A: Datasheet

Algorithm: cogent_0

Developer: Thales

Submission Date: 2018_06_20

Template size: 525 bytes

Template time (2.5 percentile): 541 msec

Template time (median): 550 msec

Template time (97.5 percentile): 579 msec

Investigation:

Frontal mugshot ranking 142 (out of 279) -- FNIR(1600000, 0, 1) = 0.0105 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 154 (out of 241) -- FNIR(1600000, 0, 1) = 0.0461 vs. lowest 0.0062 from sensetime_005

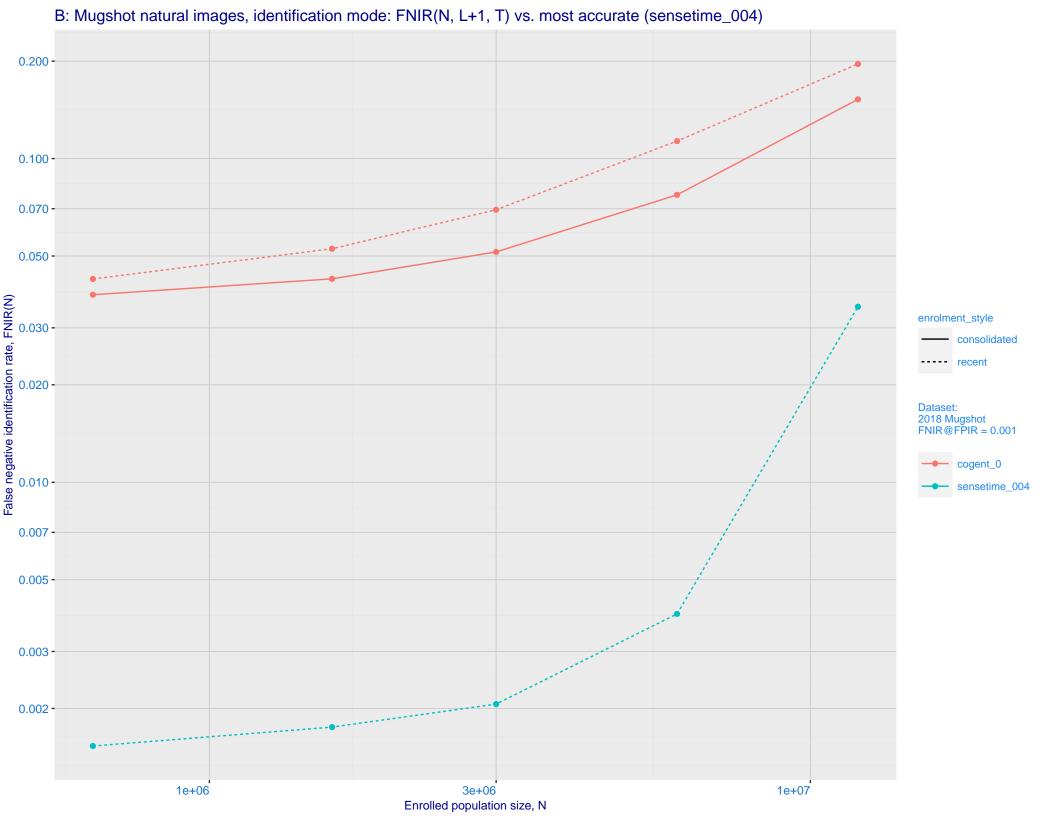
Mugshot profile ranking 174 (out of 210) -- FNIR(1600000, 0, 1) = 0.9653 vs. lowest 0.0587 from xforwardai_002

