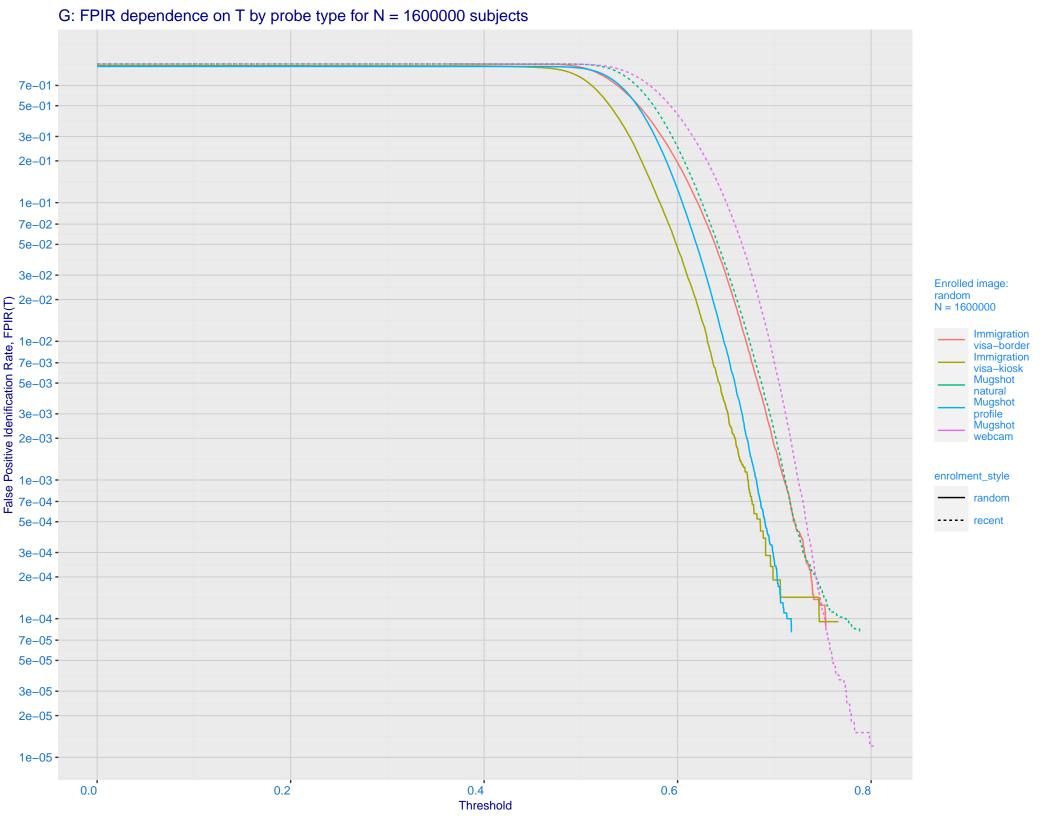


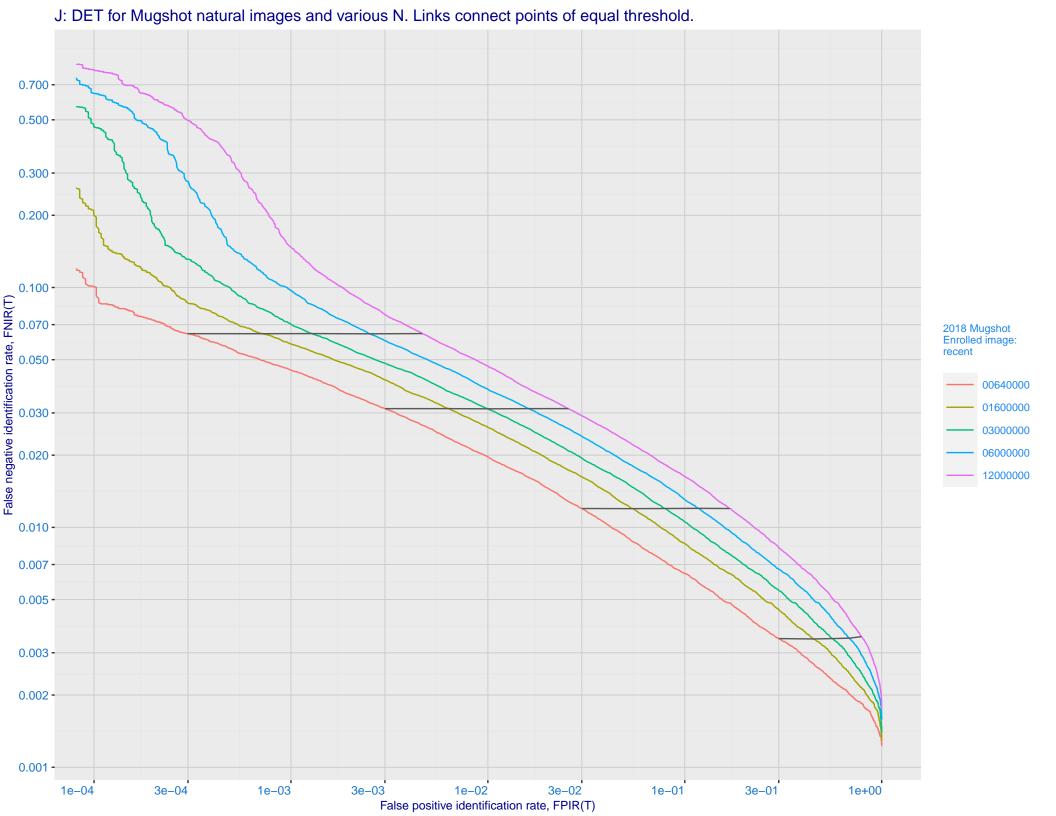
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 gorilla 005 0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style random-ONE-MATE recent-ONE-MATE 0.100 -0.070 -0.050 -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

