A: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Mugshot natural 0.700 0.500 0.300 -0.200 -False negative identification rate, FNIR(T) enrolment\_style consolidated-ONE-MATE recent-ONE-MATE 0.010 -0.007 0.005 -0.003 -0.002 -

False positive identification rate, FPIR(T)

1e-01

3e-01

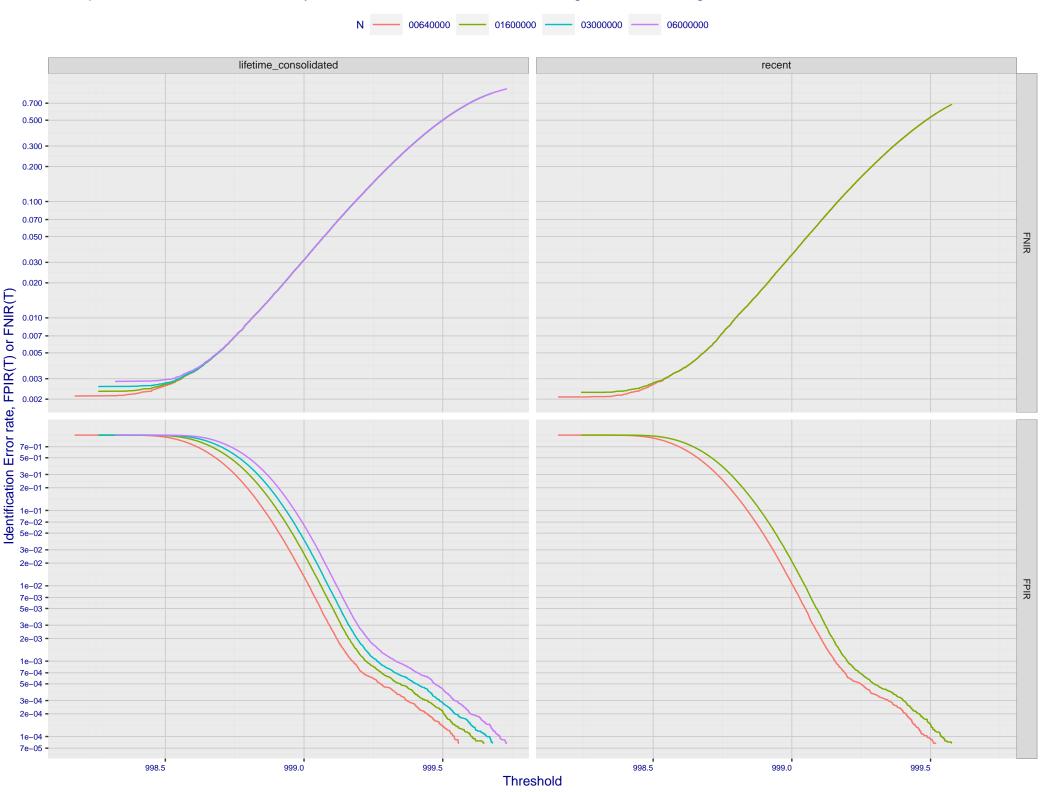
1e+00

3e-04

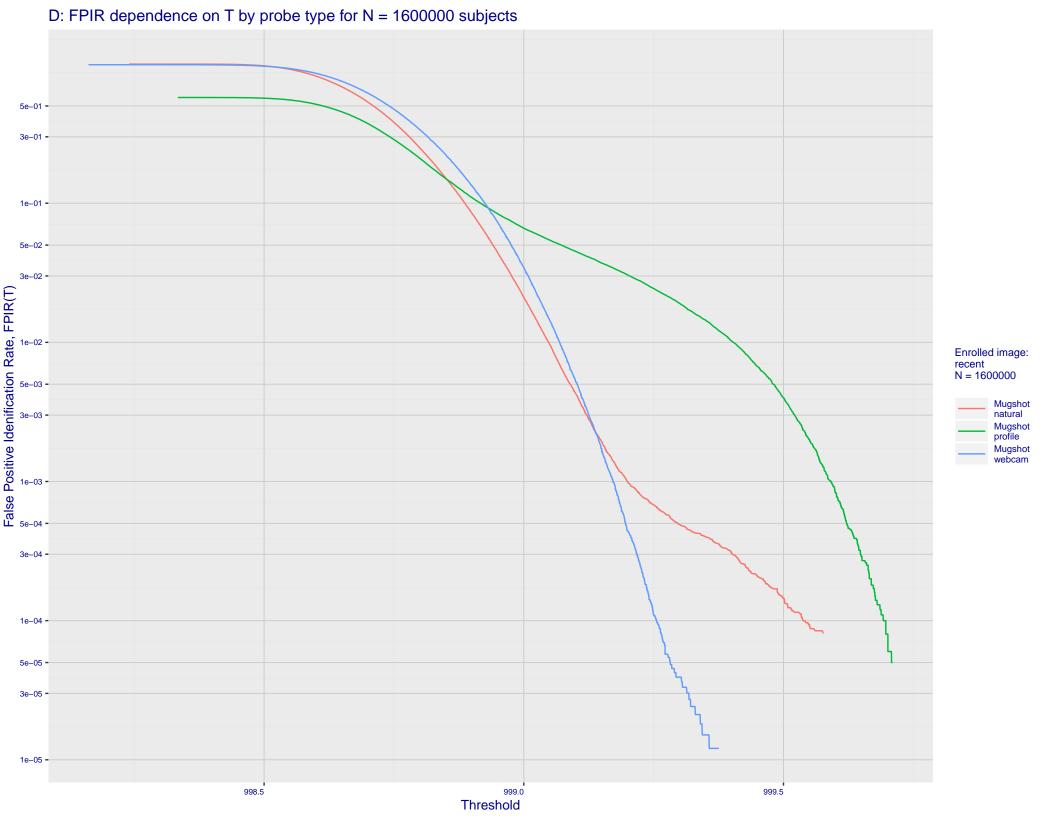
1e-04

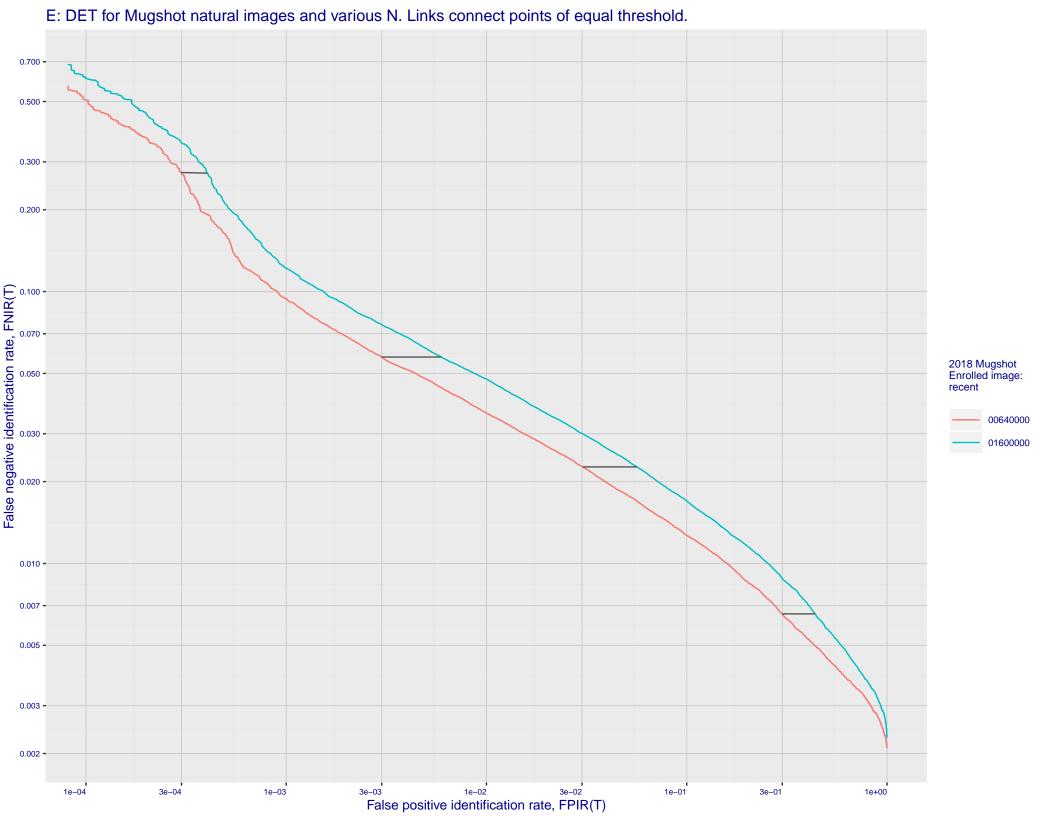
1e-03

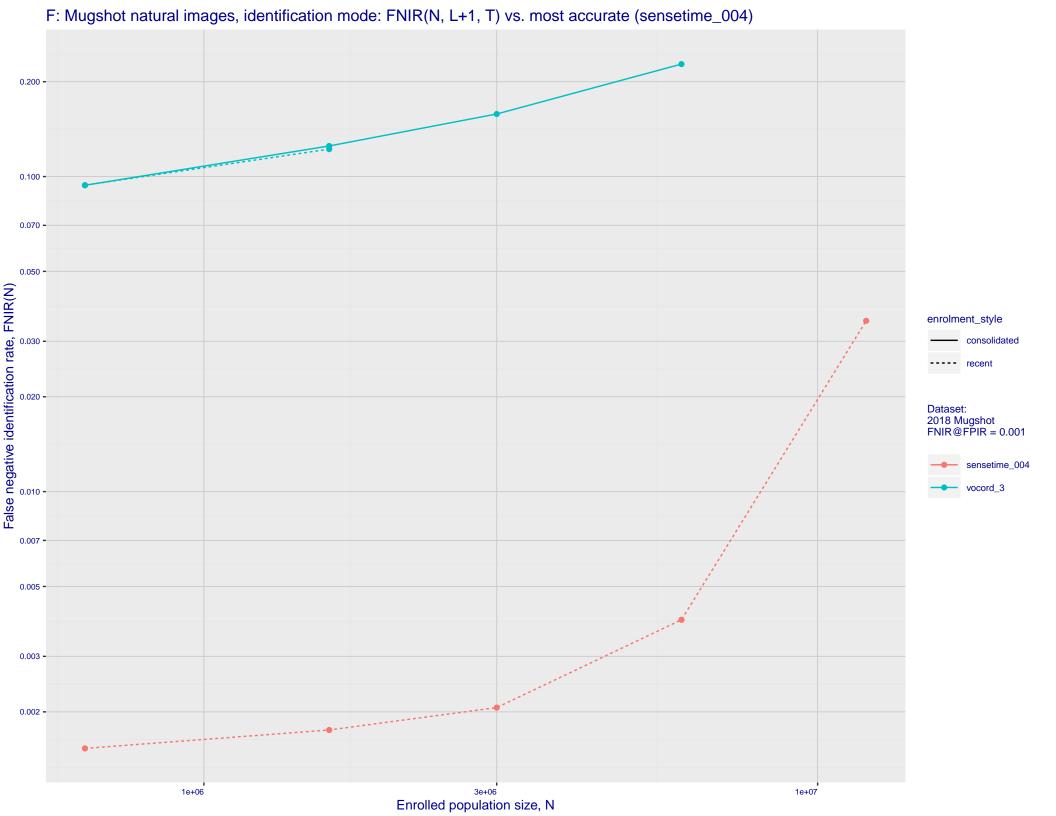