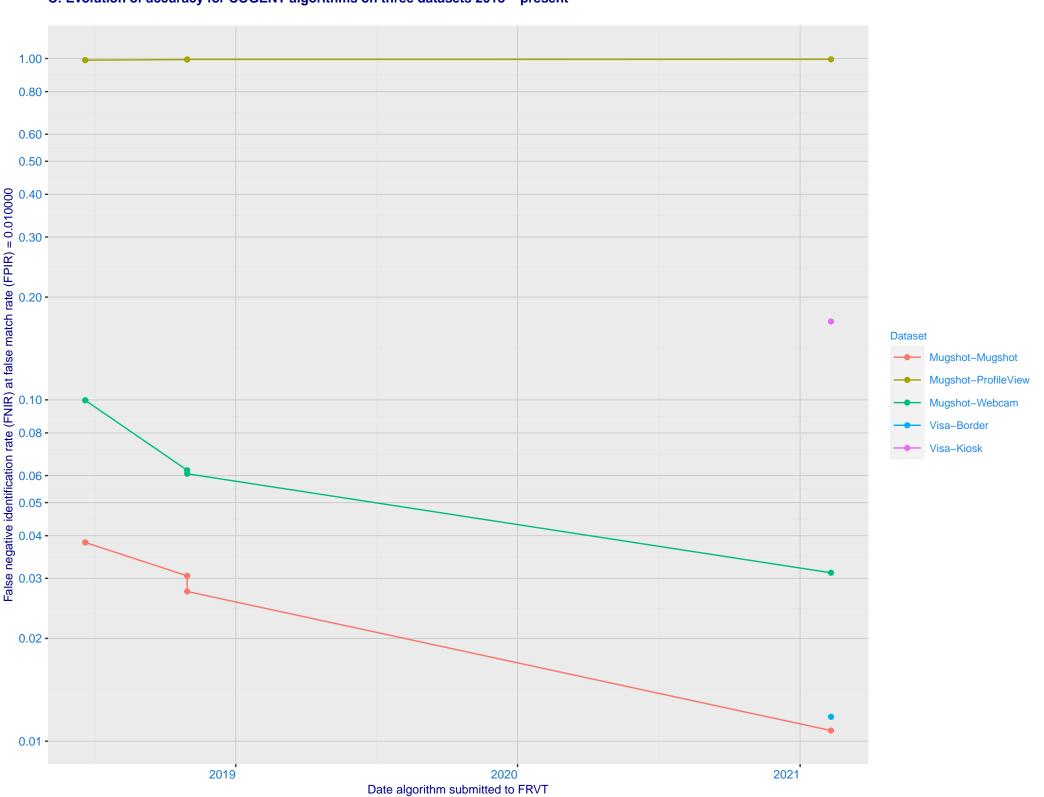
Identification:

Frontal mugshot ranking 98 (out of 279) -- FNIR(1600000, T, L+1) = 0.0527, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 108 (out of 236) -- FNIR(1600000, T, L+1) = 0.1402, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 106 (out of 209) -- FNIR(1600000, T, L+1) = 0.9949, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

