## A: Datasheet

Algorithm: neurotechnology\_6

Developer: Neurotechnology

Submission Date: 2018\_10\_30

Template size: 256 bytes

Template time (2.5 percentile): 726 msec

Template time (median): 727 msec

Template time (97.5 percentile): 812 msec

Investigation:

Frontal mugshot ranking 172 (out of 279) -- FNIR(1600000, 0, 1) = 0.0180 vs. lowest 0.0009 from sensetime\_005

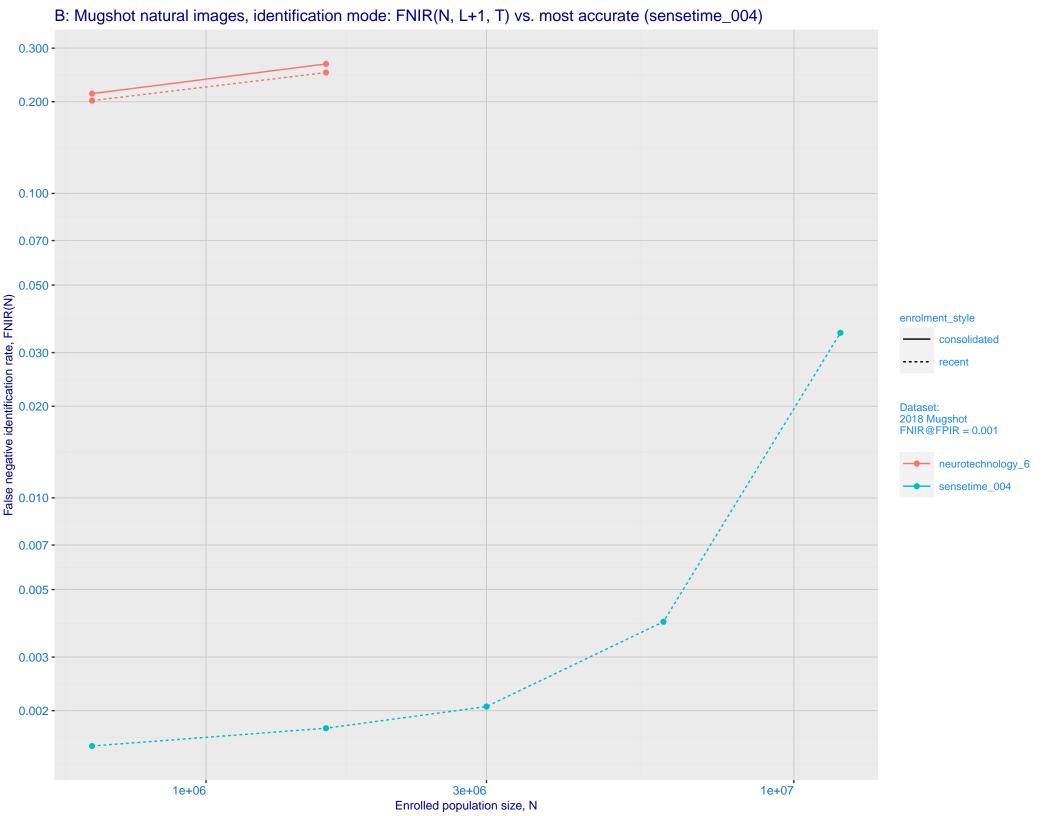
Mugshot webcam ranking 153 (out of 241) -- FNIR(1600000, 0, 1) = 0.0448 vs. lowest 0.0062 from sensetime\_005

