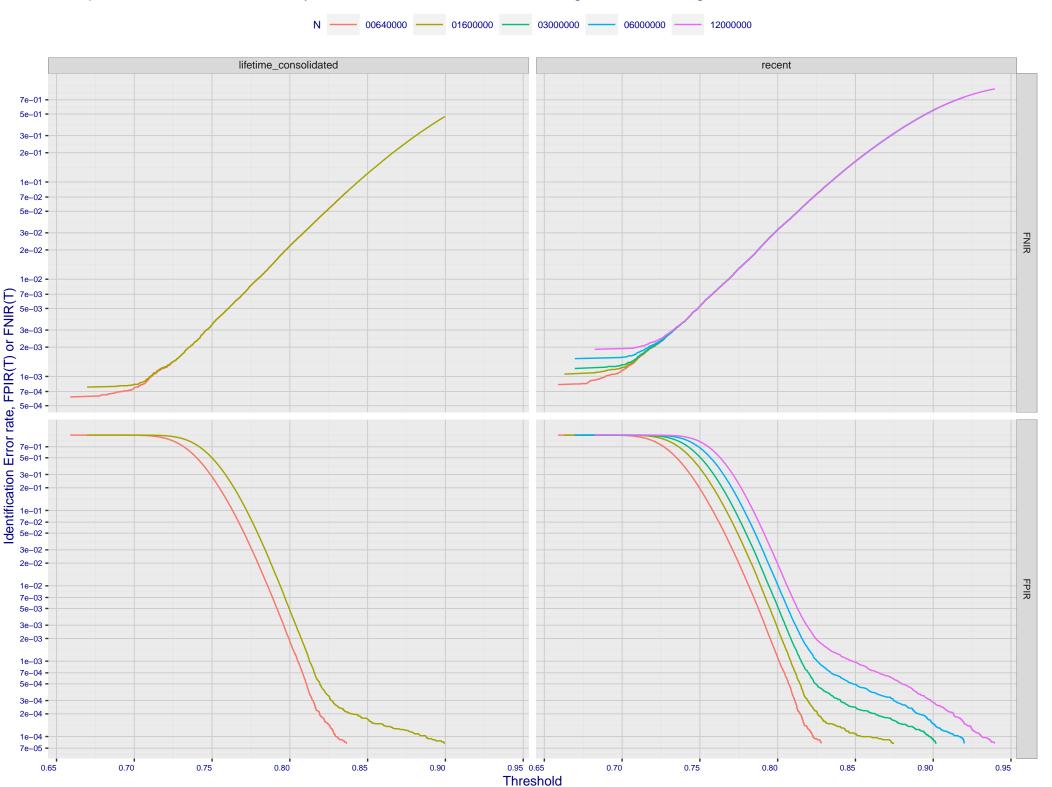
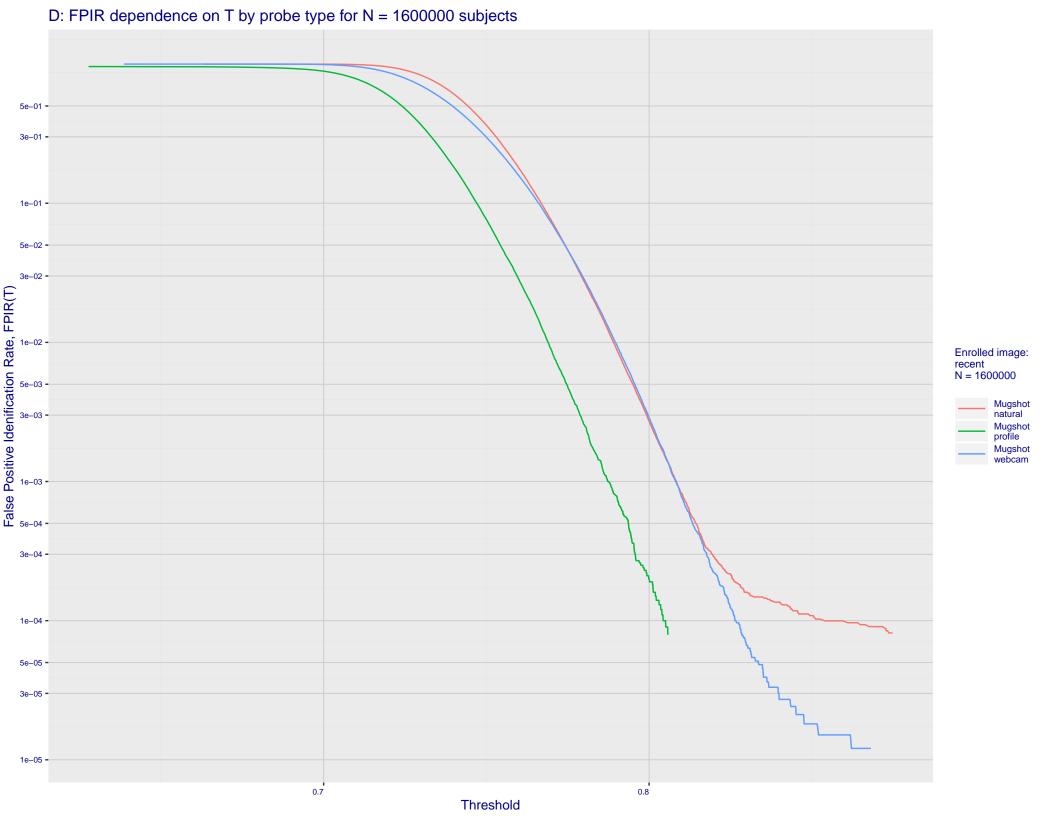
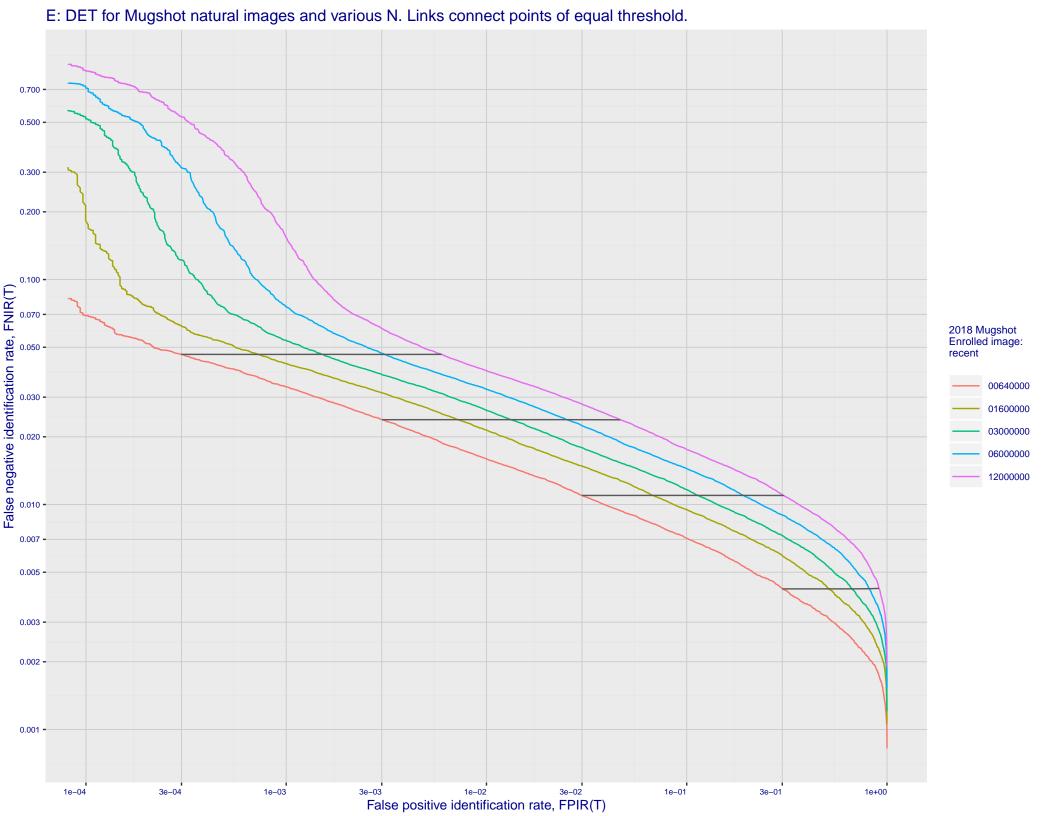
A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 0.500 -0.300 -0.200 -0.100 False negative identification rate, FNIR(T) enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 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 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 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 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-01 False positive identification rate, FPIR(T)

