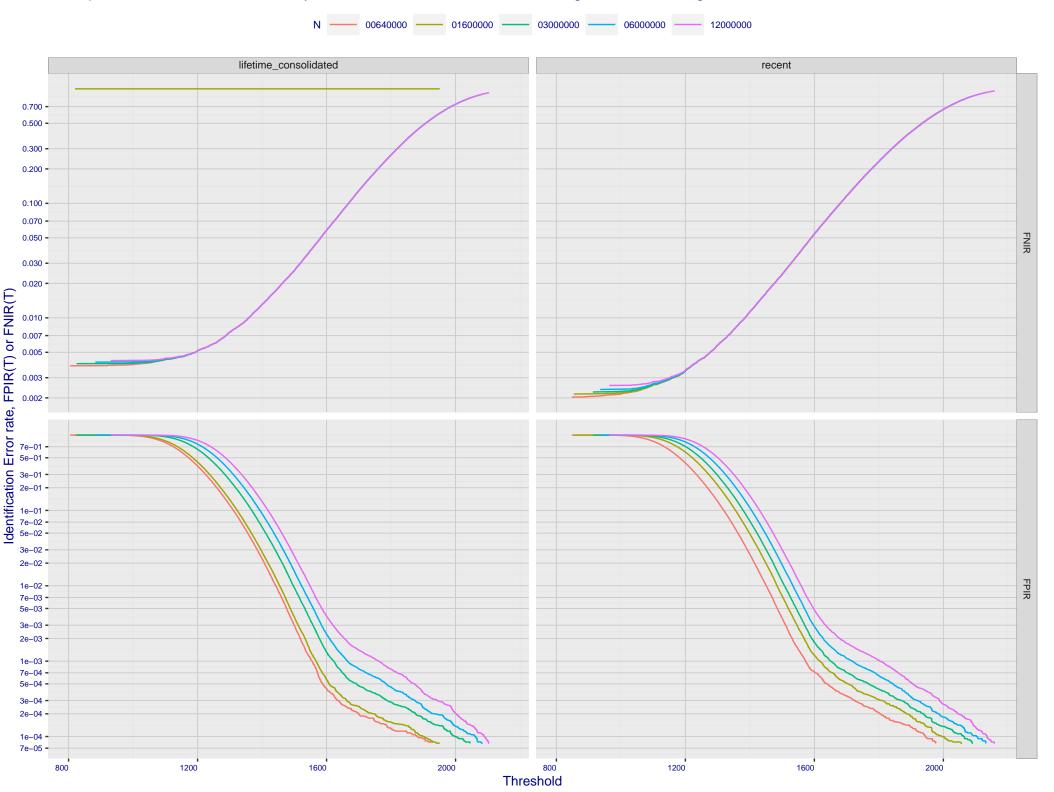
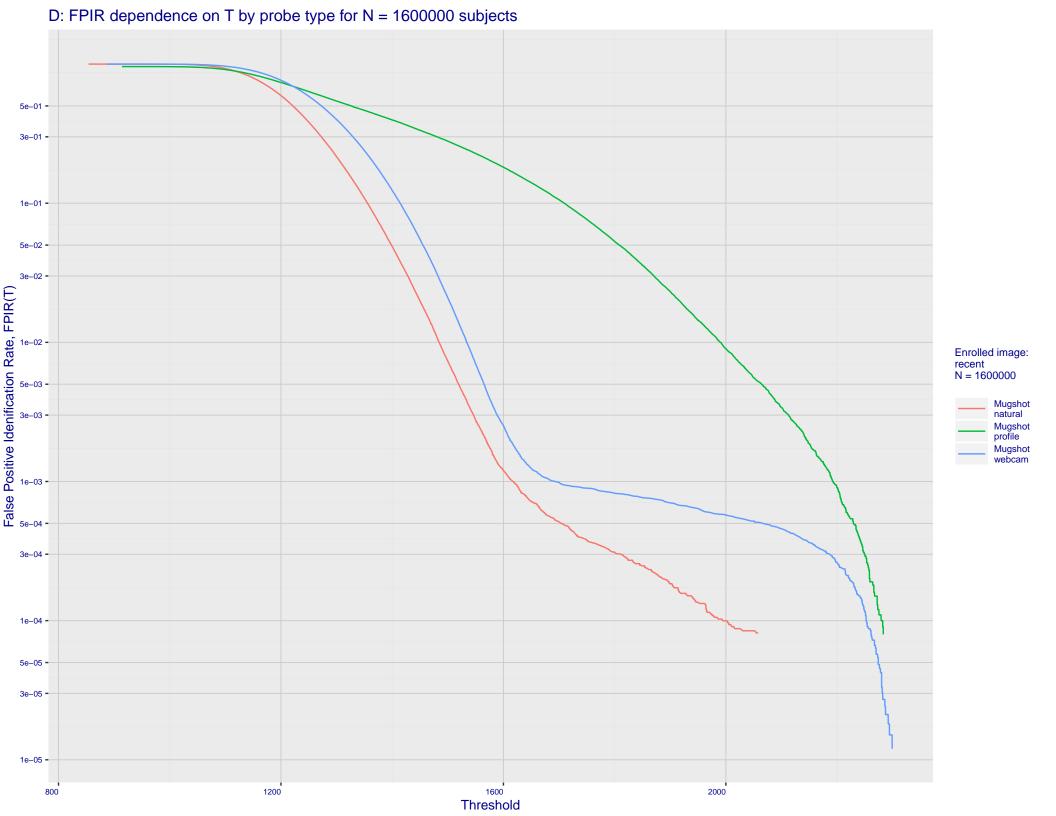
A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -False negative identification rate, FNIR(T) enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES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

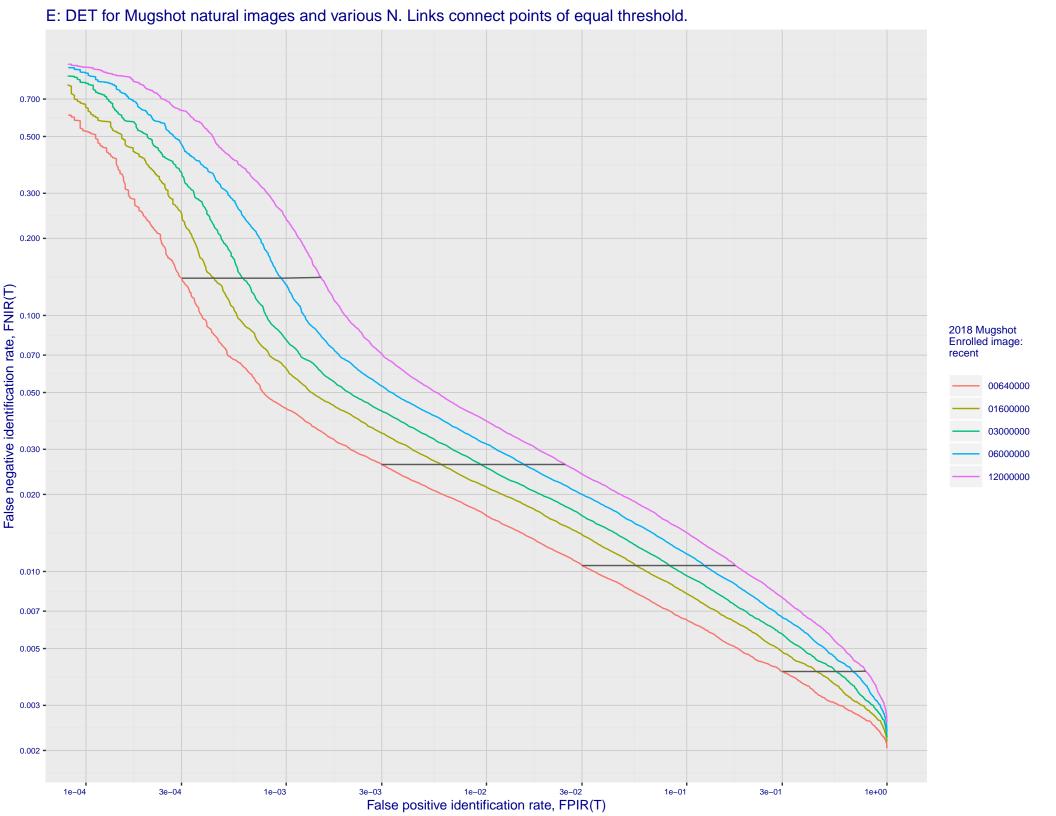
False positive identification rate, FPIR(T)

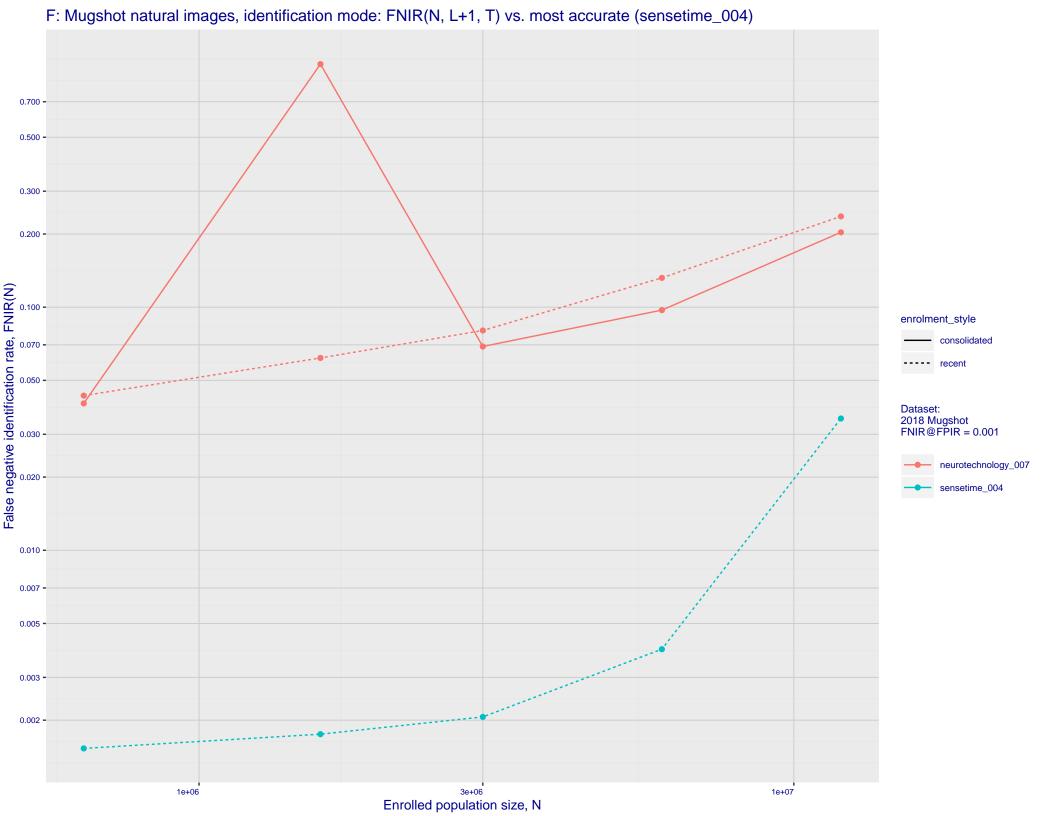
