A: Datasheet

Algorithm: visionlabs_4

Developer: VisionLabs

Submission Date: 2018_06_22

Template size: 256 bytes

Template time (2.5 percentile): 281 msec

Template time (median): 313 msec

Template time (97.5 percentile): 354 msec

Investigation:

Frontal mugshot ranking 57 (out of 279) -- FNIR(1600000, 0, 1) = 0.0027 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 82 (out of 241) -- FNIR(1600000, 0, 1) = 0.0198 vs. lowest 0.0062 from sensetime_005

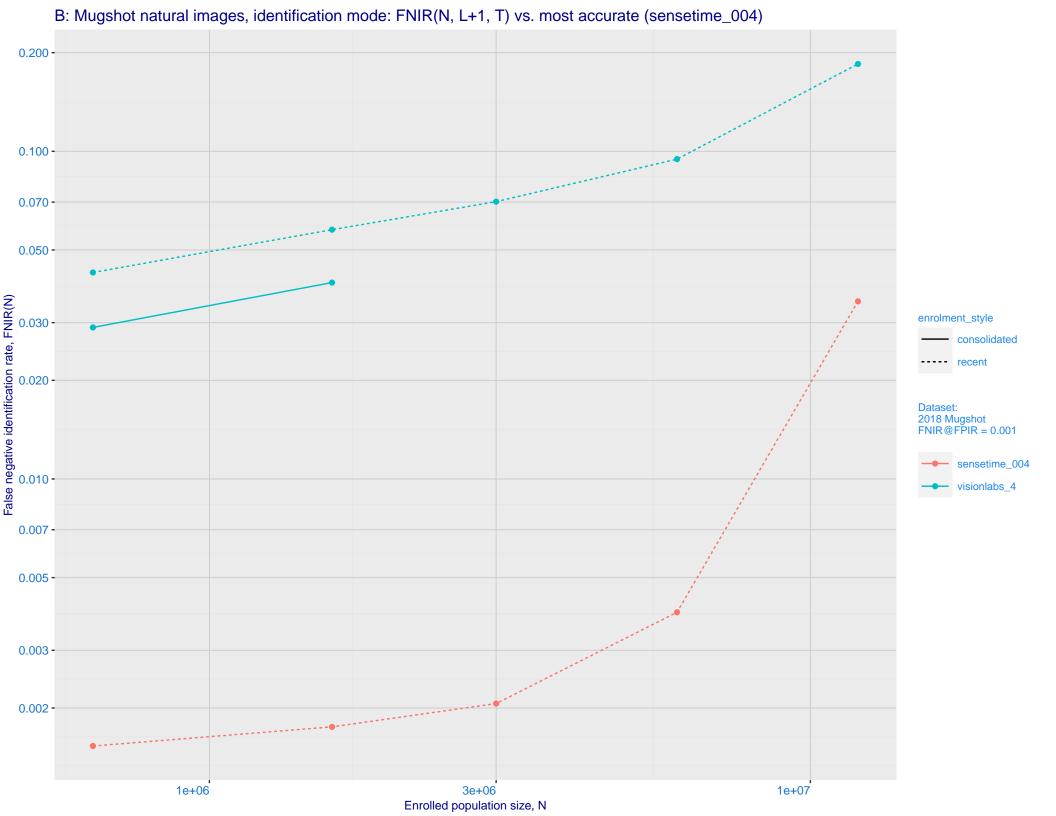
Mugshot profile ranking 41 (out of 210) -- FNIR(1600000, 0, 1) = 0.3426 vs. lowest 0.0587 from xforwardai_002