B: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



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 Enrolled images: recent N = 1600000 (L) 1e-01 - 2e-02 - 3e-02 - 2e-02 - 2e Mugshot natural Mugshot profile Mugshot webcam 1e-02 -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 -1e-03 3e-03 3e-02 1e-01 1e-05 3e-05 1e-04 3e-04 3e-01 False Positive Idenification Rate, FPIR(T)







## G: Datasheet

Algorithm: vocord\_3

Developer: Vocord

Submission Date: 2018\_06\_30

Template size: 896 bytes

Template time (2.5 percentile): 650 msec

Template time (median): 696 msec

Template time (97.5 percentile): 829 msec

Frontal mugshot investigation rank 81 -- FNIR(1600000, 0, 1) = 0.0062 vs. lowest 0.0010 from sensetime\_004

natural investigation rank 83 -- FNIR(1600000, 0, 1) = 0.0241 vs. lowest 0.0067 from sensetime\_003

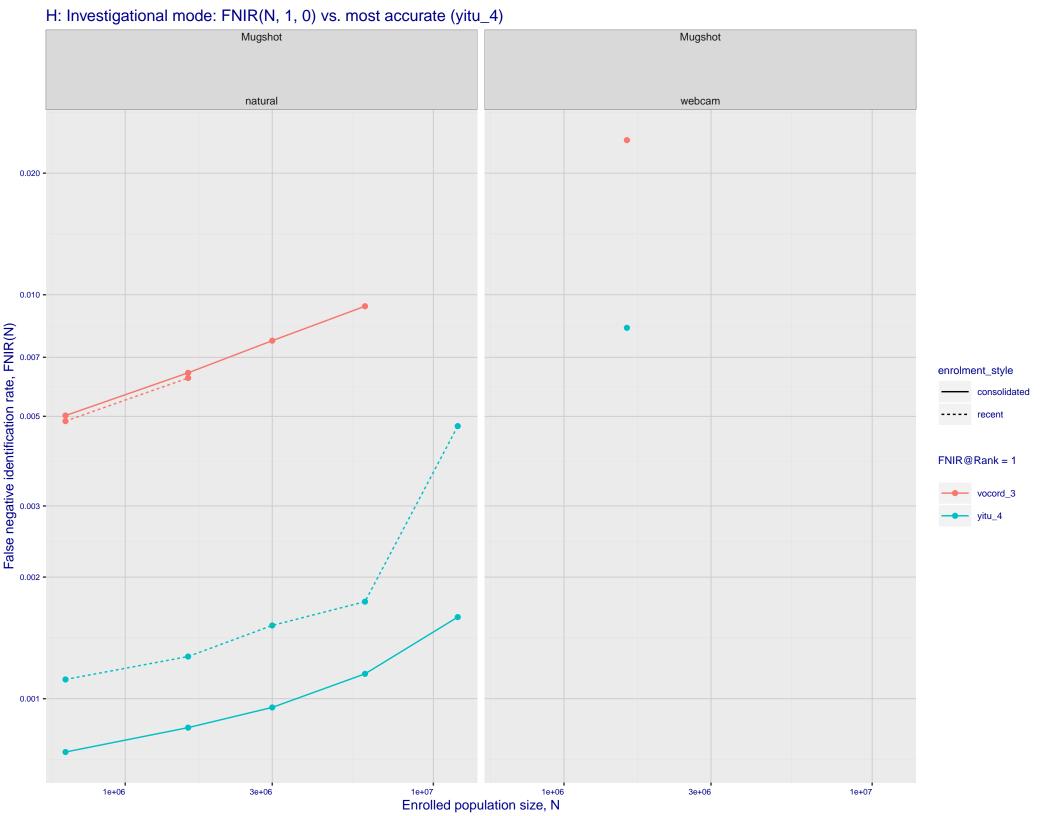
natural investigation rank 150 -- FNIR(1600000, 0, 1) = 0.6948 vs. lowest 0.0492 from paravision\_005

