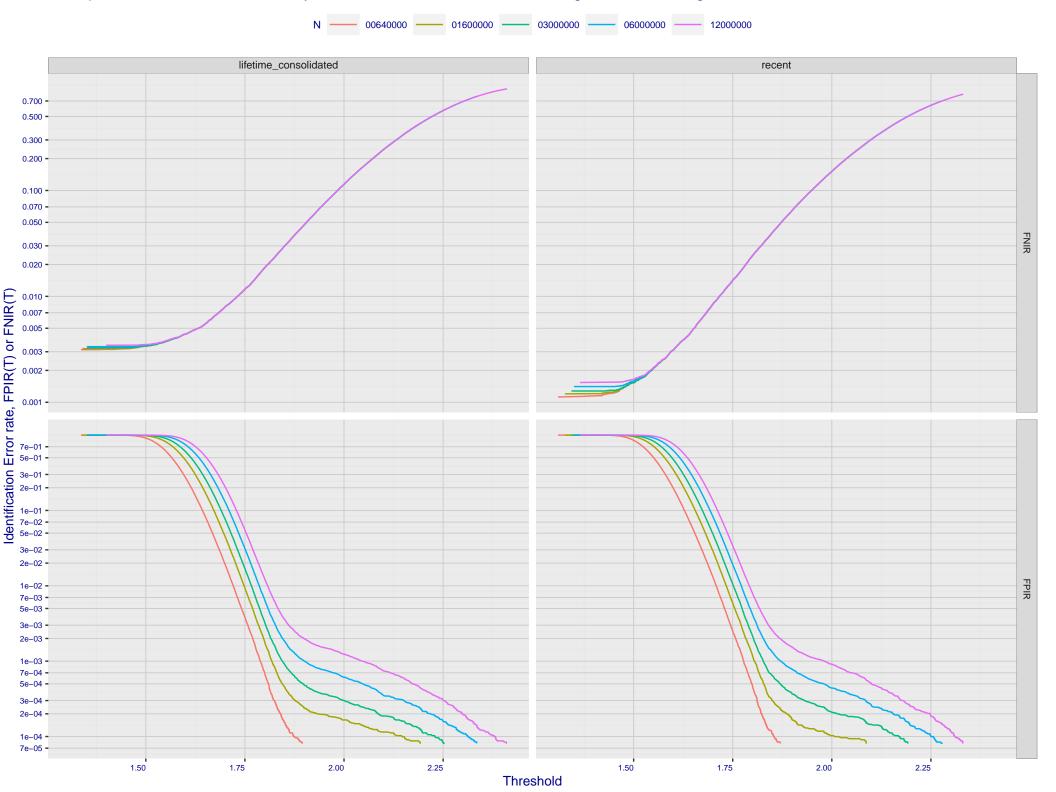
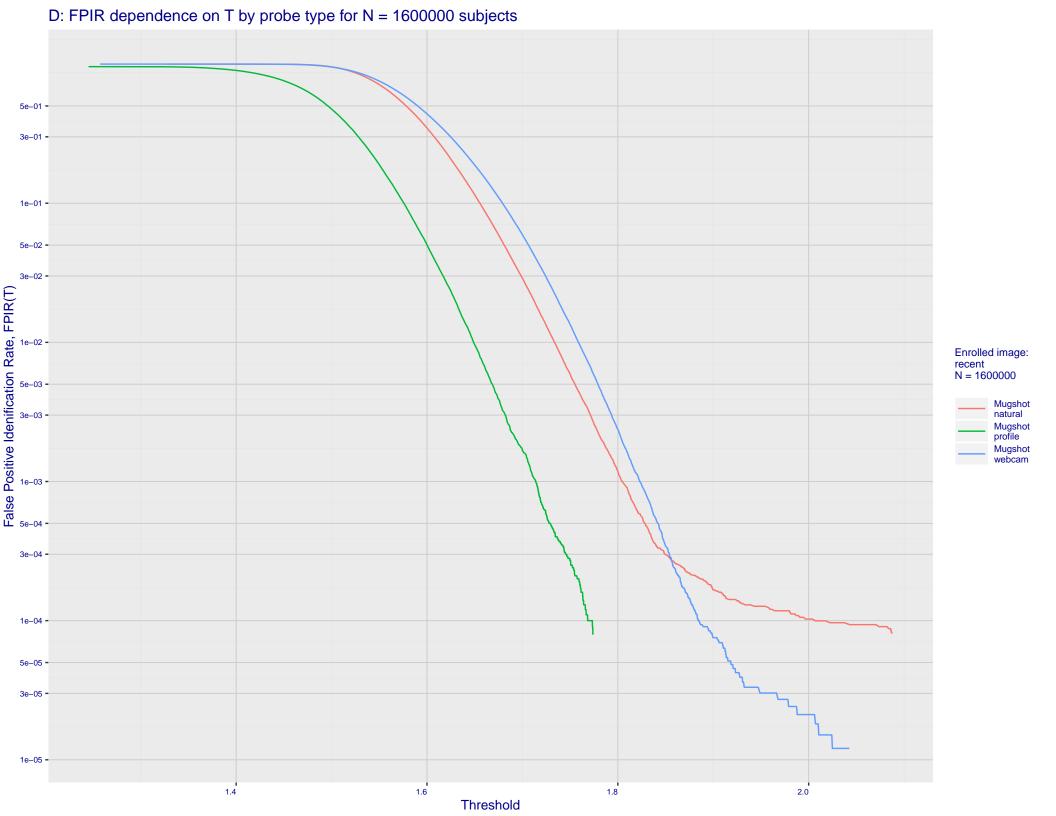
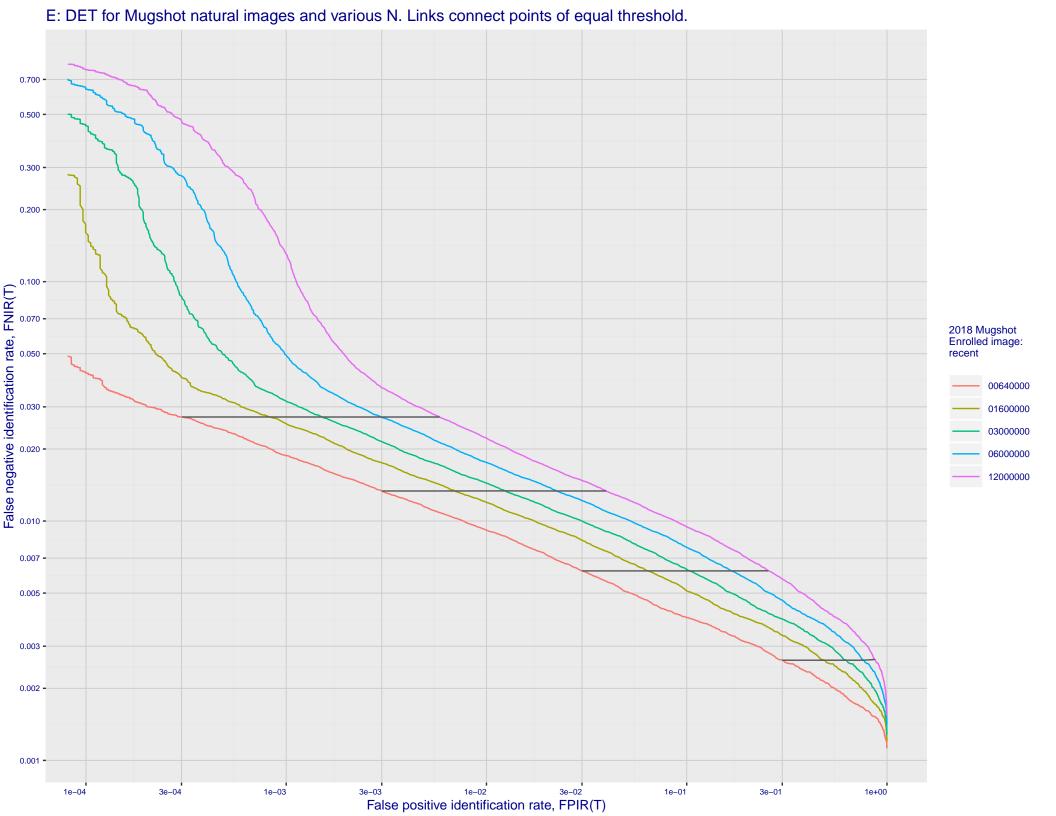
A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 0.500 0.300 -0.200 -False negative identification rate, FNIR(T) enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.007 0.005 -0.003 0.002 -0.001 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 1e+00 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 1e+00 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 1e+00 False positive identification rate, FPIR(T)