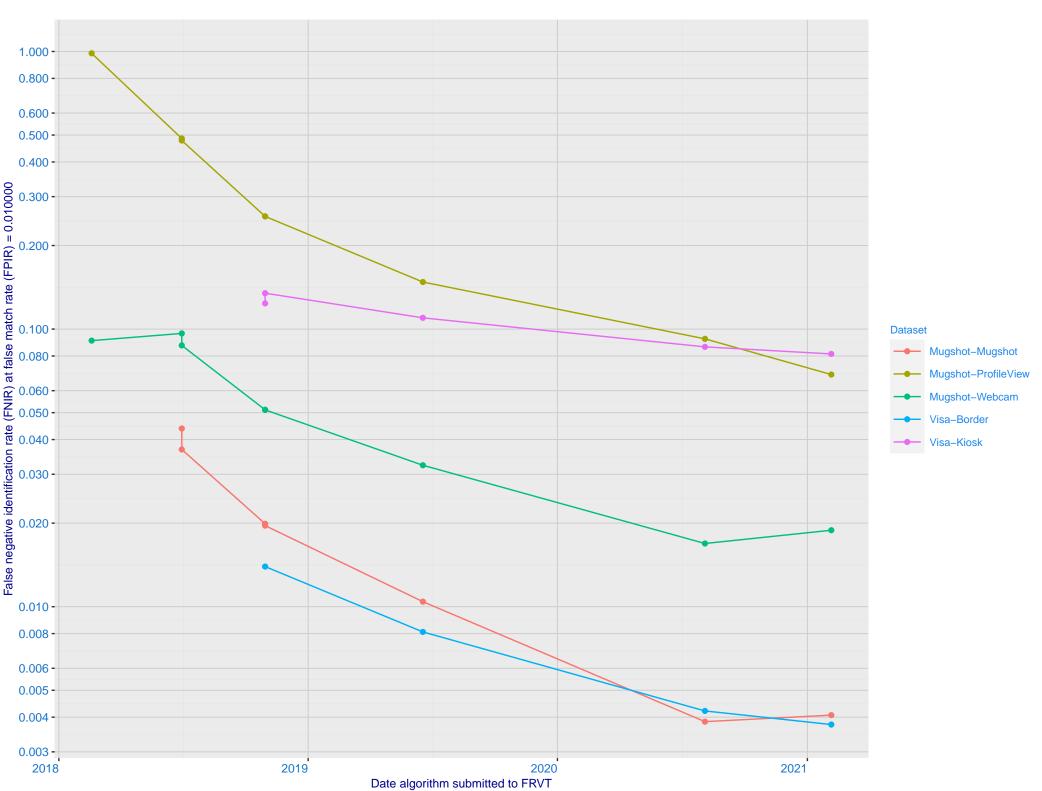
Identification:

Frontal mugshot ranking 109 (out of 279) -- FNIR(1600000, T, L+1) = 0.0577, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 123 (out of 236) -- FNIR(1600000, T, L+1) = 0.1589, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 33 (out of 209) -- FNIR(1600000, T, L+1) = 0.8899, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