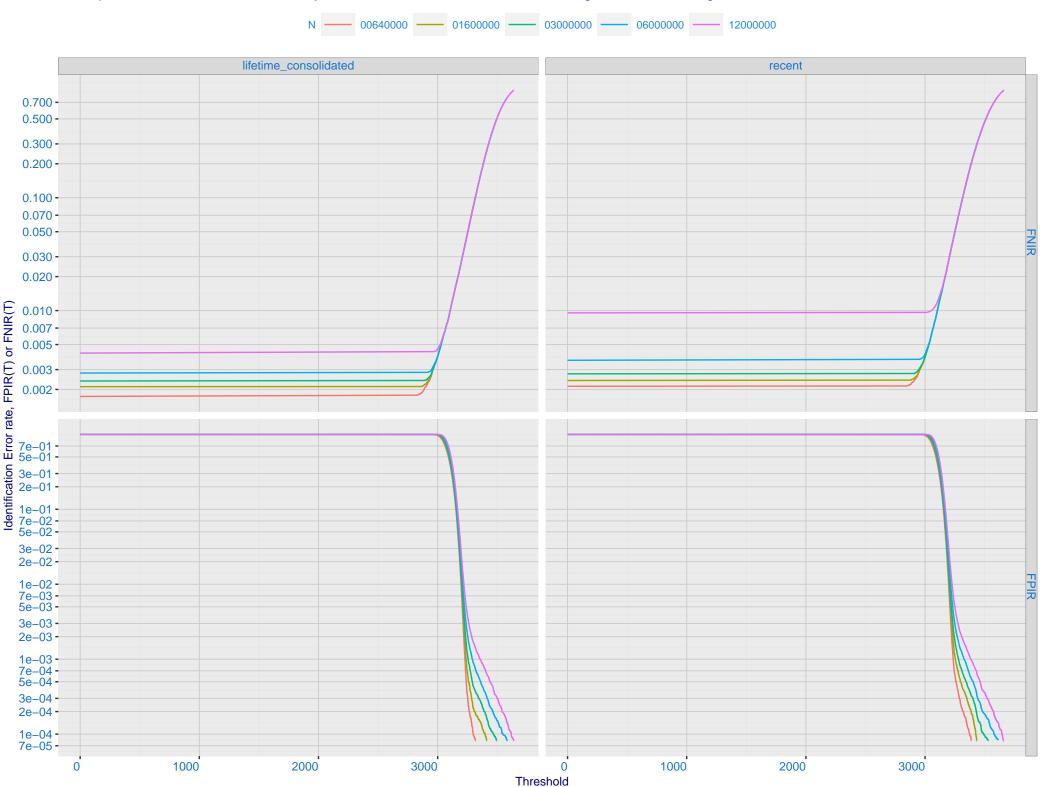




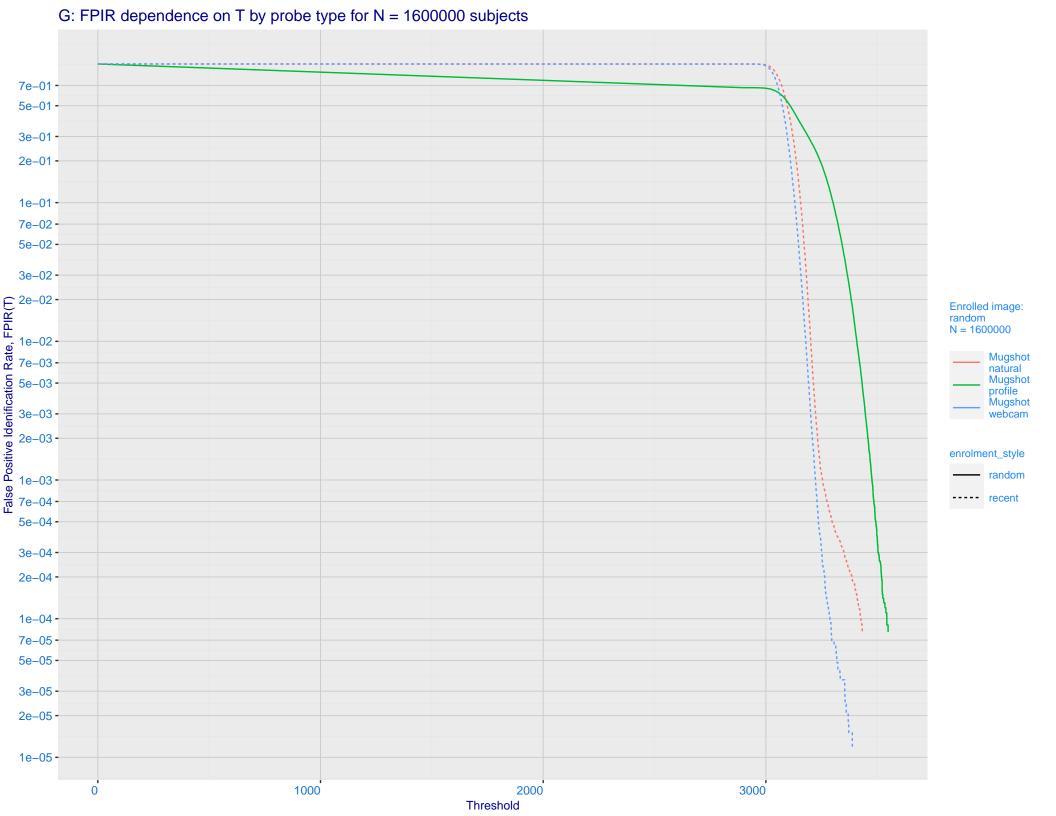
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.500 - 0.500 - 0.200 -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