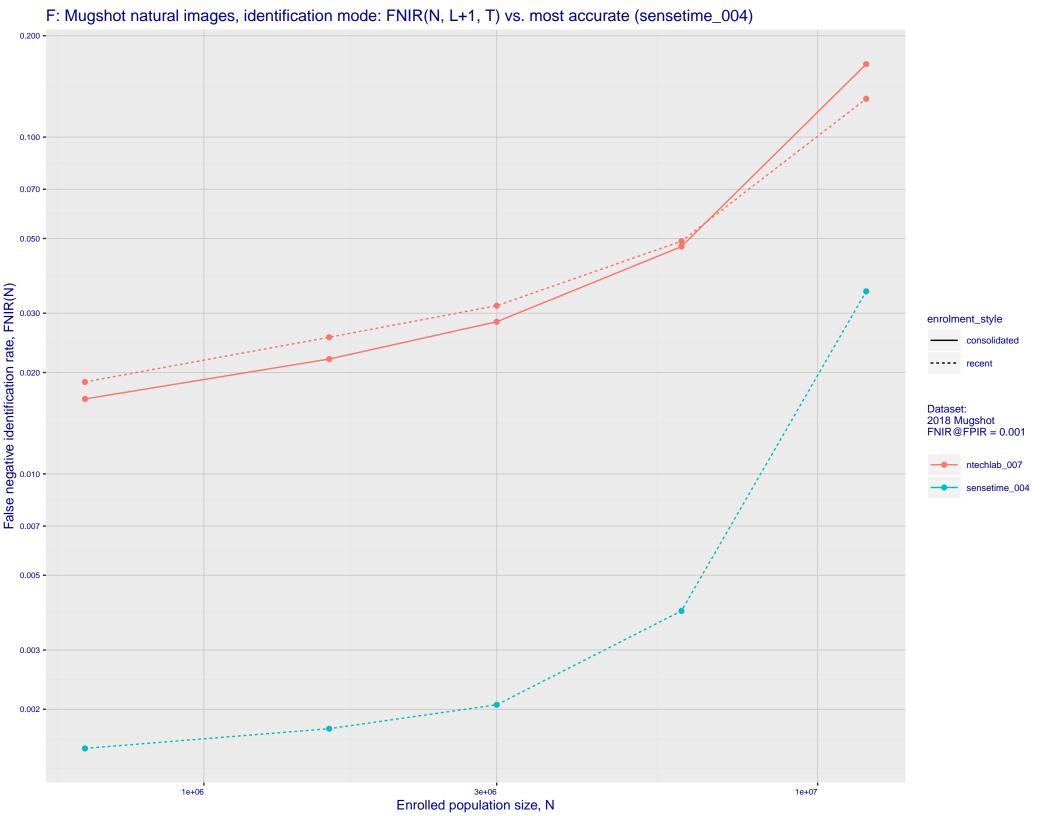
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