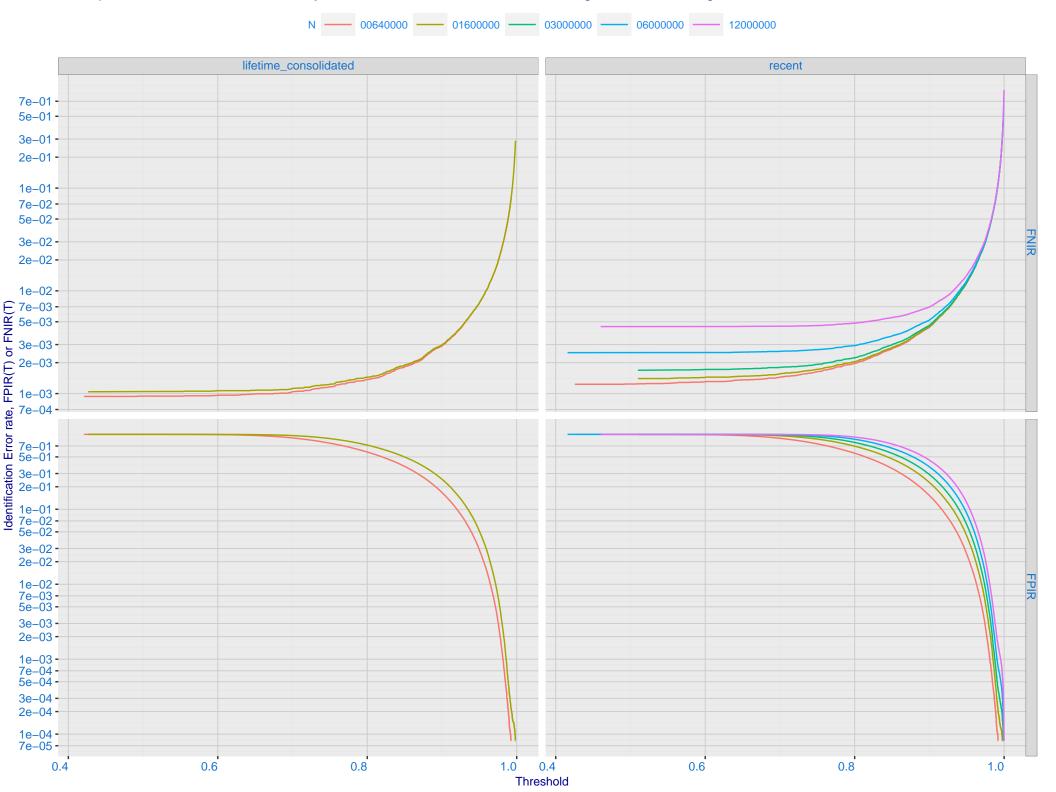




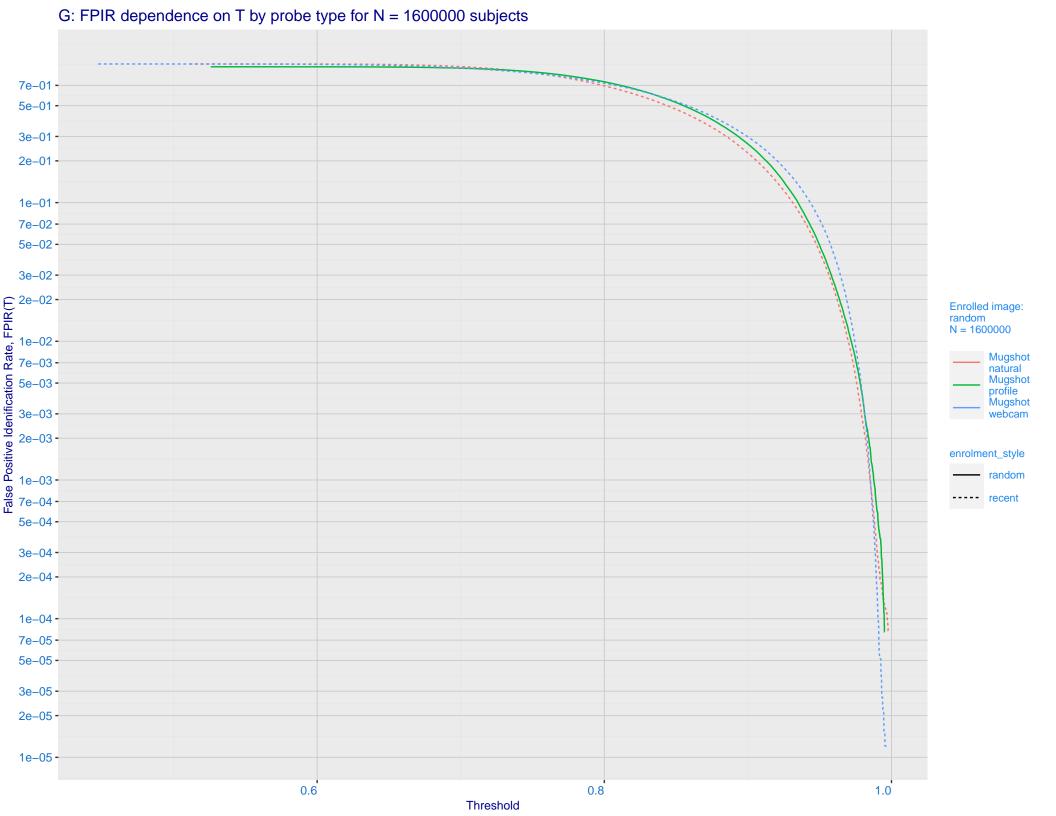
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.500 - 0.500 - 0.200 -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

