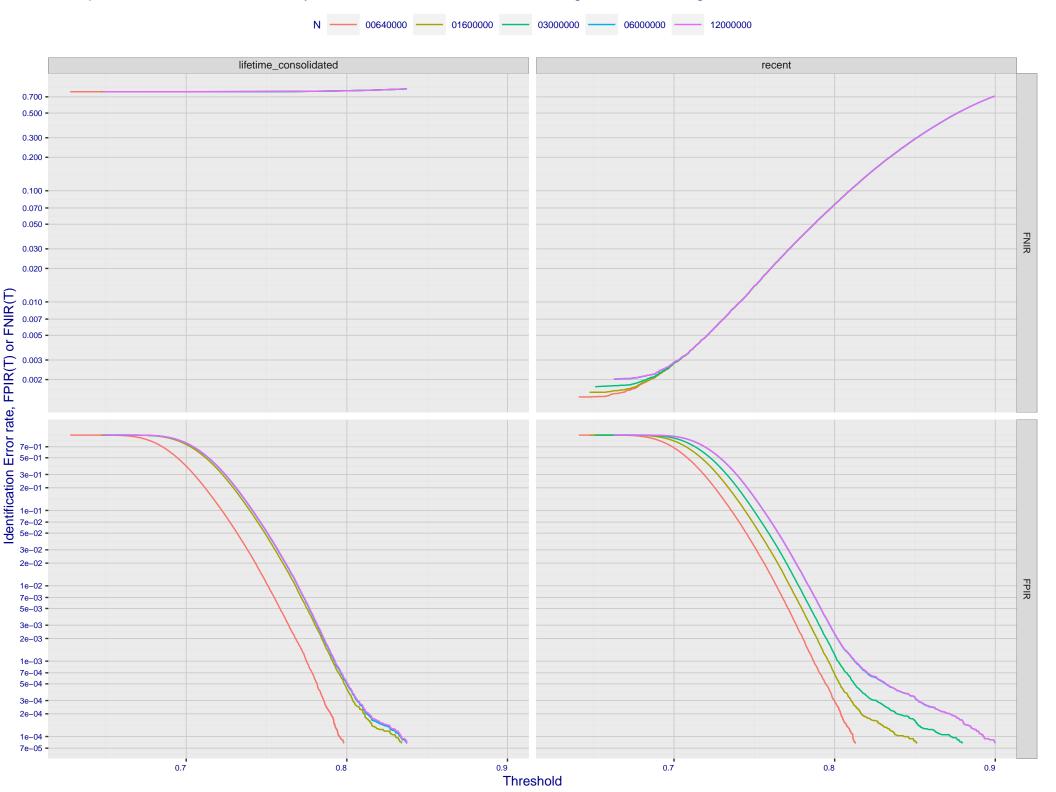
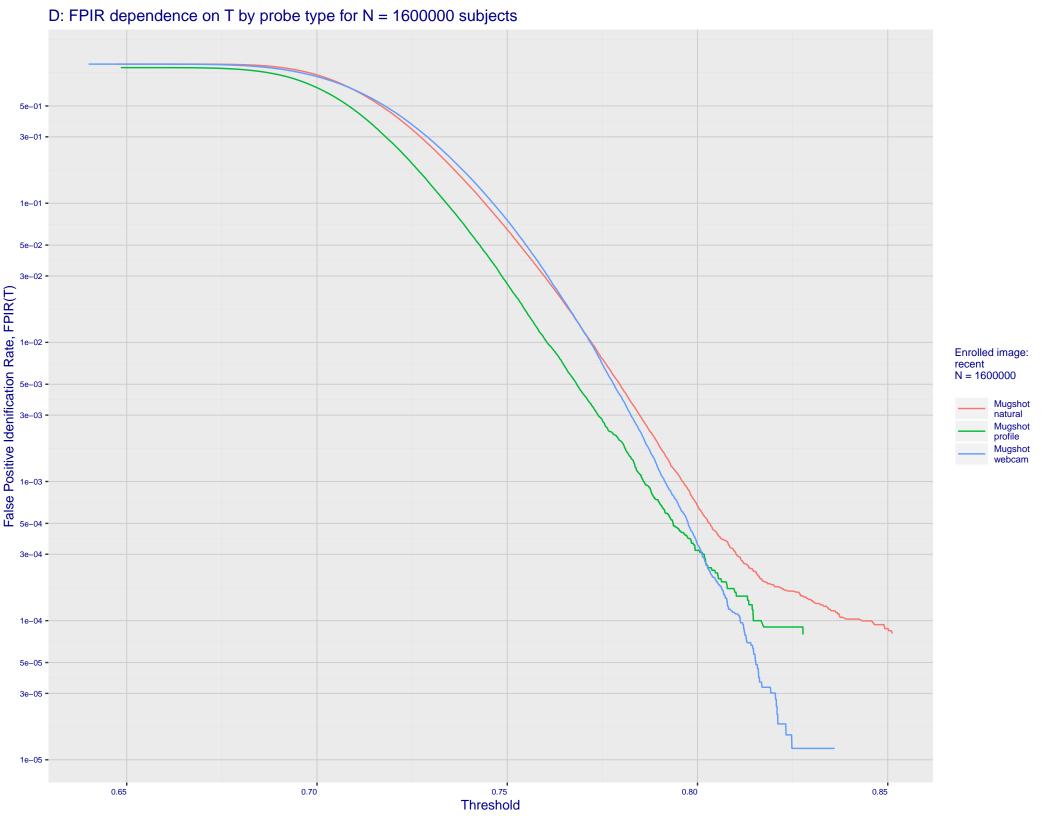
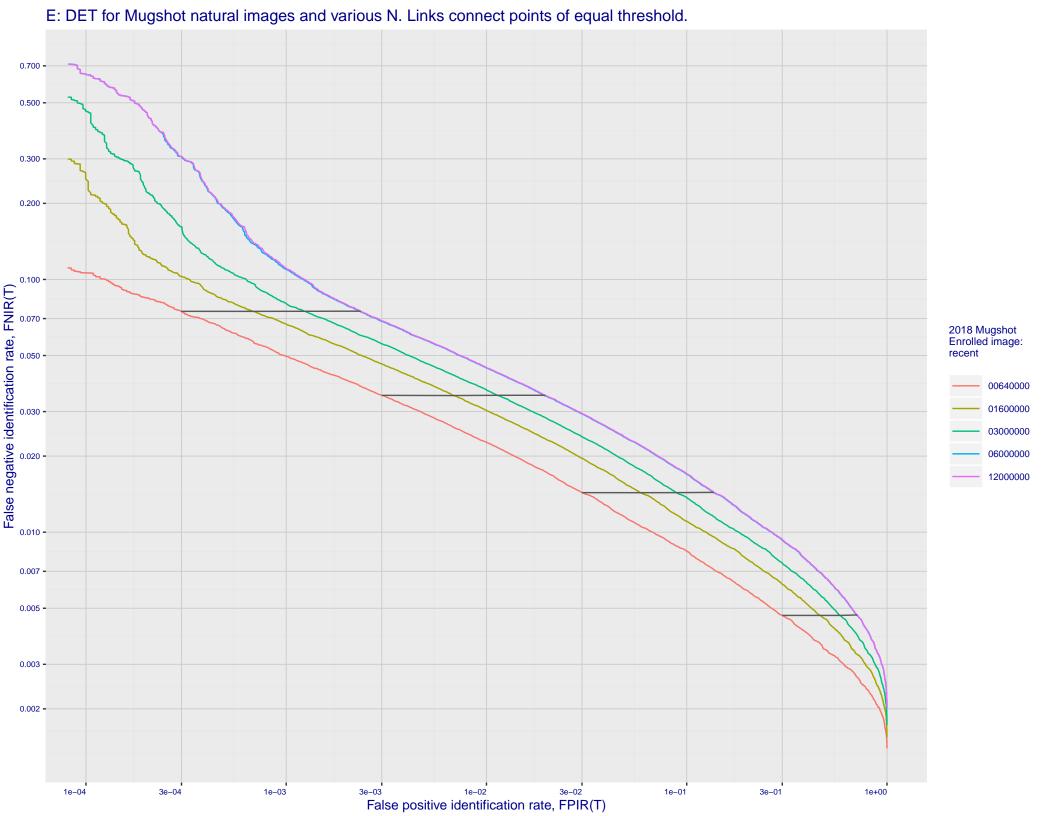
A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 0.300 0.200 -False negative identification rate, FNIR(T) enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES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

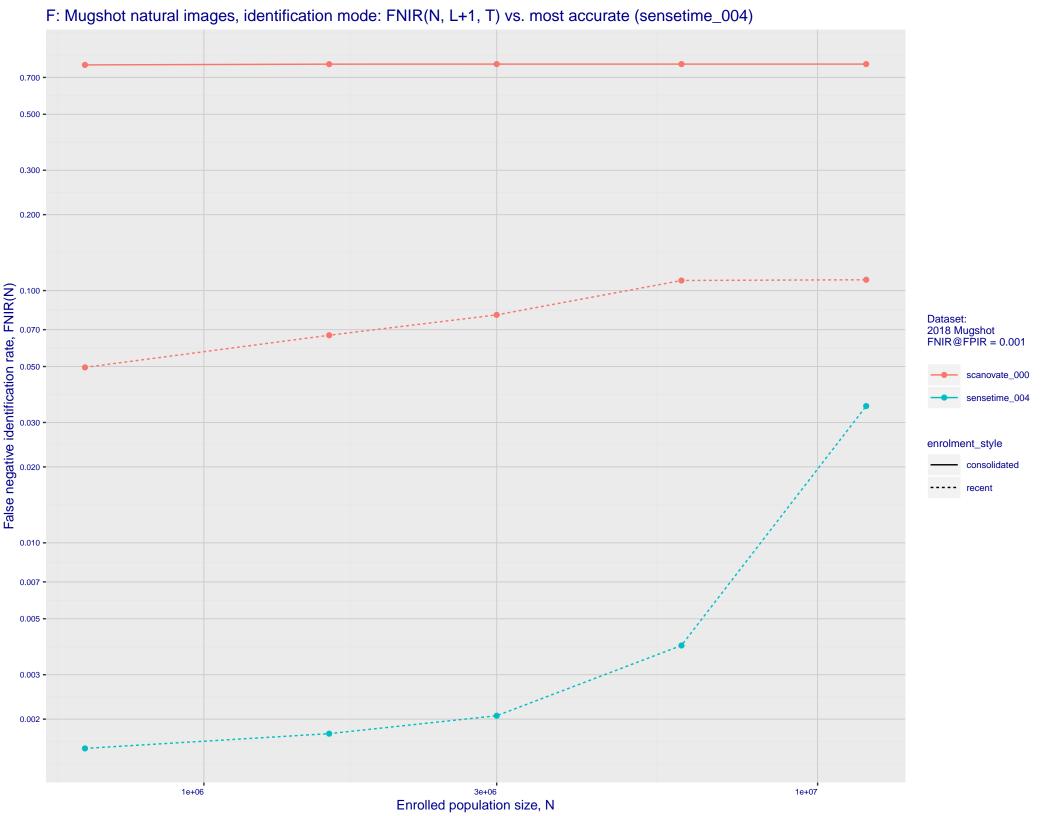
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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 1e-04 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