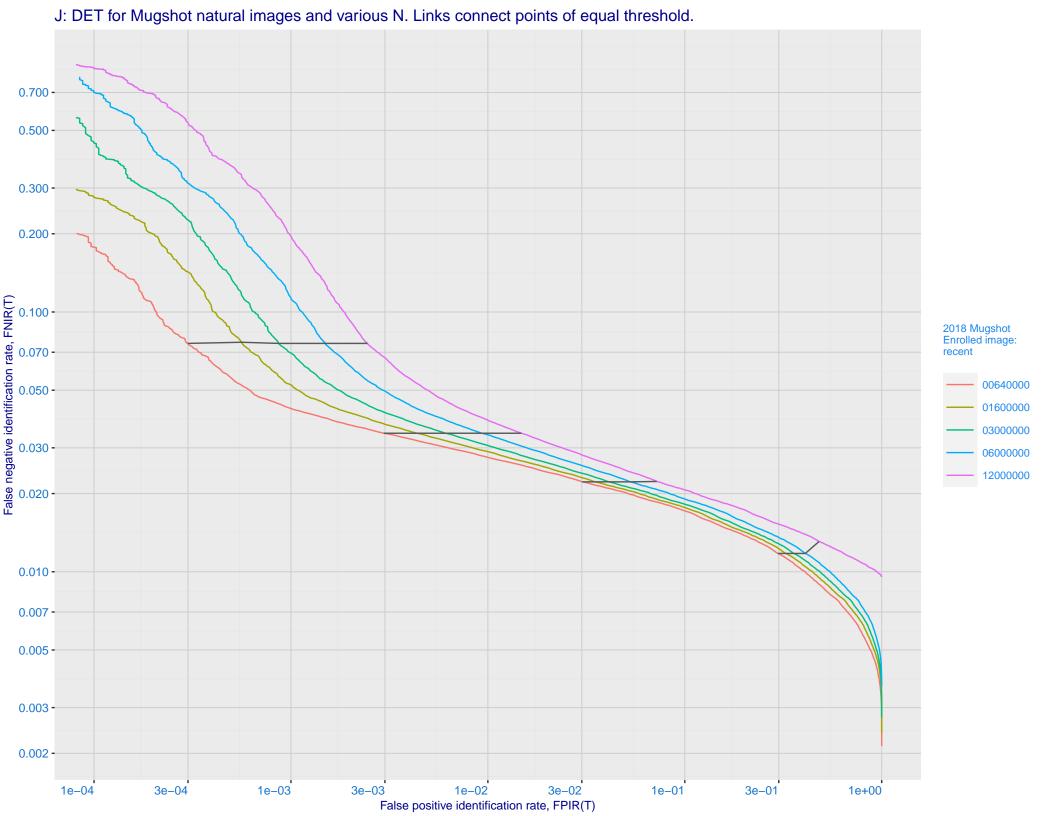
False positive identification rate, FPIR(T)