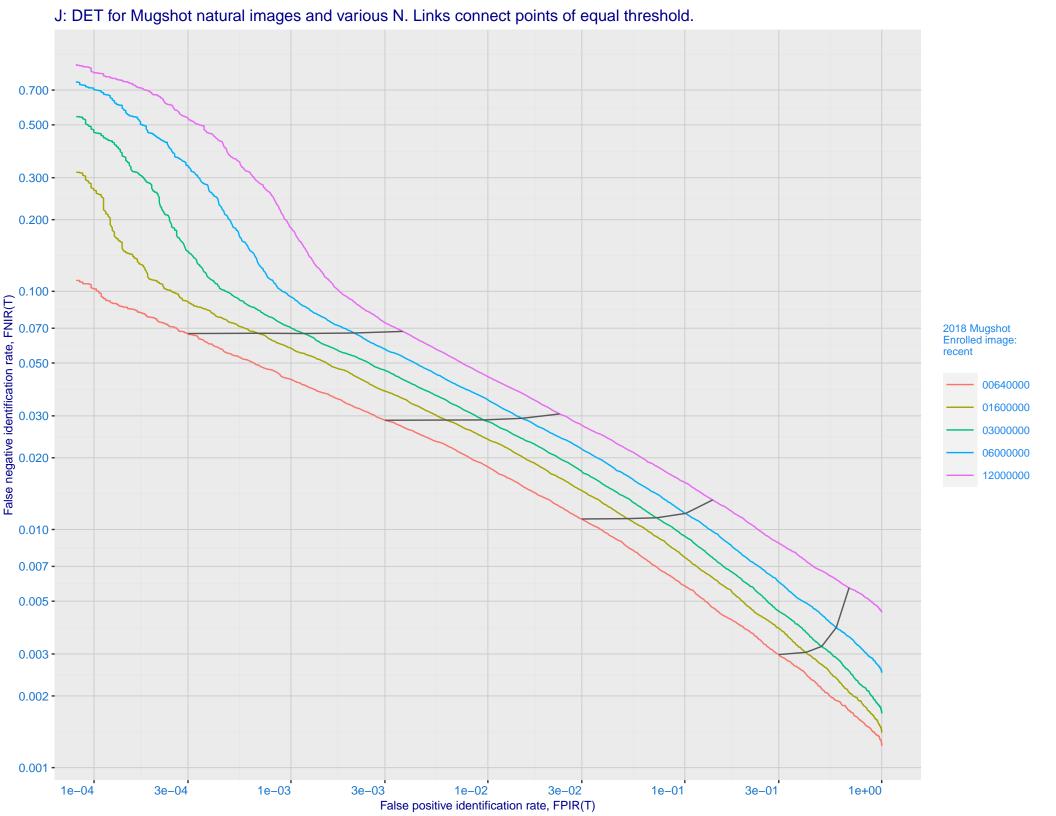
False positive identification rate, FPIR(T)

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

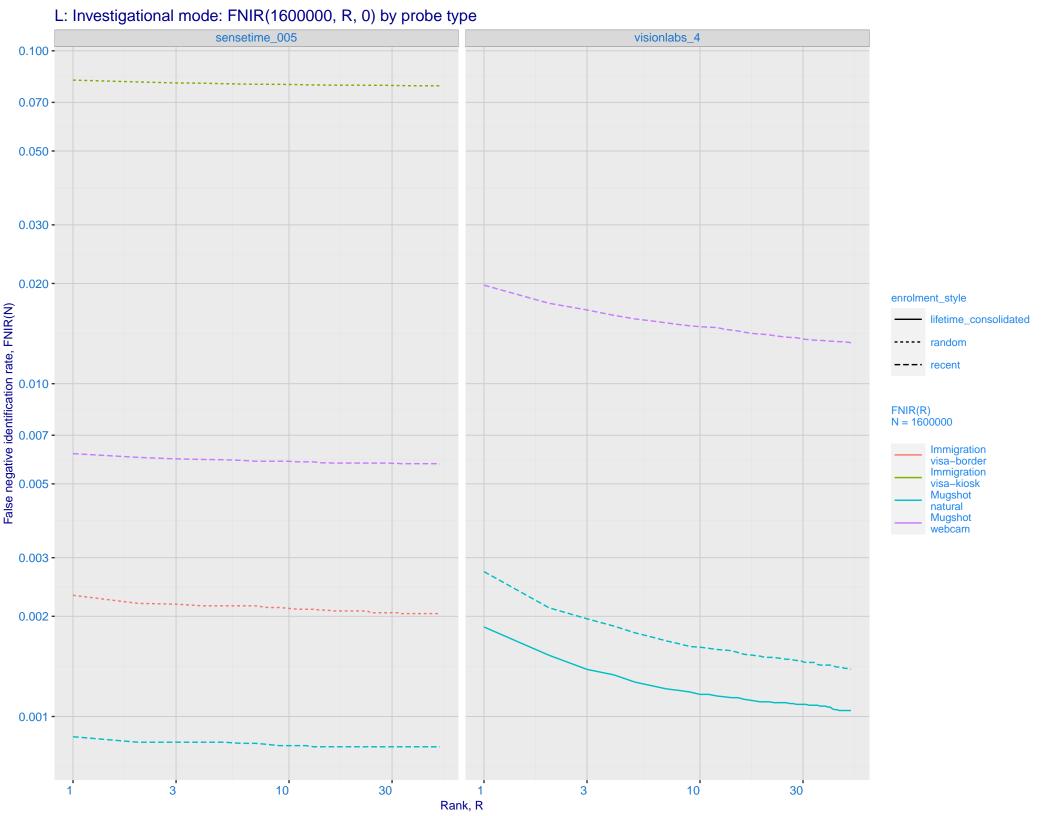


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 · 3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -5e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