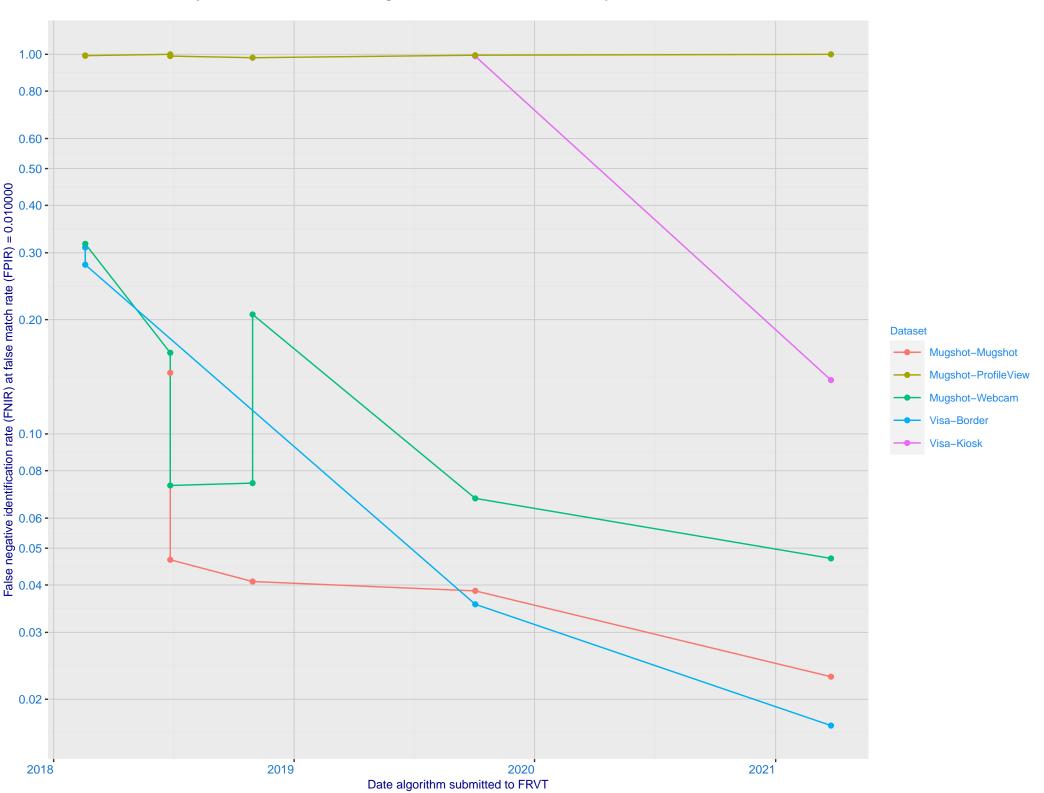
Mugshot profile ranking 76 (out of 210) -- FNIR(1600000, 0, 1) = 0.6063 vs. lowest 0.0587 from xforwardai\_002

Identification:

Frontal mugshot ranking 196 (out of 279) -- FNIR(1600000, T, L+1) = 0.2494, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 183 (out of 236) -- FNIR(1600000, T, L+1) = 0.4176, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

