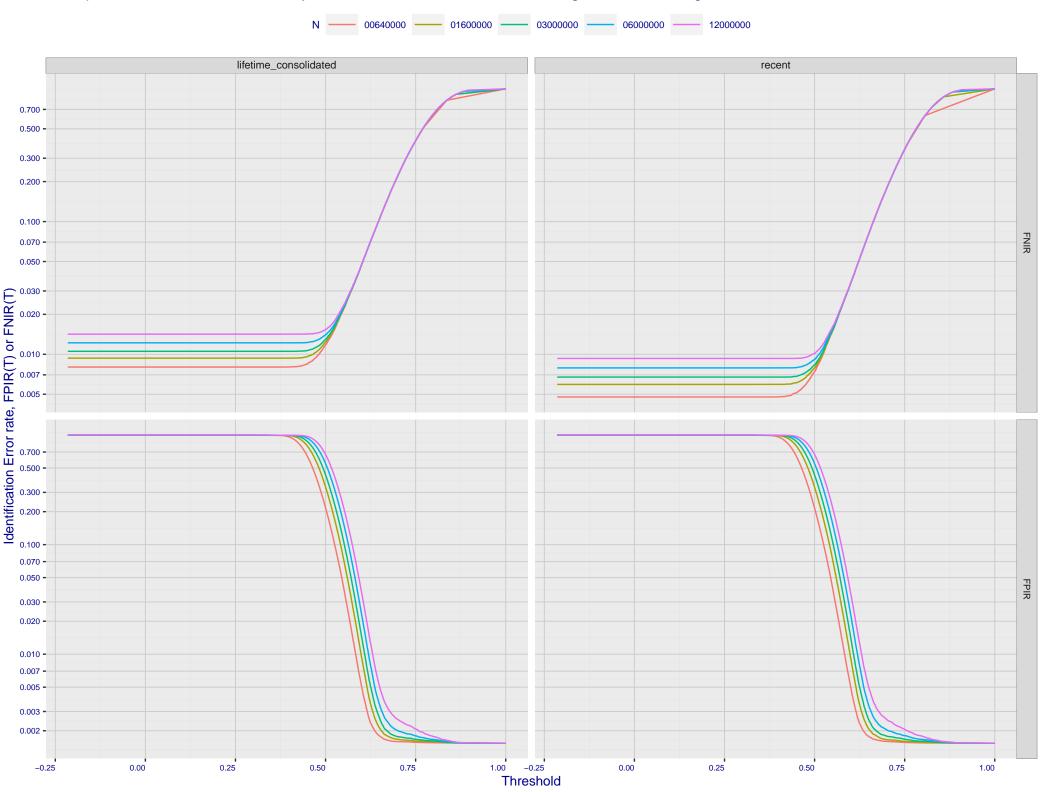
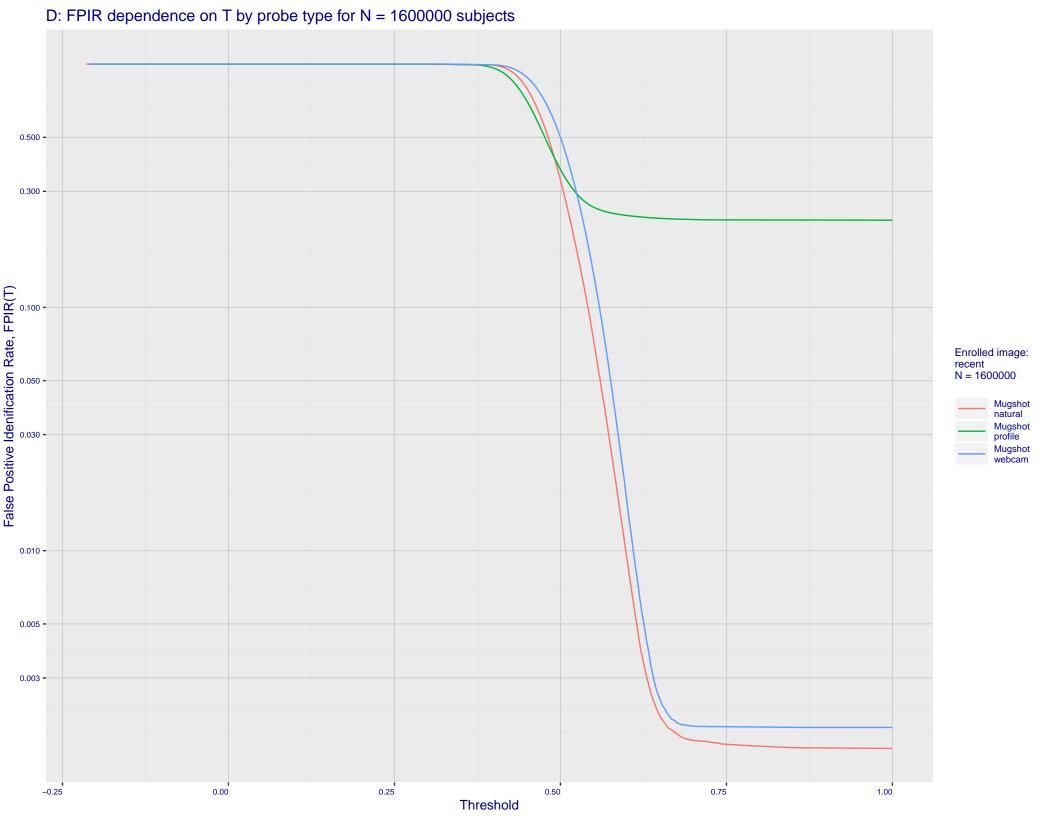
A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 • 0.500 -0.300 -False negative identification rate, FNIR(T) enrolment_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.020 -0.010 -0.007 -0.005 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+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 1e-01

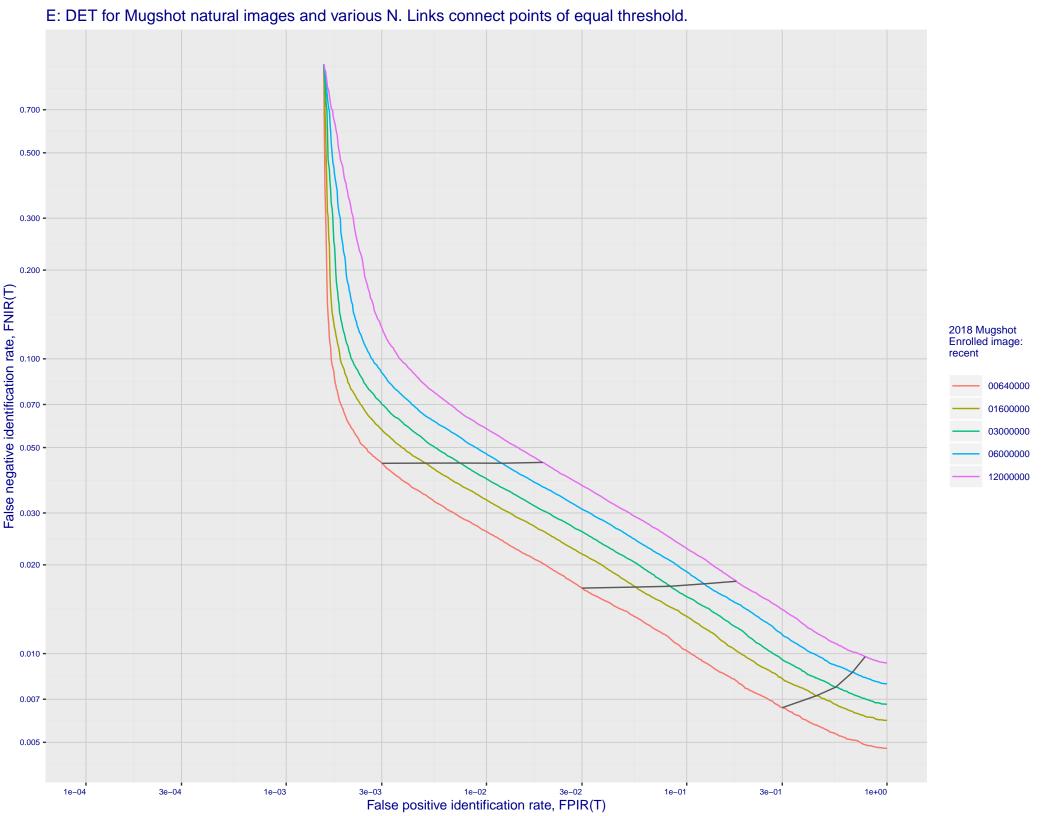
False positive identification rate, FPIR(T)