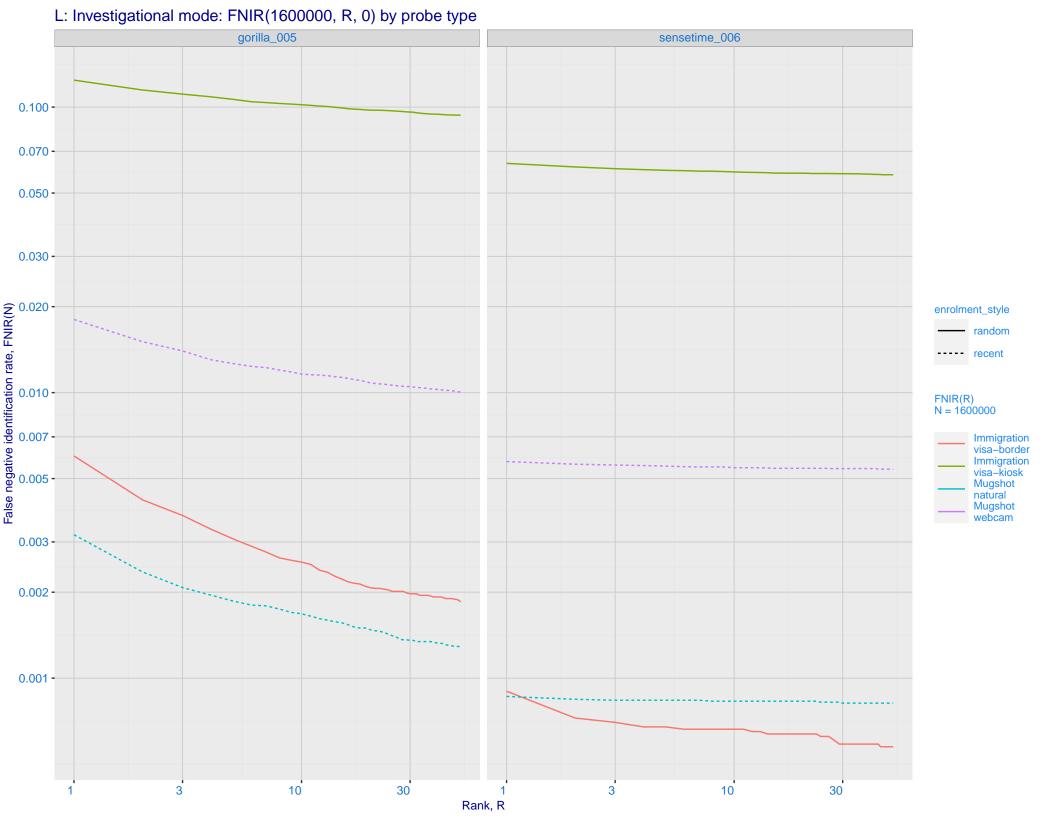


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

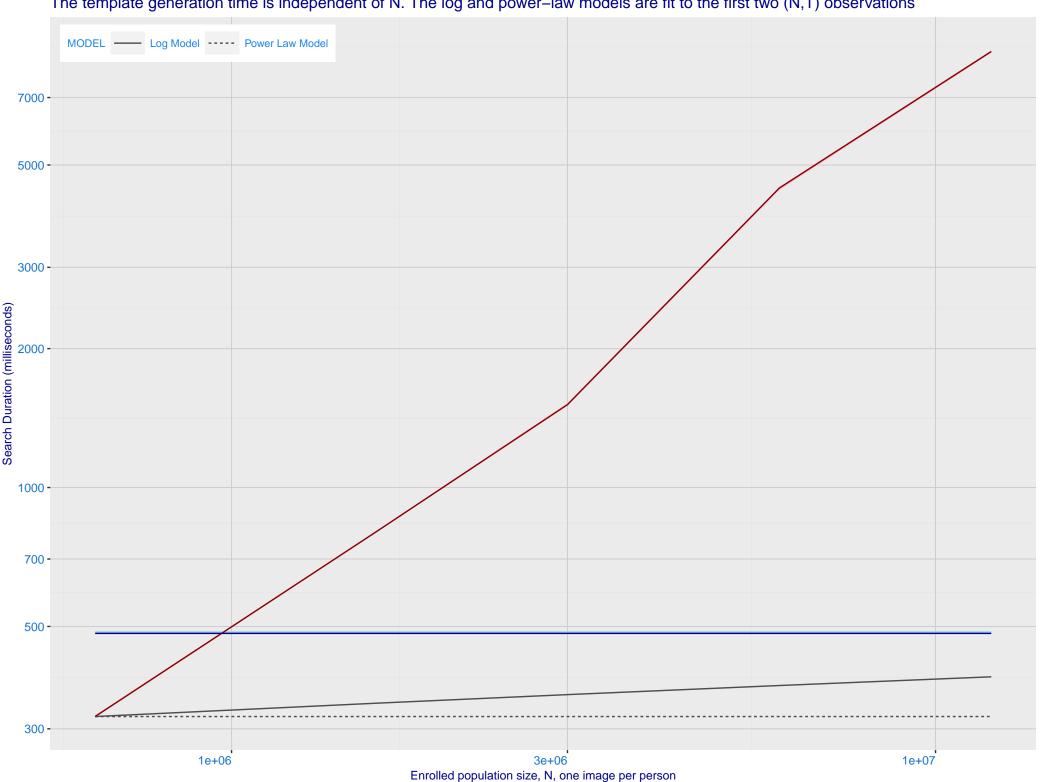




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_006) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.000 - 0.050 enrolment\_style - random ---- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 gorilla\_005 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