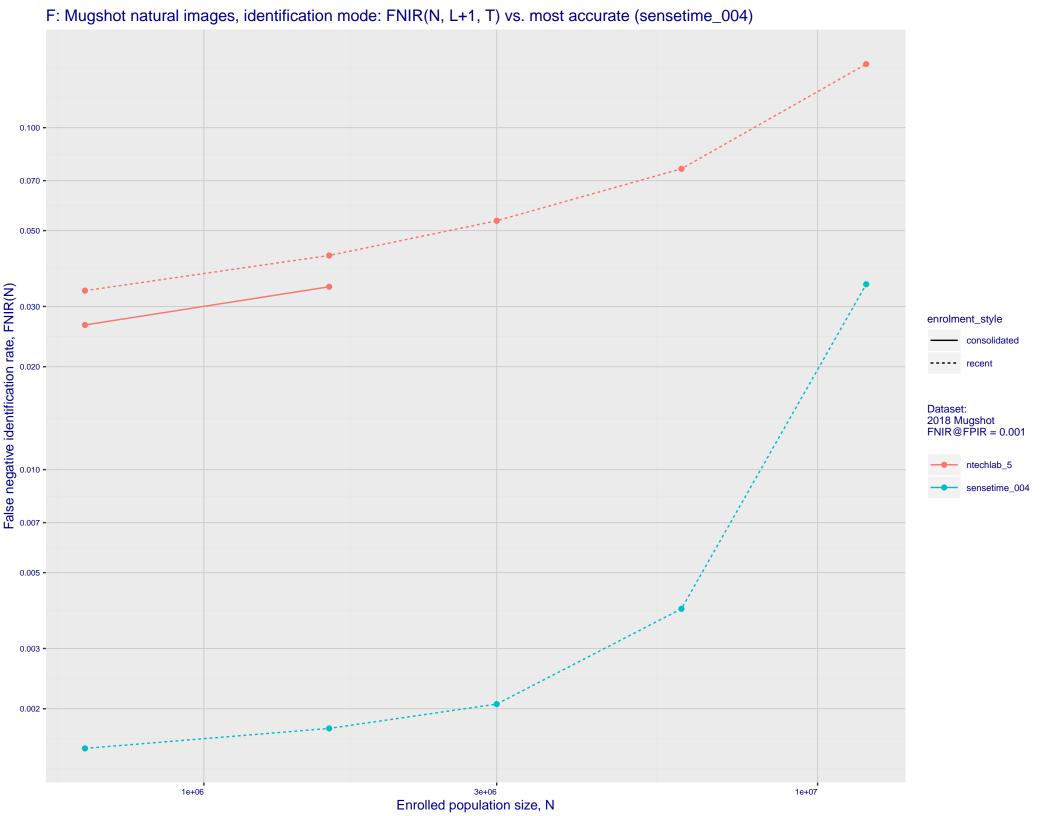
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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)

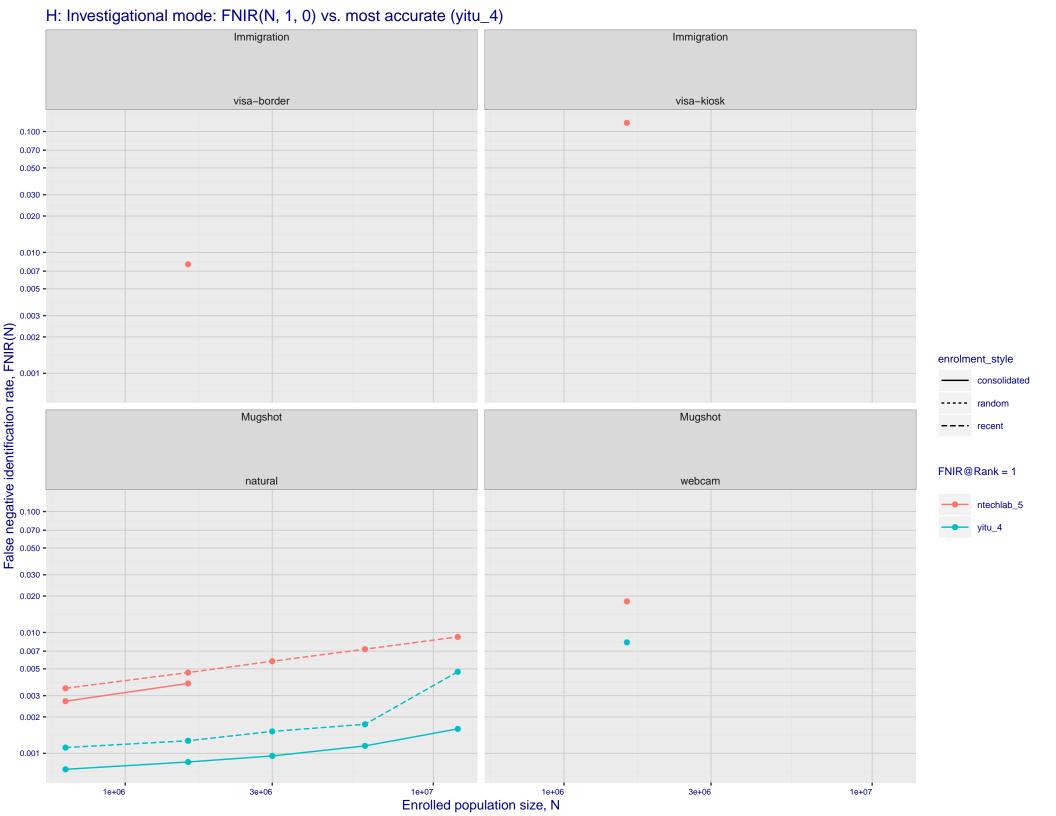


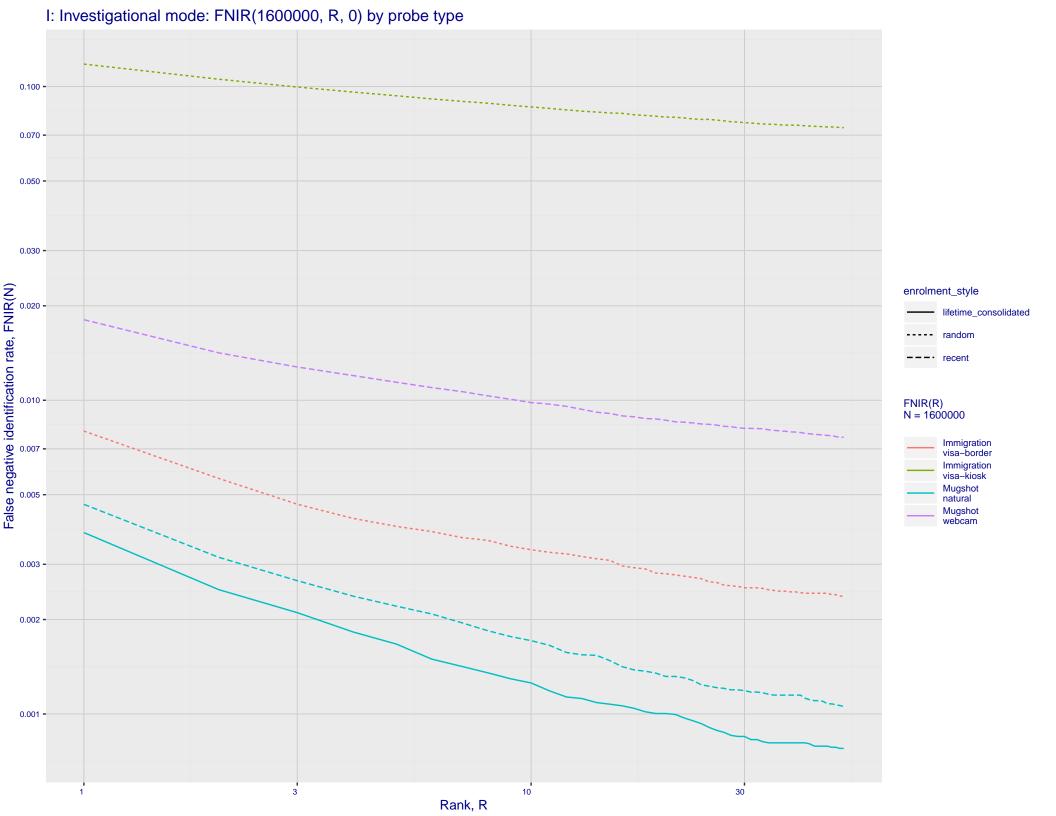




G: Datasheet

Algorithm: ntechlab_5 Developer: N-Tech Lab Submission Date: 2018_10_30 Template size: 1940 bytes Template time (2.5 percentile): 708 msec Template time (median): 712 msec Template time (97.5 percentile): 753 msec Frontal mugshot investigation rank 67 -- FNIR(1600000, 