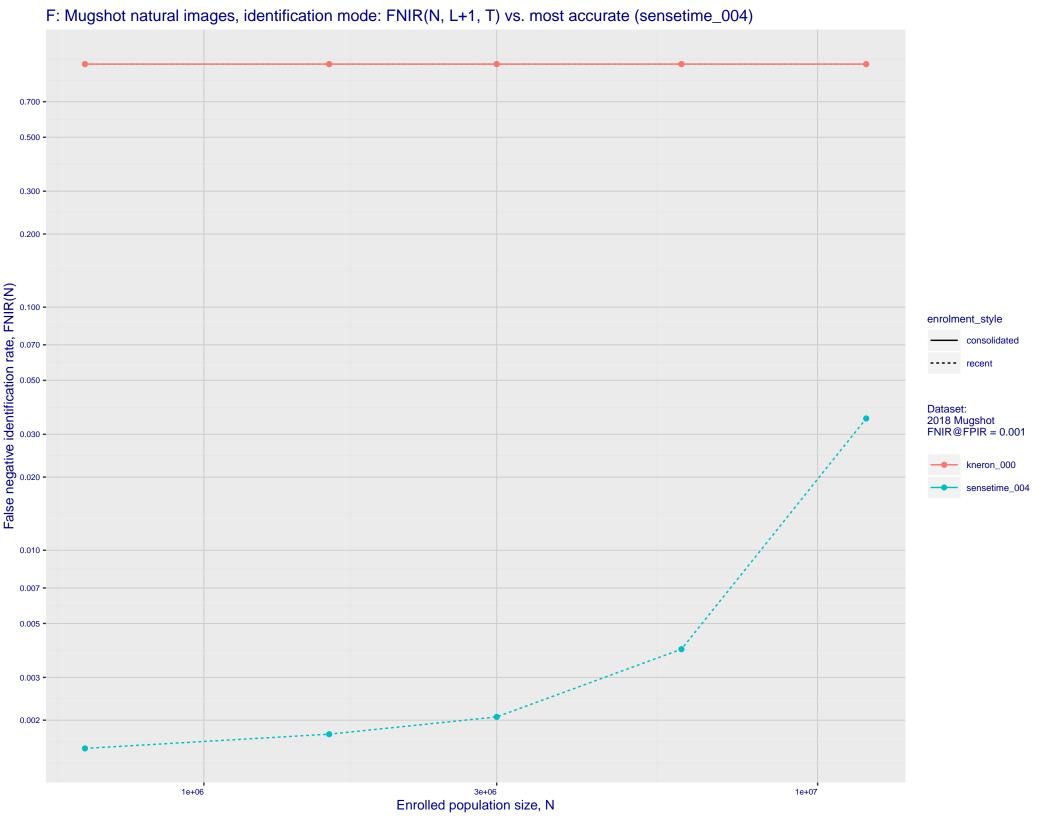
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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 Enrolled images: recent N = 1600000 Selectivity, SEL(T) 2e-01 Se-01 2e-01 Mugshot natural Mugshot profile Mugshot webcam 1e-01 7e-02 -5e-02 • 3e-02 -2e-02 • 1e-02 -7e-03 5e-03 **-**3e-03 2e-03 1e-03 -0.003 0.010 0.300 False Positive Idenification Rate, FPIR(T)

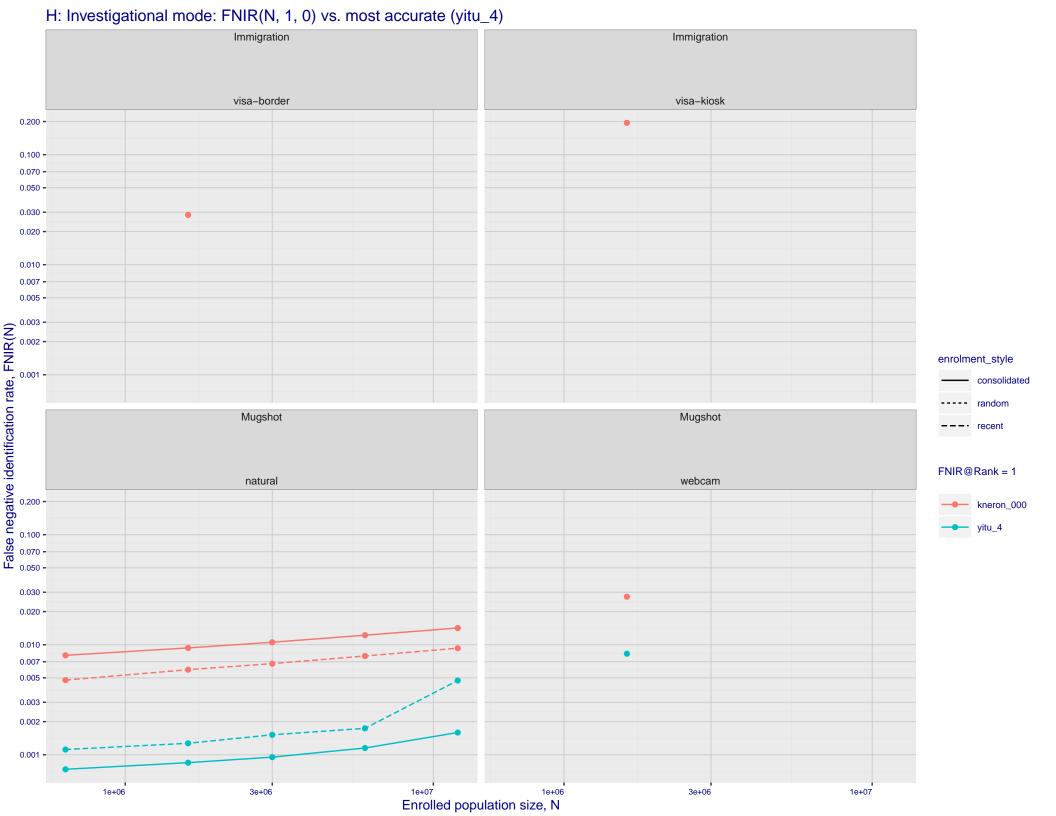