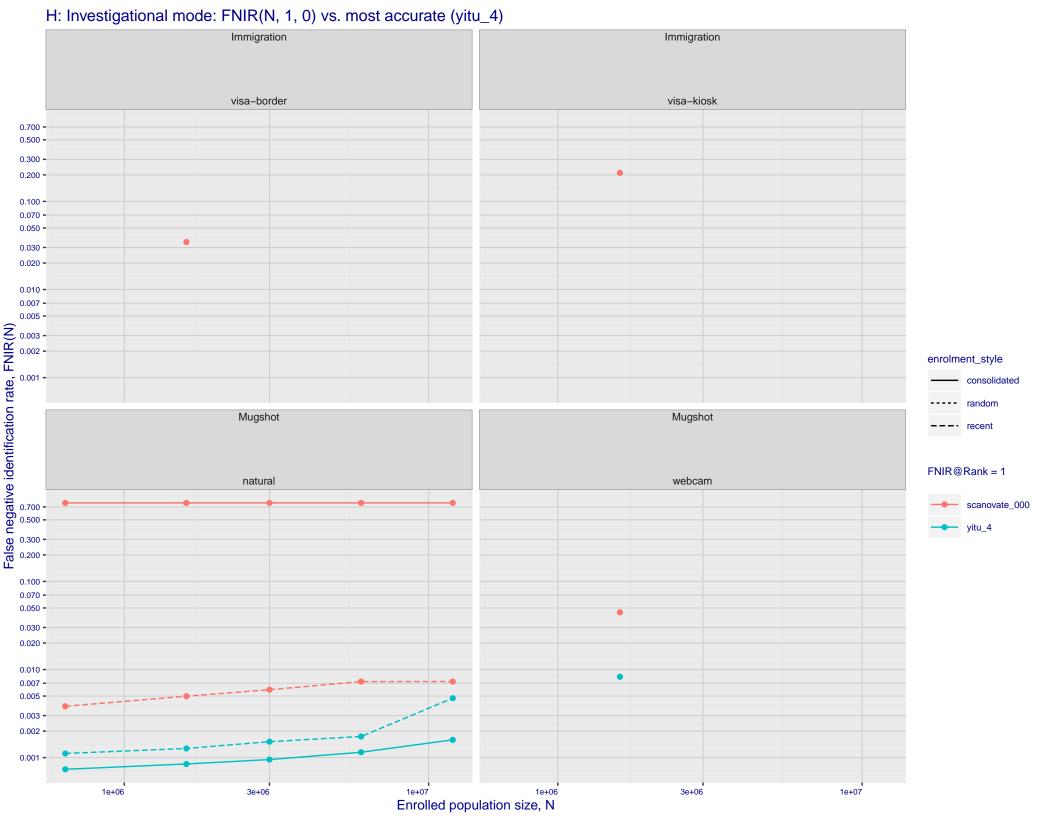


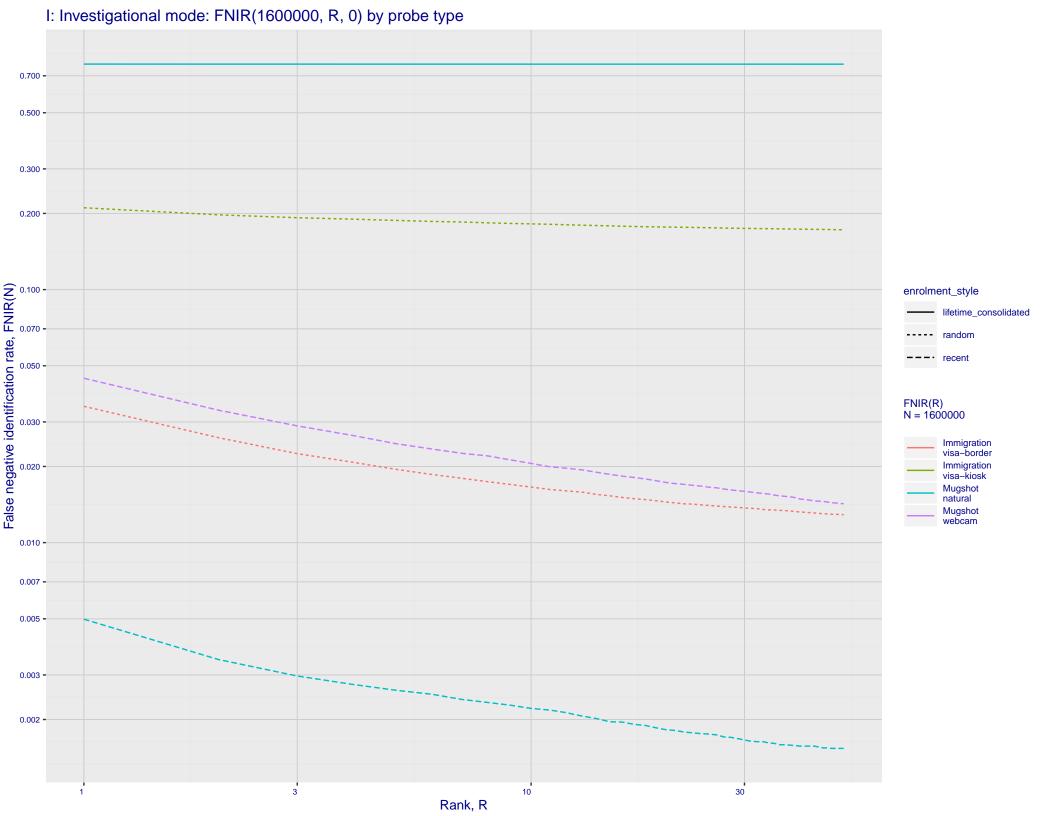




G: Datasheet

Algorithm: scanovate_000 Developer: Scanovate Ltd Submission Date: 2020_01_15 Template size: 2048 bytes Template time (2.5 percentile): 669 msec Template time (median): 705 msec Template time (97.5 percentile): 778 msec Frontal mugshot investigation rank 71 -- FNIR(1600000, 0, 1) = 0.0050 vs. lowest 0.0010 from sensetime_004 natural investigation