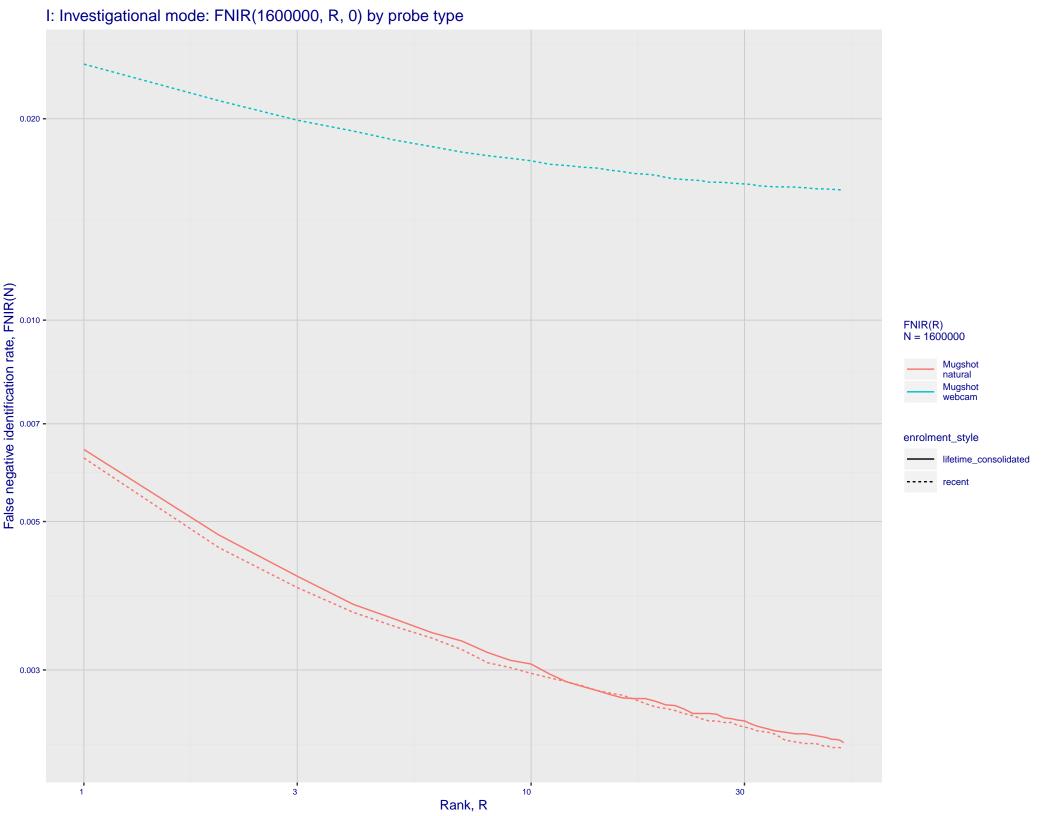
natural investigation rank 150 -- FNIR(1600000, 0, 1) = 0.6948 vs. lowest 0.0492 from paravision\_005

Frontal mugshot identification rank 136 -- FNIR(1600000, T, L+1) = 0.1222 vs. lowest 0.0018 from sensetime\_004

natural identification rank 94 -- FNIR(1600000, T, L+1) = 0.1544 vs. lowest 0.0122 from sensetime\_003

natural identification rank 97 -- FNIR(1600000, T, L+1) = 0.9939 vs. lowest 0.1020 from sensetime\_004





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