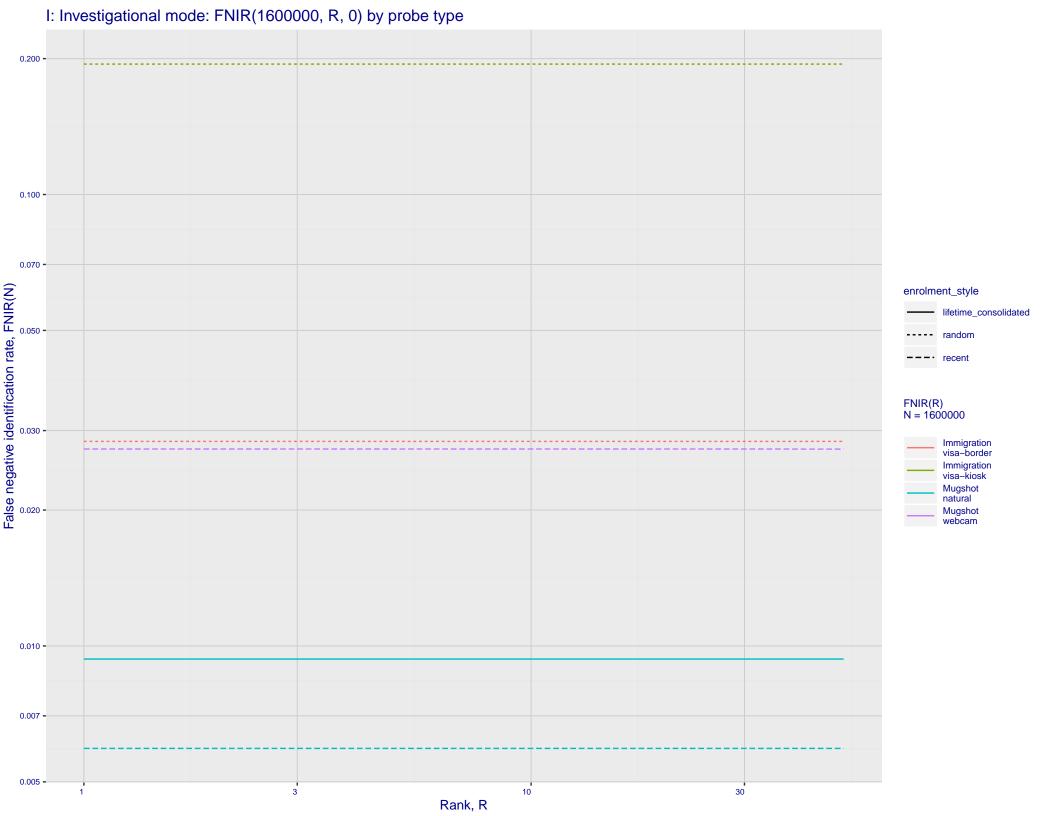




G: Datasheet

Algorithm: kneron_000 Developer: Kneron Submission Date: 2020_03_03 Template size: 2048 bytes Template time (2.5 percentile): 521 msec Template time (median): 523 msec Template time (97.5 percentile): 573 msec Frontal mugshot investigation rank 79 — FNIR(1600000, 0, 1) = 0.0059 vs. lowest 0.0010 from sensetime_004 natural investigation rank 92 -- FNIR(1600000, 0, 1) = 0.0273 vs. lowest 0.0067 from sensetime_003 natural investigation rank 79 -- FNIR(1600000, 0, 1) = 0.4018 vs. lowest 0.0492 from paravision_005 natural investigation rank 79 -- FNIR(1600000, 0, 1) = 0.4018 vs. lowest 0.0492 from paravision_005 natural investigation rank 63 -- FNIR(1600000, 0, 1) = 0.0284 vs. lowest 0.0014 from visionlabs_009 natural investigation rank 58 -- FNIR(1600000, 0, 1) = 0.1945 vs. lowest 0.0694 from cib_000 Frontal mugshot identification rank 251 -- FNIR(1600000, T, L+1) = 0.9998 vs. lowest 0.0018 from sensetime_004 natural identification rank 210 -- FNIR(1600000, T, L+1) = 1.0000 vs. lowest 0.0122 from sensetime_003 natural identification rank 173 -- FNIR(1600000, T, L+1) = 0.9999 vs. lowest 0.1020 from sensetime_004 natural identification rank 99 -- FNIR(1600000, T, L+1) = 1.0000 vs. lowest 0.0059 from sensetime_004 natural identification rank 95 -- FNIR(1600000, T, L+1) = 1.0000 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