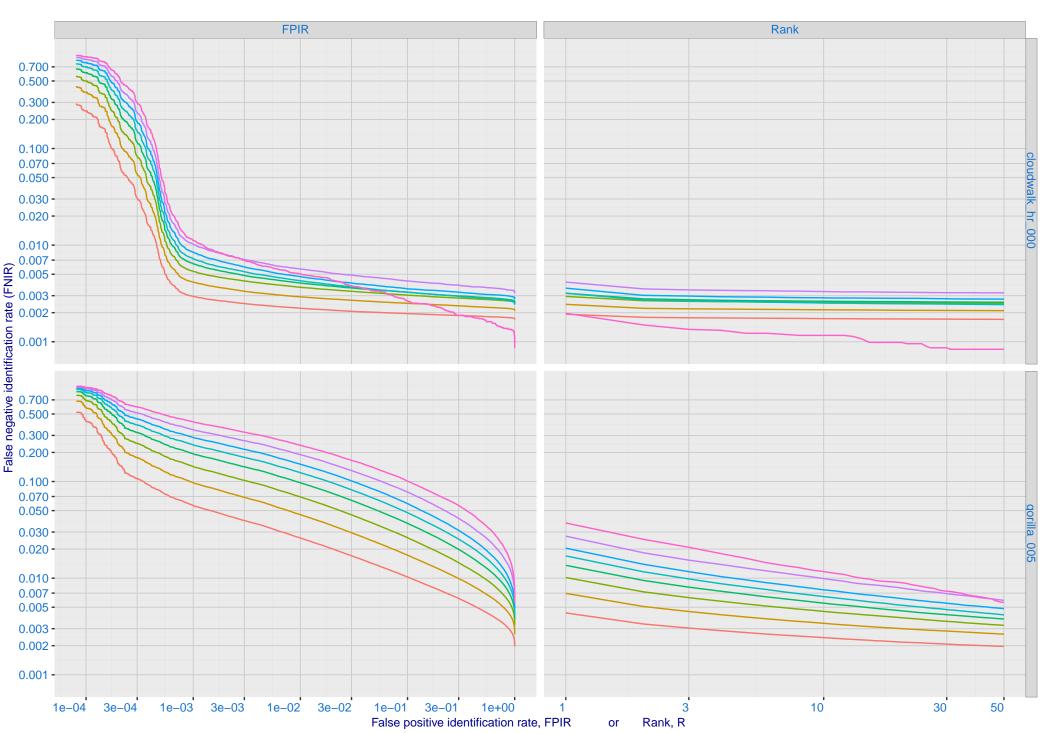


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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 1.0 -Dataset: 2018 Mugshot N= 3.1M Color encodes FNIR (Rank = 1) 0.8 -0.15 0.10 0.05 0.00 TVAL - FPIR = 0.001 0.6 -FPIR = 0.003 FPIR = 0.010FPIR = 0.030 0.4 -(04,06](00,02](02,04](06,08](08,10](10,12](12,14](14,18]Time lapse between search and initial encounter enrollment (years)