rank 126 -- FNIR(1600000, 0, 1) = 0.0446 vs. lowest 0.0067 from sensetime_003 natural investigation rank 77 -- FNIR(1600000, 0, 1) = 0.3915 vs. lowest 0.0492 from paravision_005 natural investigation rank 77 -- FNIR(1600000, 0, 1) = 0.3915 vs. lowest 0.0492 from paravision_005 natural investigation rank 70 -- FNIR(1600000, 0, 1) = 0.0346 vs. lowest 0.0014 from visionlabs_009 natural investigation rank 65 -- FNIR(1600000, 0, 1) = 0.2106 vs. lowest 0.0694 from cib_000 Frontal mugshot identification rank 95 -- FNIR(1600000, T, L+1) = 0.0665 vs. lowest 0.0018 from sensetime_004 natural identification rank 128 -- FNIR(1600000, T, L+1) = 0.2403 vs. lowest 0.0122 from sensetime_003 natural identification rank 26 -- FNIR(1600000, T, L+1) = 0.7726 vs. lowest 0.1020 from sensetime_004 natural identification rank 67 -- FNIR(1600000, T, L+1) = 0.2152 vs. lowest 0.0059 from sensetime_004 natural identification rank 41 -- FNIR(1600000, T, L+1) = 0.4044 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