0, 1) = 0.0047 vs. lowest 0.0010 from sensetime_004 natural investigation rank 50 -- FNIR(1600000, 0, 1) = 0.0181 vs. lowest 0.0067 from sensetime_003 natural investigation rank 33 -- FNIR(1600000, 0, 1) = 0.1689 vs. lowest 0.0492 from paravision_005 natural investigation rank 33 -- FNIR(1600000, 0, 1) = 0.1689 vs. lowest 0.0492 from paravision_005 natural investigation rank 42 -- FNIR(1600000, 0, 1) = 0.0080 vs. lowest 0.0014 from visionlabs_009 natural investigation rank 33 -- FNIR(1600000, 0, 1) = 0.1179 vs. lowest 0.0694 from cib_000 Frontal mugshot identification rank 54 -- FNIR(1600000, T, L+1) = 0.0423 vs. lowest 0.0018 from sensetime_004 natural identification rank 54 -- FNIR(1600000, T, L+1) = 0.1016 vs. lowest 0.0122 from sensetime_003 natural identification rank 14 -- FNIR(1600000, T, L+1) = 0.5269 vs. lowest 0.1020 from sensetime_004 natural identification rank 45 -- FNIR(1600000, T, L+1) = 0.0727 vs. lowest 0.0059 from sensetime_004 natural identification rank 27 -- FNIR(1600000, T, L+1) = 0.2937 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

