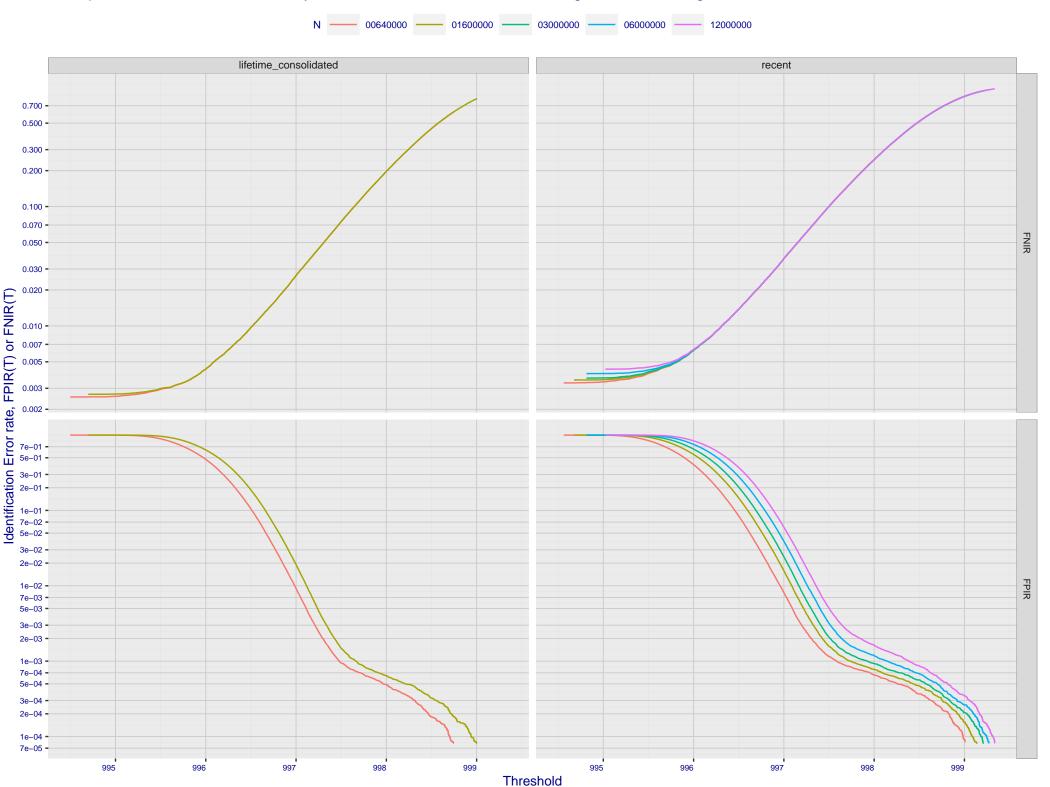
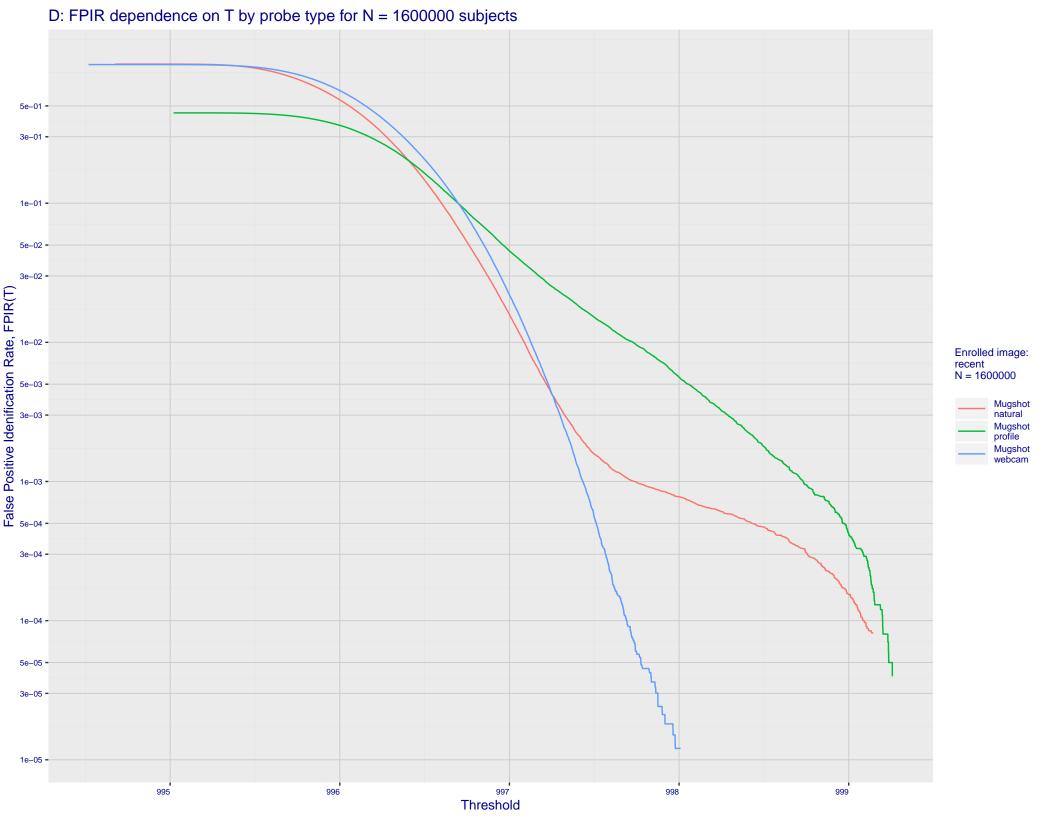
A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 False negative identification rate, FNIR(T) enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.010 -0.007 -0.005 -0.003 •

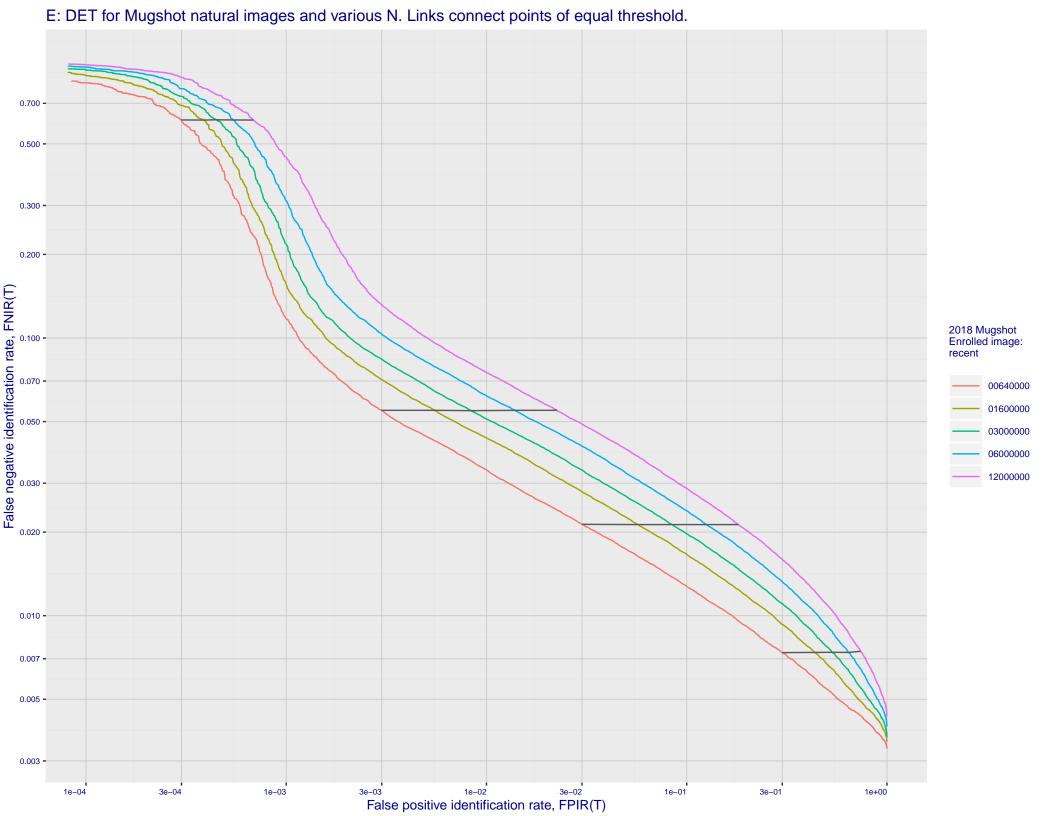
1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 1e+00 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 1e+00 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 1e+00 False positive identification rate, FPIR(T)

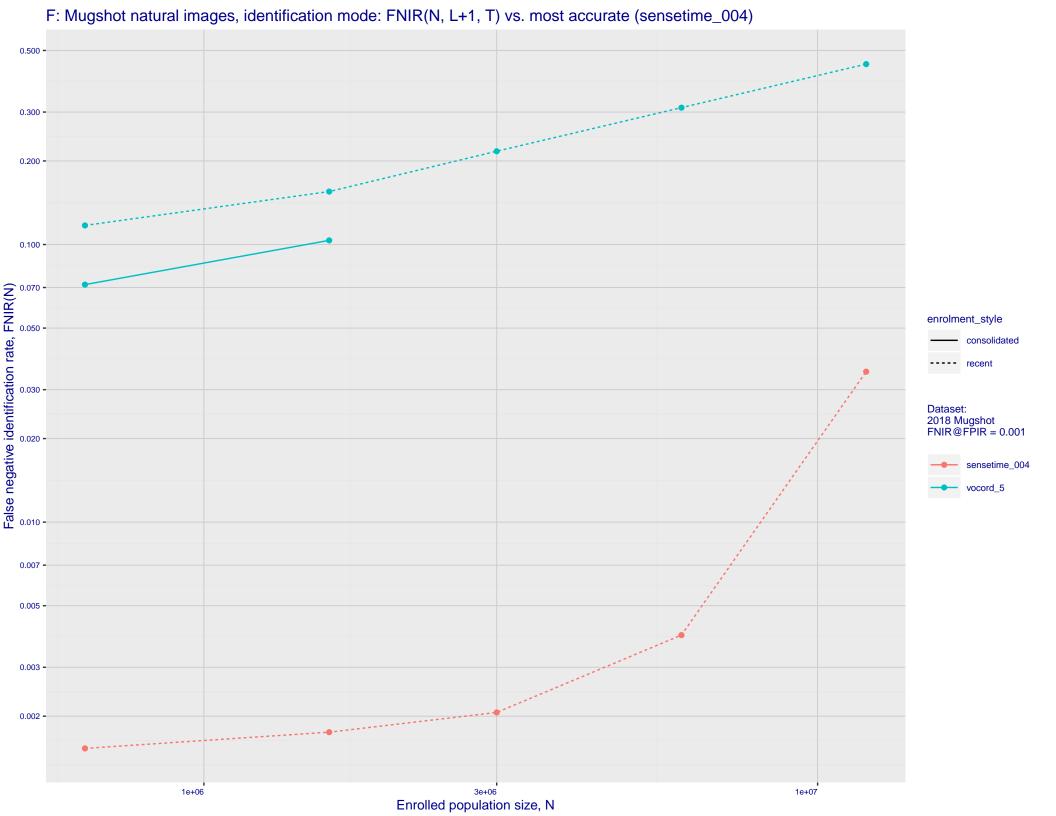