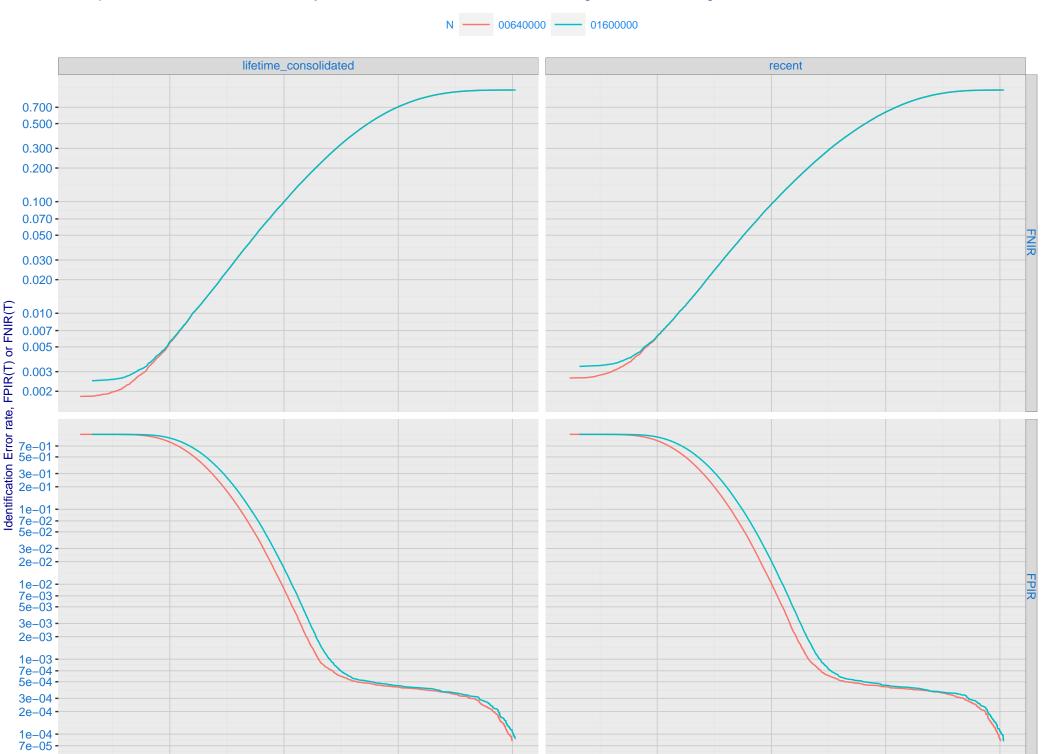




D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 neurotechnology 6 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 sensetime 004 0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

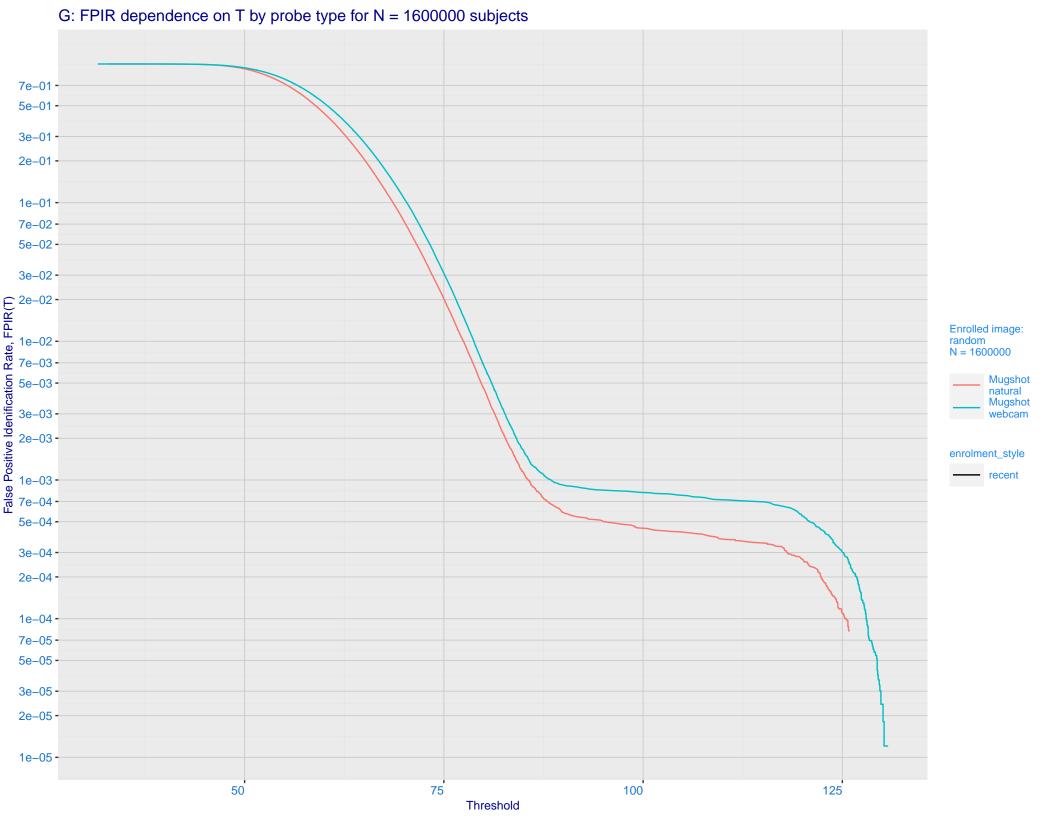
False positive identification rate, FPIR(T)