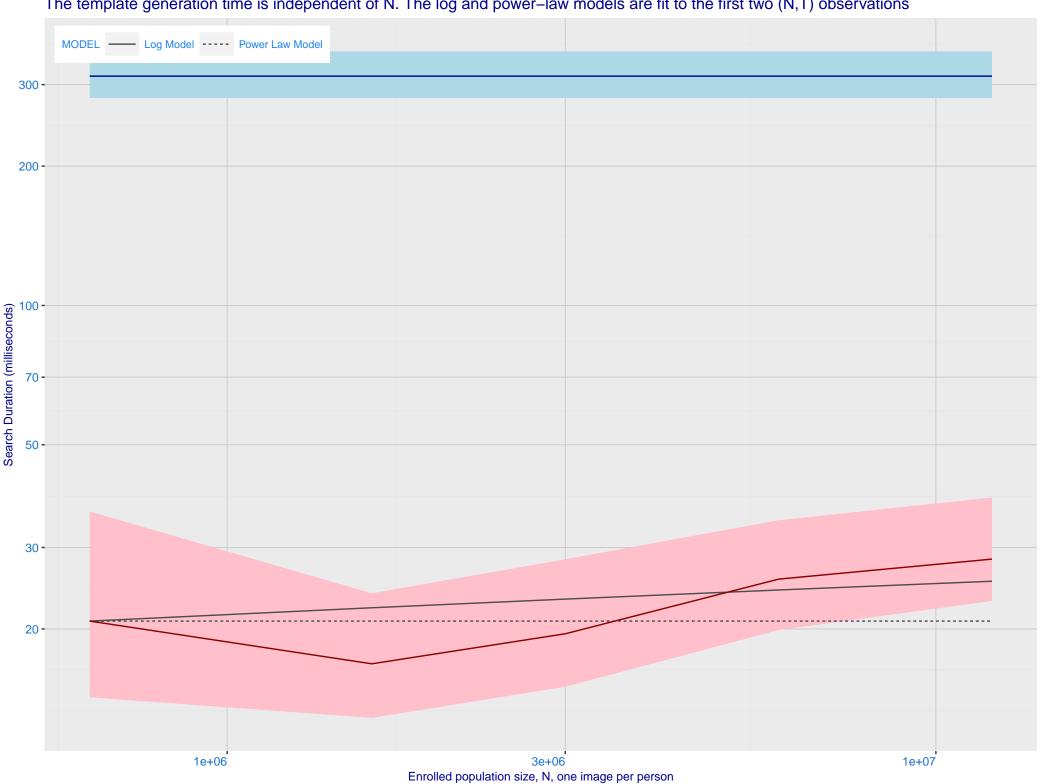


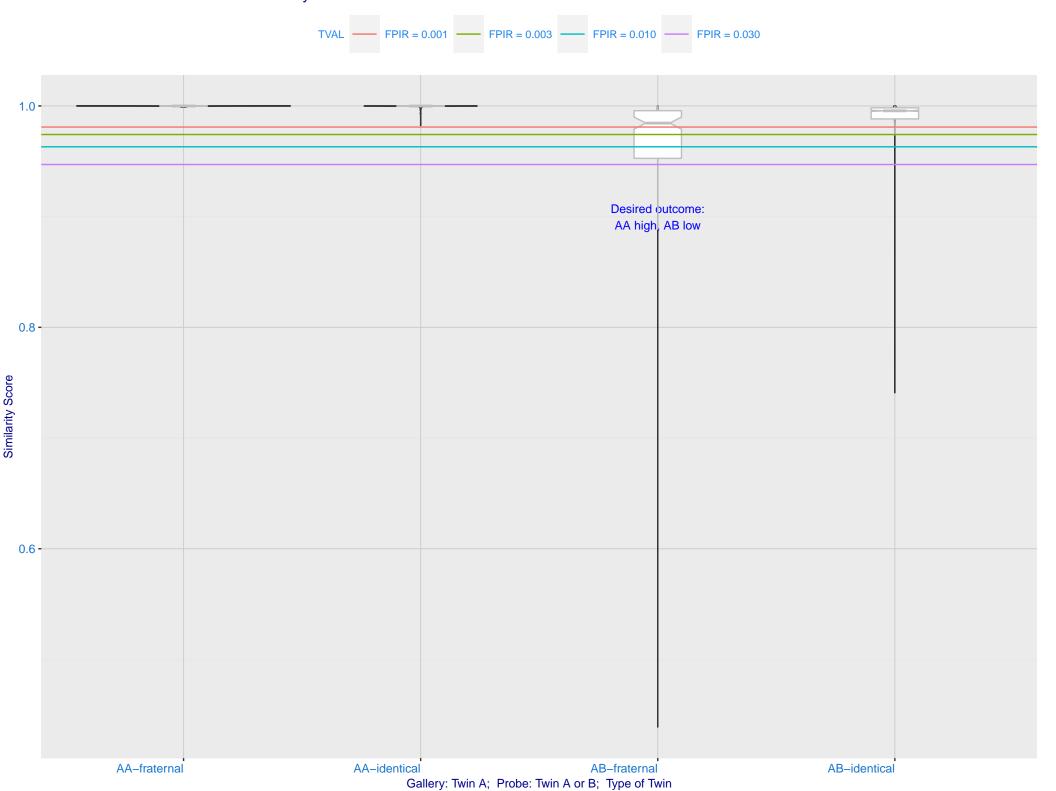


K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 sensetime_005 visionlabs_4 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



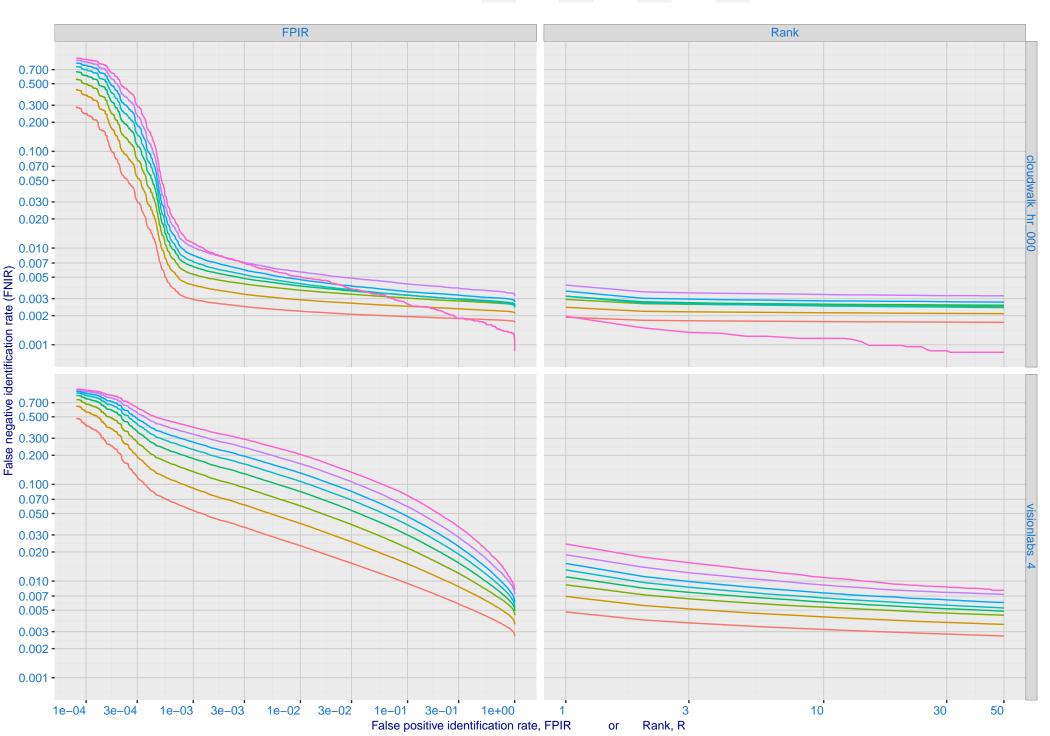
M: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations





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 = 3.1MColor encodes FNIR (Rank = 1) 0.20 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 -(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)