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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 -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)

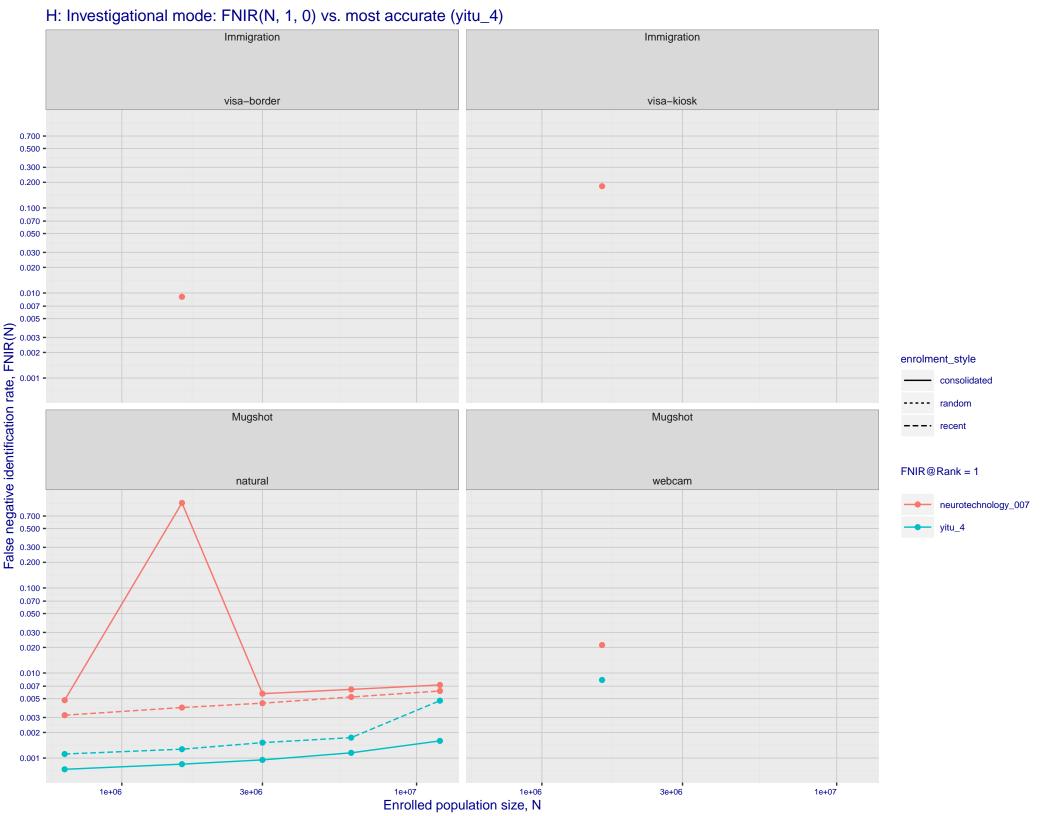


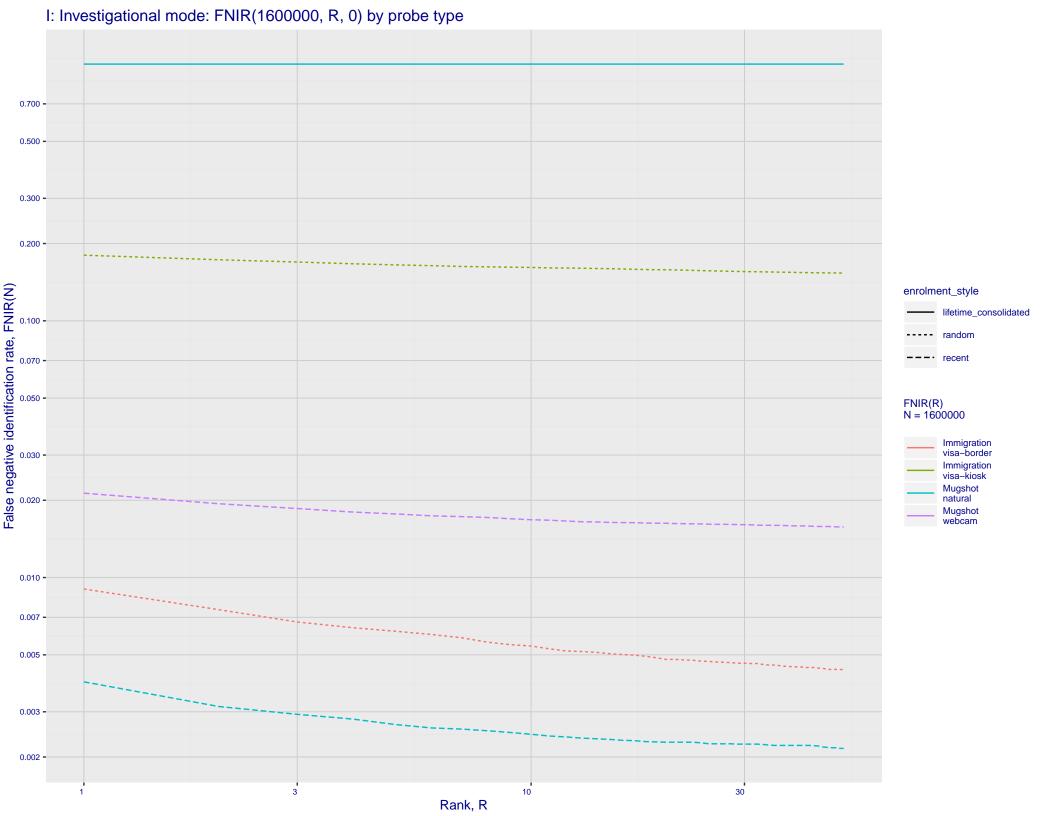




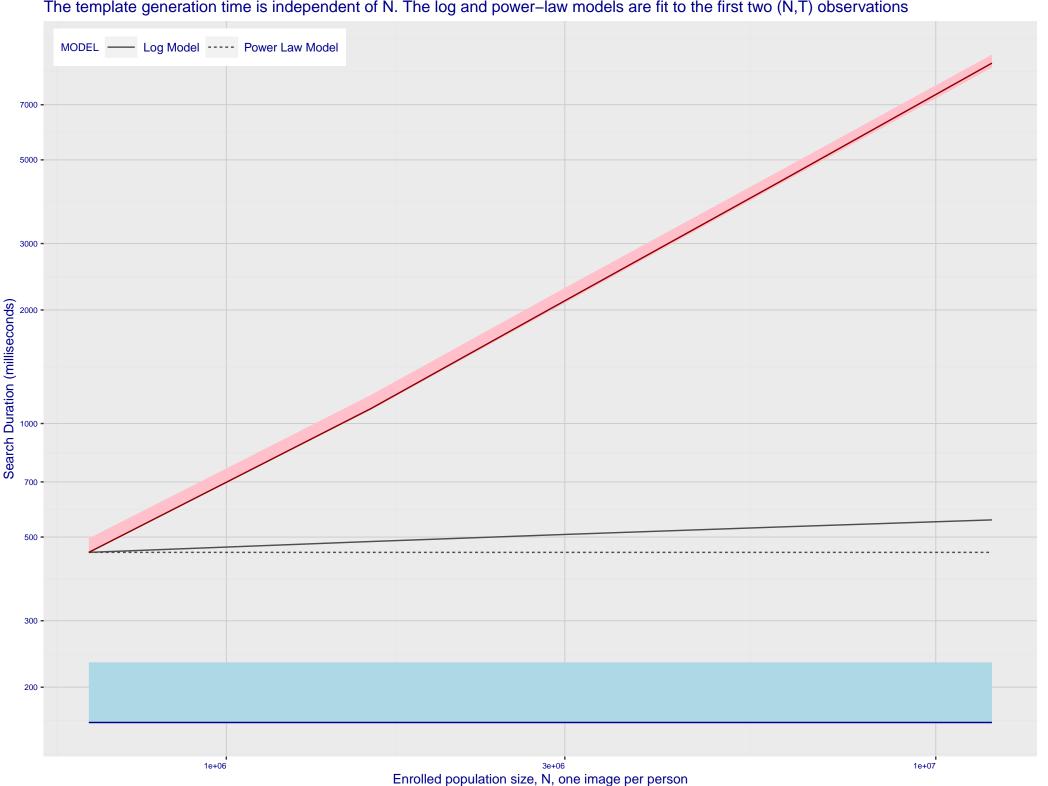
## G: Datasheet

Algorithm: neurotechnology\_007 Developer: Neurotechnology Submission Date: 2019\_10\_03 Template