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

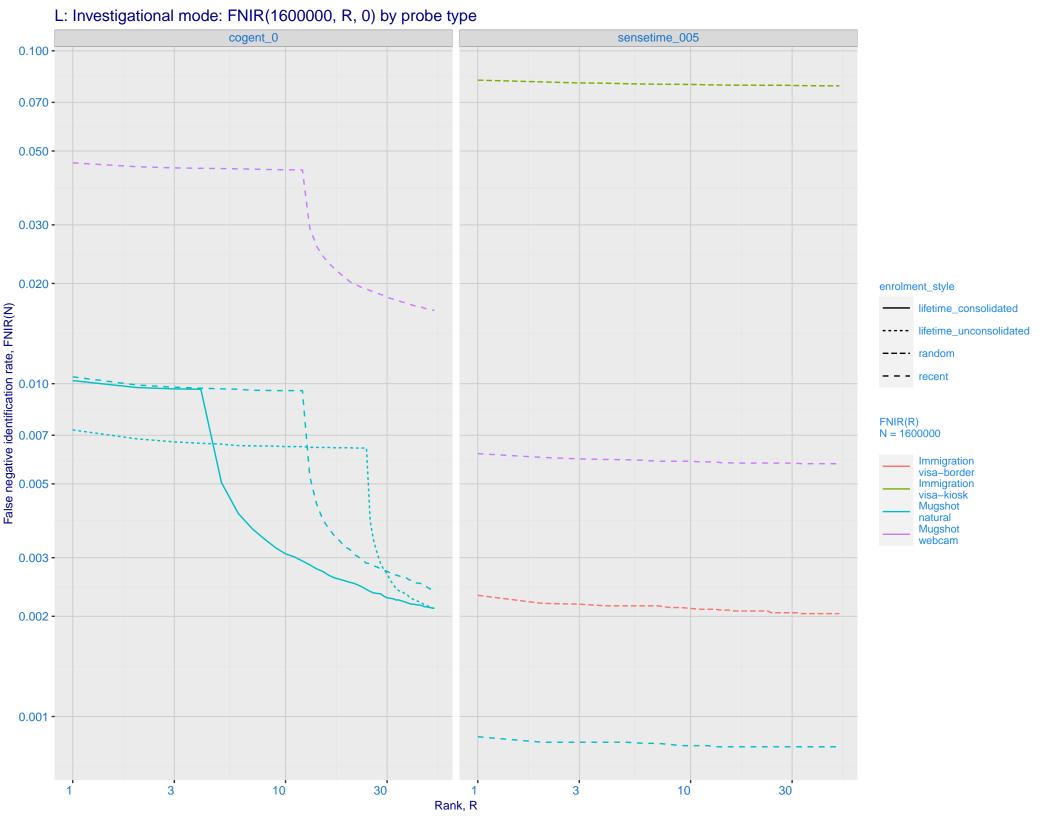


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

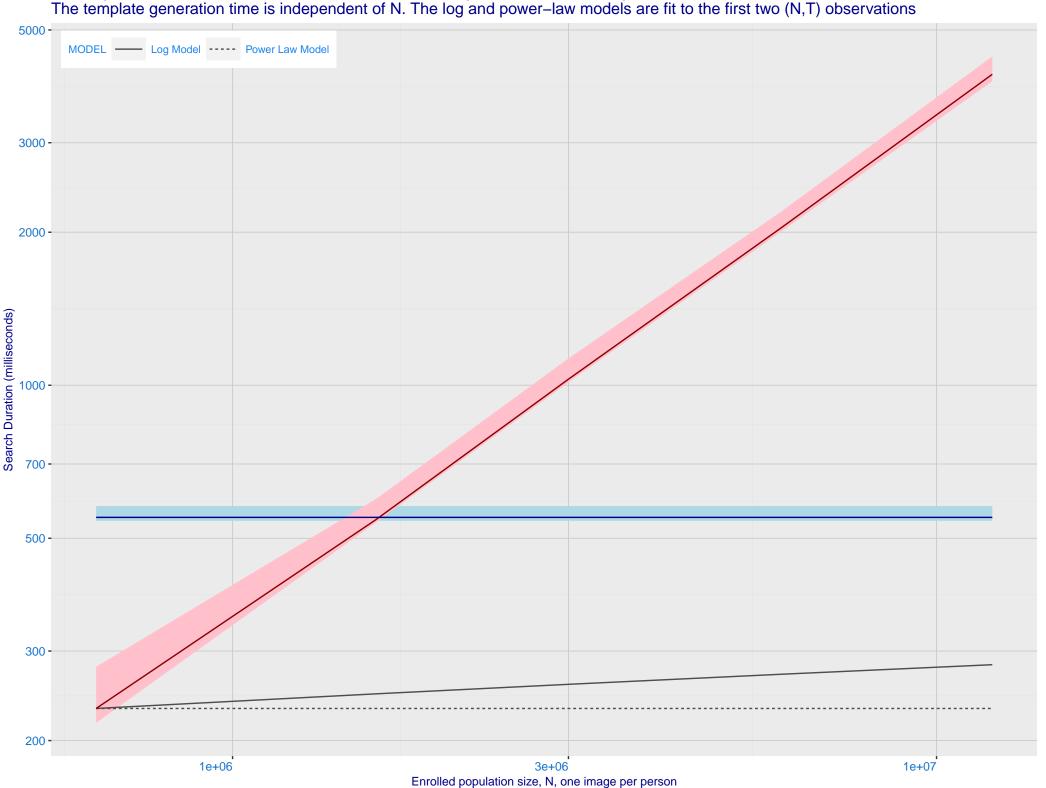




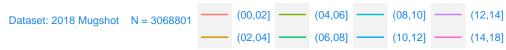
K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. FNIR@Rank = 1 -- cogent_0 sensetime_005 Mugshot webcam Mugshot enrolment_style natural consolidated ---- random -- recent - - unconsolidated 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