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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-02 -3e-02 -3e-02 -1e-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)

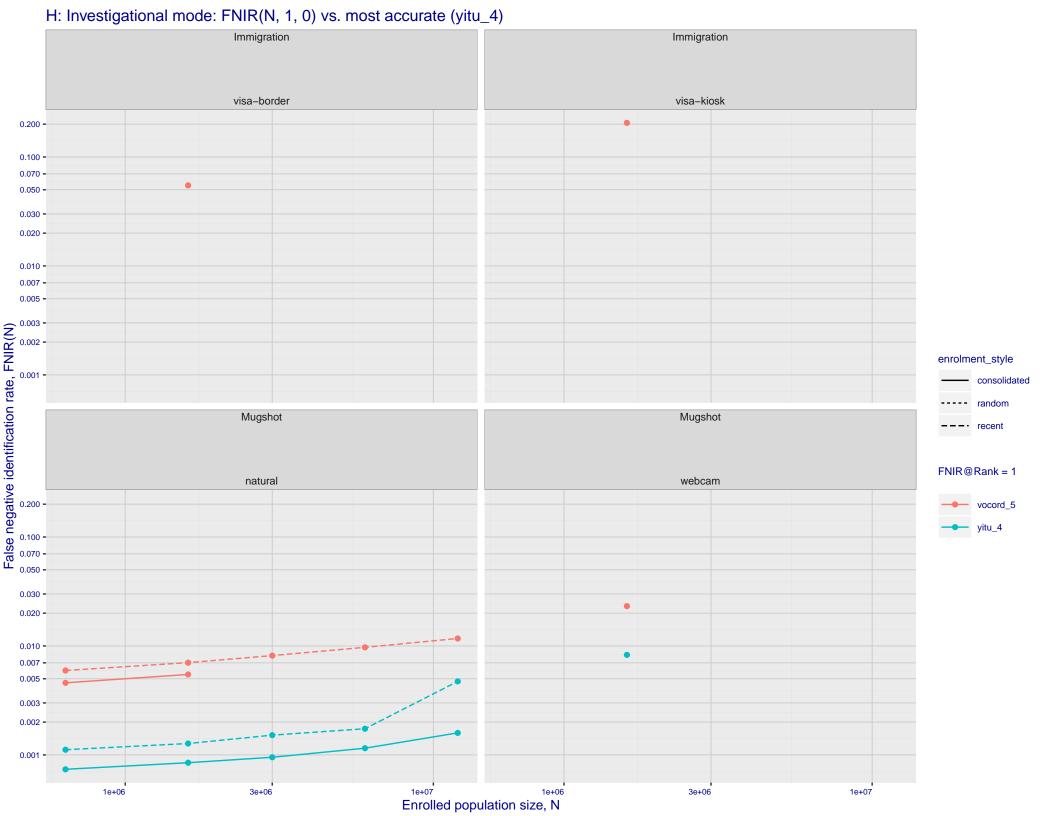


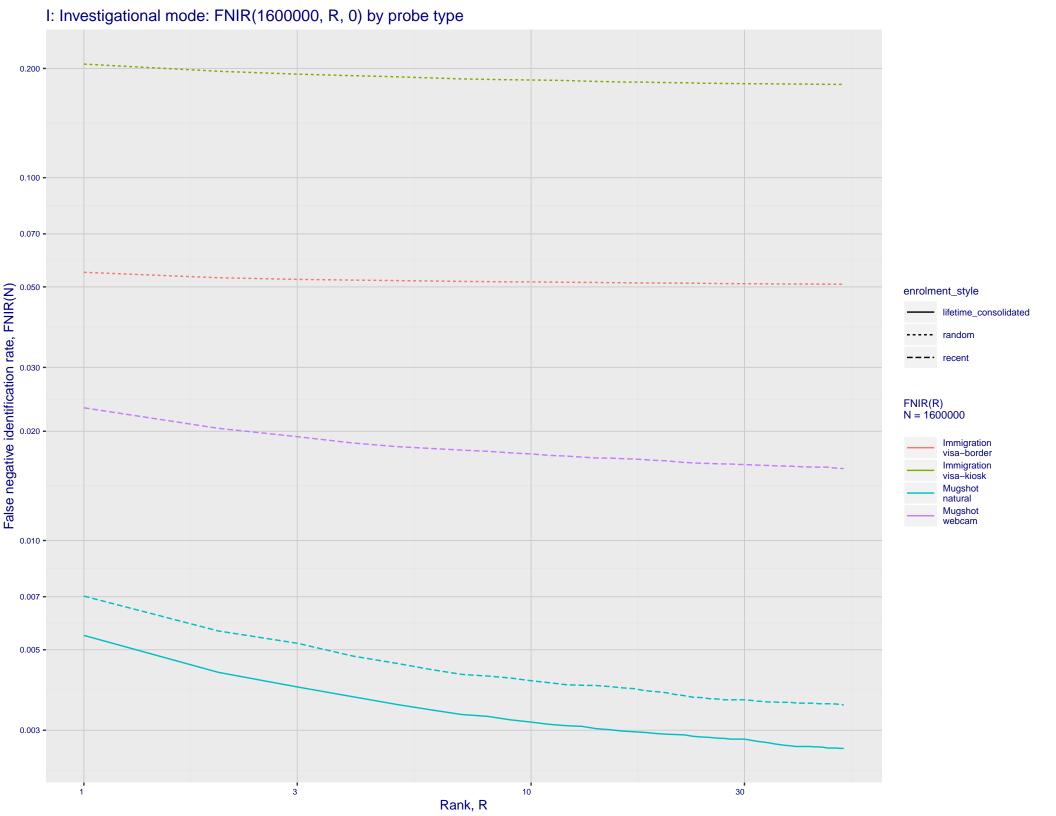




## G: Datasheet

Algorithm: vocord\_5 Developer: Vocord Submission Date: 2018\_10\_30 Template size: 768 bytes Template time (2.5 percentile): 778 msec Template time (median): 781 msec Template time (97.5 percentile): 1210 msec Frontal mugshot investigation rank 91 -- FNIR(1600000, 0, 1) = 0.0070 vs. lowest 0.0010 from sensetime\_004 natural investigation rank 79 -- FNIR(1600000, 0, 1) = 0.0232 vs. lowest 0.0067 from sensetime\_003 natural investigation rank 158 -- FNIR(1600000, 0, 1) = 0.7122 vs. lowest 0.0492 from paravision\_005 natural investigation rank 158 -- FNIR(1600000, 0, 1) = 0.7122 vs. lowest 0.0492 from paravision\_005 natural investigation rank 77 -- FNIR(1600000, 0, 1) = 0.0548 vs. lowest 0.0014 from visionlabs\_009 natural investigation rank 59 -- FNIR(1600000, 0, 1) = 0.2056 vs. lowest 0.0694 from cib\_000 Frontal mugshot identification rank 146 -- FNIR(1600000, T, L+1) = 0.1551 vs. lowest 0.0018 from sensetime\_004 natural identification rank 80 -- FNIR(1600000, T, L+1) = 0.1295 vs. lowest 0.0122 from sensetime\_003 natural identification rank 89 -- FNIR(1600000, T, L+1) = 0.9907 vs. lowest 0.1020 from sensetime\_004 natural identification rank 58 -- FNIR(1600000, T, L+1) = 0.1380 vs. lowest 0.0059 from sensetime\_004 natural identification rank 40 -- FNIR(1600000, T, L+1) = 0.3835 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