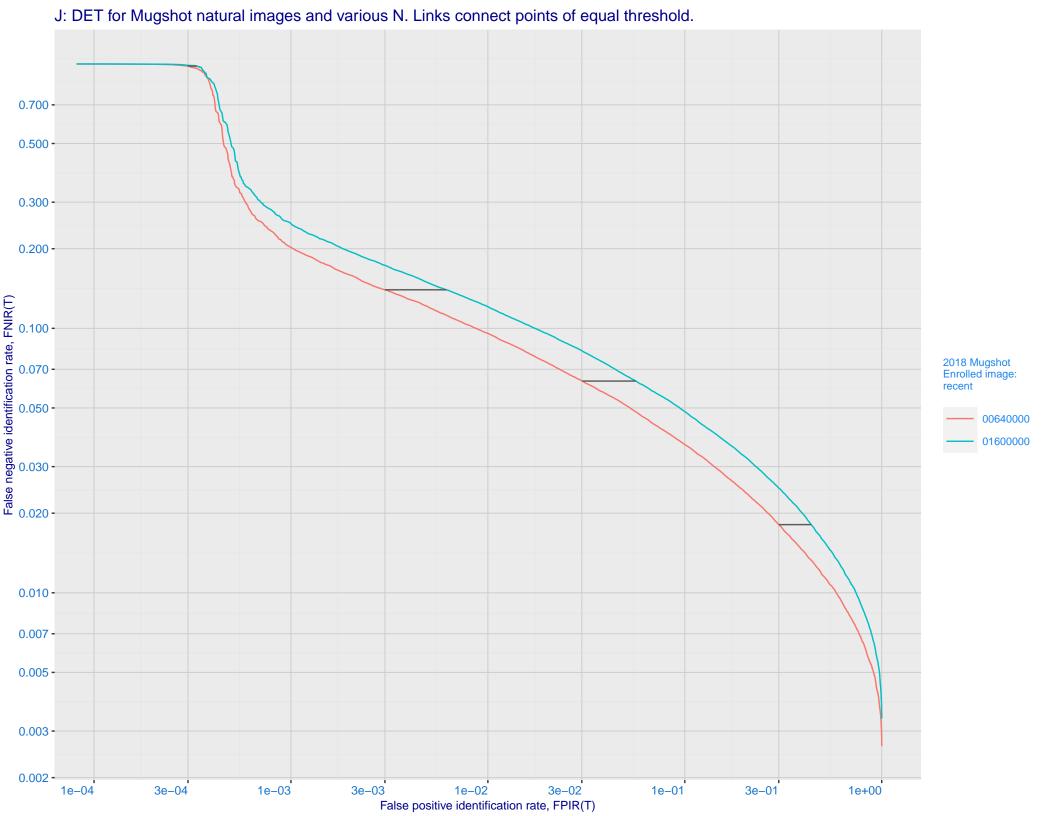
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images