size: 256 bytes Template time (2.5 percentile): 161 msec Template time (median): 161 msec Template time (97.5 percentile): 233 msec Frontal mugshot investigation rank 54 -- FNIR(1600000, 0, 1) = 0.0039 vs. lowest 0.0010 from sensetime\_004 natural investigation rank 66 -- FNIR(1600000, 0, 1) = 0.0213 vs. lowest 0.0067 from sensetime\_003 natural investigation rank 154 -- FNIR(1600000, 0, 1) = 0.7015 vs. lowest 0.0492 from paravision\_005 natural investigation rank 154 -- FNIR(1600000, 0, 1) = 0.7015 vs. lowest 0.0492 from paravision\_005 natural investigation rank 46 -- FNIR(1600000, 0, 1) = 0.0090 vs. lowest 0.0014 from visionlabs\_009 natural investigation rank 56 -- FNIR(1600000, 0, 1) = 0.1801 vs. lowest 0.0694 from cib\_000 Frontal mugshot identification rank 90 -- FNIR(1600000, T, L+1) = 0.0618 vs. lowest 0.0018 from sensetime\_004 natural identification rank 105 -- FNIR(1600000, T, L+1) = 0.1684 vs. lowest 0.0122 from sensetime\_003 natural identification rank 150 -- FNIR(1600000, T, L+1) = 0.9998 vs. lowest 0.1020 from sensetime\_004 natural identification rank 71 -- FNIR(1600000, T, L+1) = 0.3392 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



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