C: 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 -Enrolled images: recent N = 1600000 7e-02 - 7e-02 - 7e-03 Mugshot natural Mugshot profile 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-01 3e-01 False Positive Idenification Rate, FPIR(T)

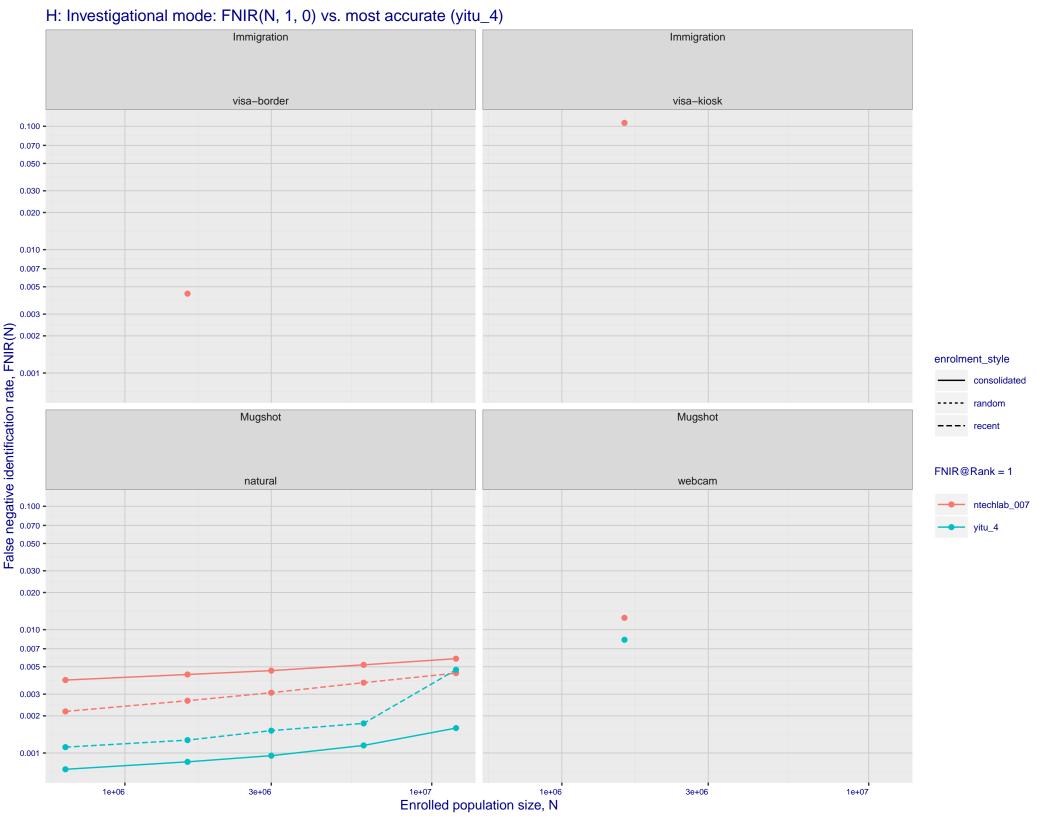


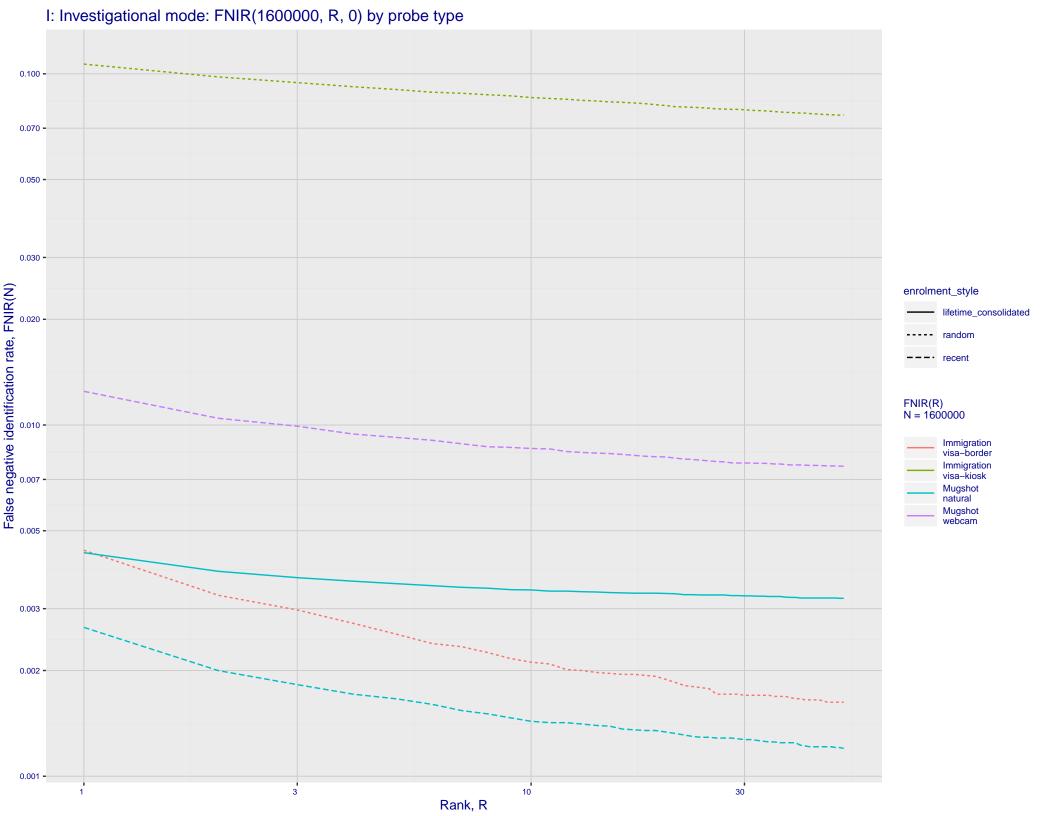




G: Datasheet

Algorithm: ntechlab_007 Developer: N-Tech Lab Submission Date: 2019_06_25 Template size: 3348 bytes Template time (2.5 percentile): 791 msec Template time (median): 795 msec Template time (97.5 percentile): 1016 msec Frontal mugshot investigation rank 39 — FNIR(1600000, 0, 1) = 0.0027 vs. lowest 0.0010 from sensetime_004 natural investigation rank 21 -- FNIR(1600000, 0, 1) = 0.0125 vs. lowest 0.0067 from sensetime_003 natural investigation rank 30 -- FNIR(1600000, 0, 1) = 0.1577 vs. lowest 0.0492 from paravision_005 natural investigation rank 30 -- FNIR(1600000, 0, 1) = 0.1577 vs. lowest 0.0492 from paravision_005 natural investigation rank 23 -- FNIR(1600000, 0, 1) = 0.0044 vs. lowest 0.0014 from visionlabs_009 natural investigation rank 23 -- FNIR(1600000, 0, 1) = 0.1066 vs. lowest 0.0694 from cib_000 Frontal mugshot identification rank 36 -- FNIR(1600000, T, L+1) = 0.0255 vs. lowest 0.0018 from sensetime_004 natural identification rank 26 -- FNIR(1600000, T, L+1) = 0.0668 vs. lowest 0.0122 from sensetime_003 natural identification rank 15 -- FNIR(1600000, T, L+1) = 0.5275 vs. lowest 0.1020 from sensetime_004 natural identification rank 21 -- FNIR(1600000, T, L+1) = 0.0323 vs. lowest 0.0059 from sensetime_004 natural identification rank 17 -- FNIR(1600000, T, L+1) = 0.2241 vs. lowest 0.1129 from visionlabs_009





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 - Log Model ---- Power Law Model 3000 2000 1000 -700 -500 300 200

Enrolled population size, N, one image per person

Search Duration (milliseconds)

1e+06

M: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing