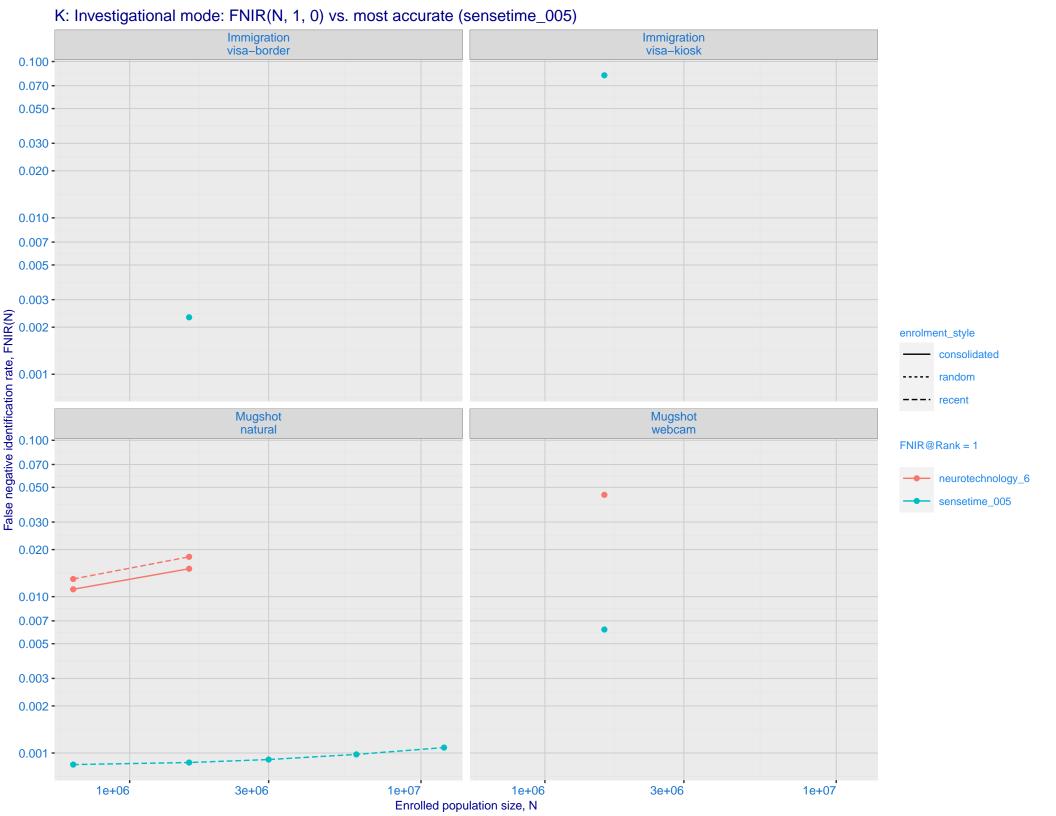


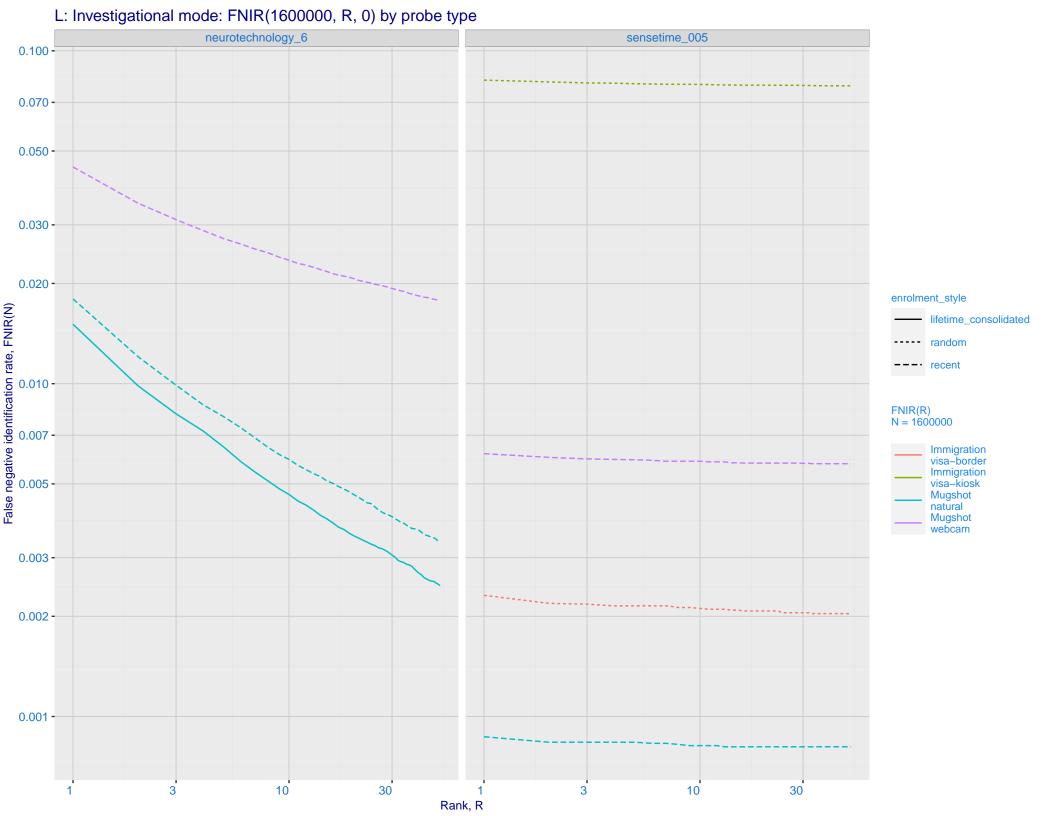
Threshold

F: 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 - 7e-02 **Enrolled images:** recent N = 1600000Mugshot natural 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 -2e-05 -1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)









M: 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 - Log Model ---- Power Law Model 700 -500 -

1e+06

Enrolled population size, N, one image per person

Search Duration (milliseconds)

7e+05

8e+05

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