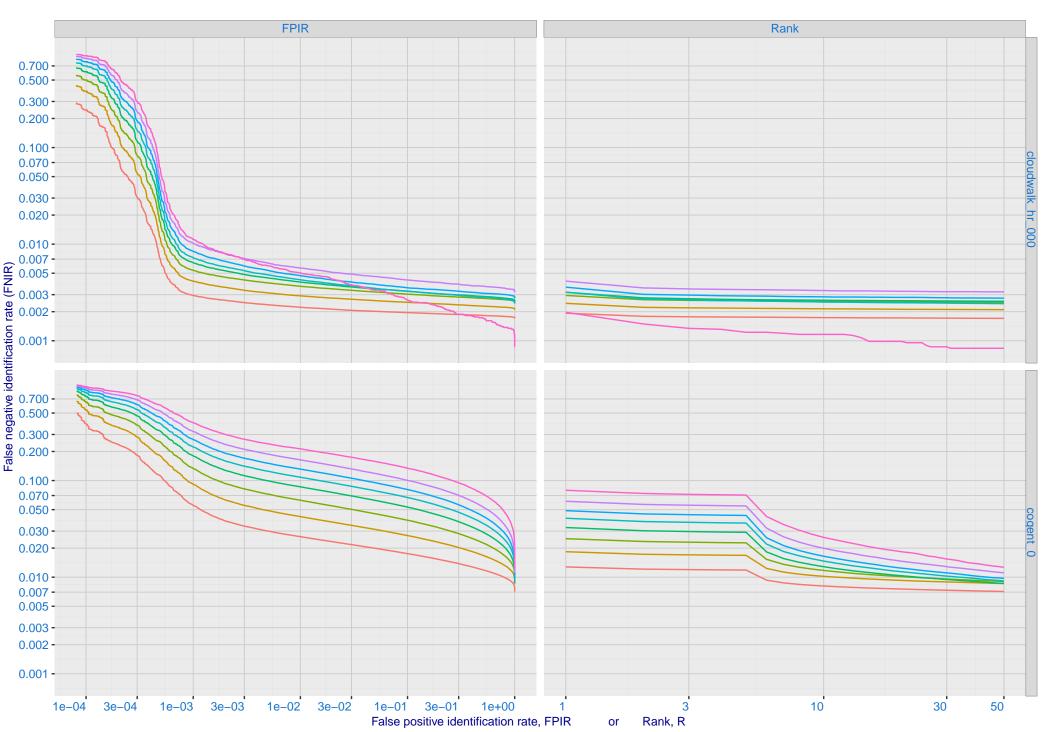


M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations



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 3900 -Dataset: 2018 Mugshot N= 3.1M Color encodes FNIR (Rank = 1) 3600 0.15 0.10 0.05 3300 0.00 TVAL - FPIR = 0.001 - FPIR = 0.003 FPIR = 0.010FPIR = 0.030 3000 -(00,02](02,04](04,06](06,08](08,10](10,12](12,14](14,18]

Time lapse between search and initial encounter enrollment (years)