A: Datasheet

Algorithm: neurotechnology_2

Developer: Neurotechnology

Submission Date: 2018_02_16

Template size: 5214 bytes

Template time (2.5 percentile): 650 msec

Template time (median): 656 msec

Template time (97.5 percentile): 679 msec

Investigation:

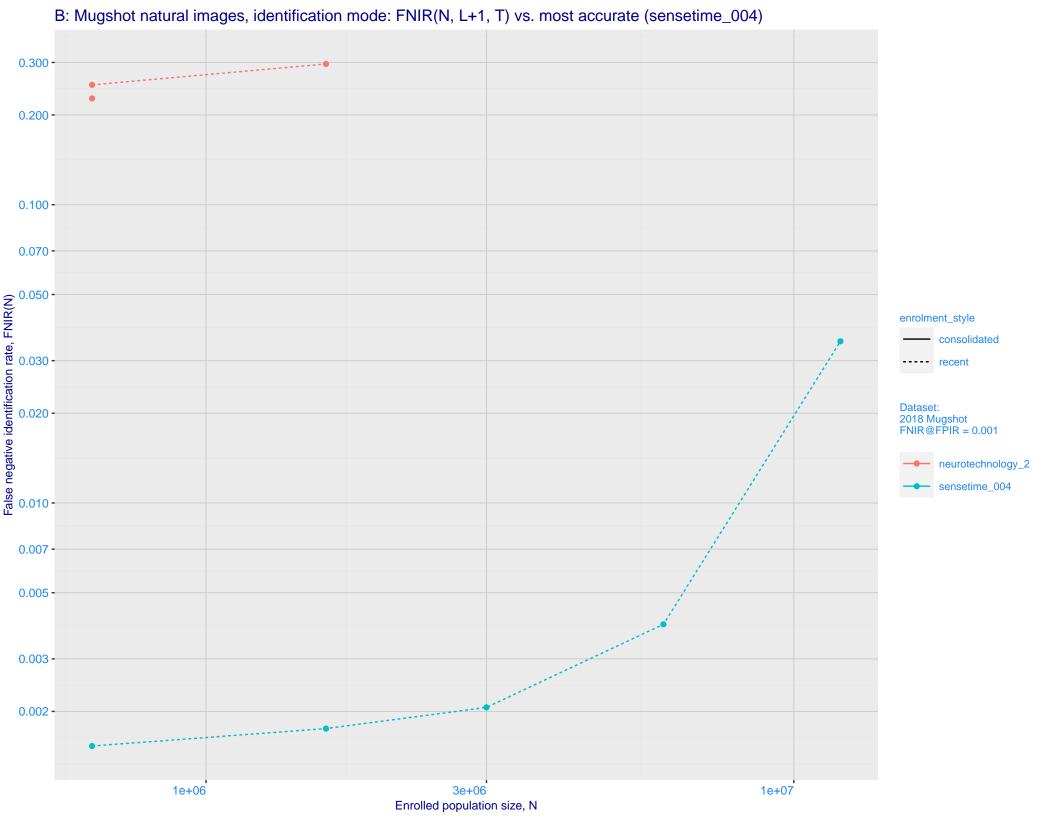
Frontal mugshot ranking 198 (out of 265) -- FNIR(1600000, 0, 1) = 0.0440 vs. lowest 0.0009 from sensetime_005

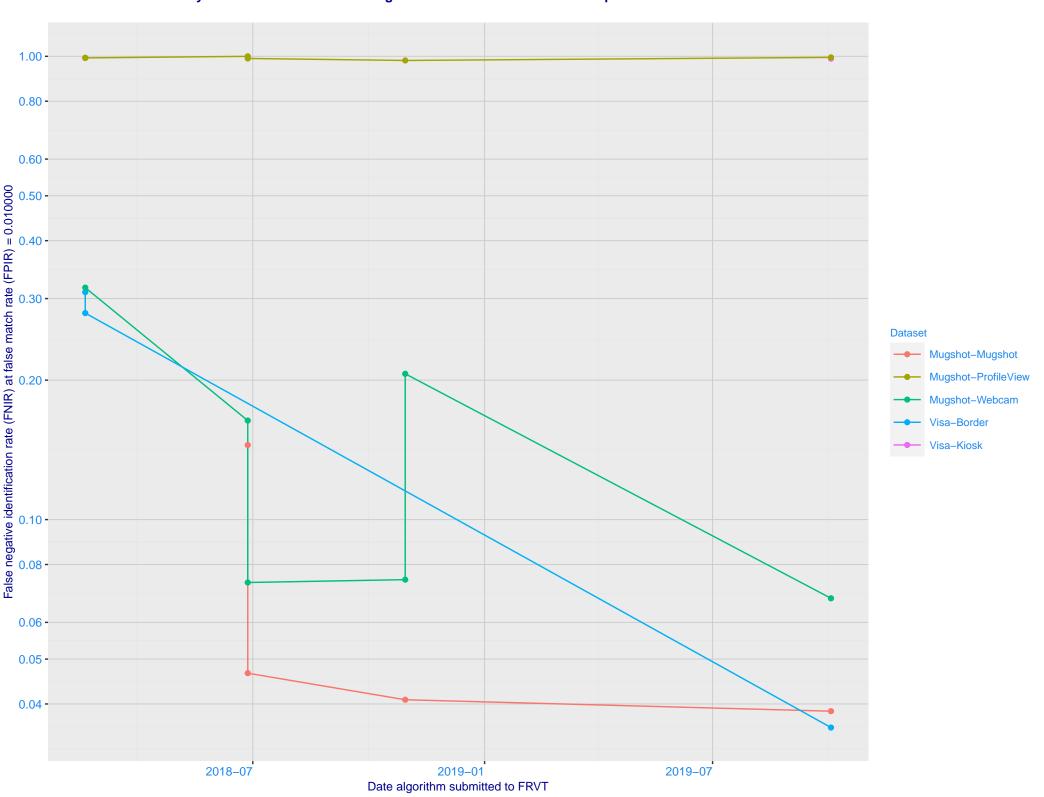
Mugshot profile ranking 161 (out of 196) -- FNIR(1600000, 0, 1) = 0.9658 vs. lowest 0.0591 from sensetime_005

Identification:

Frontal mugshot ranking 195 (out of 265) -- FNIR(1600000, T, L+1) = 0.2965, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot profile ranking 112 (out of 195) -- FNIR(1600000, T, L+1) = 0.9976, FPIR=0.001000 vs. lowest 0.1331 from hr_000

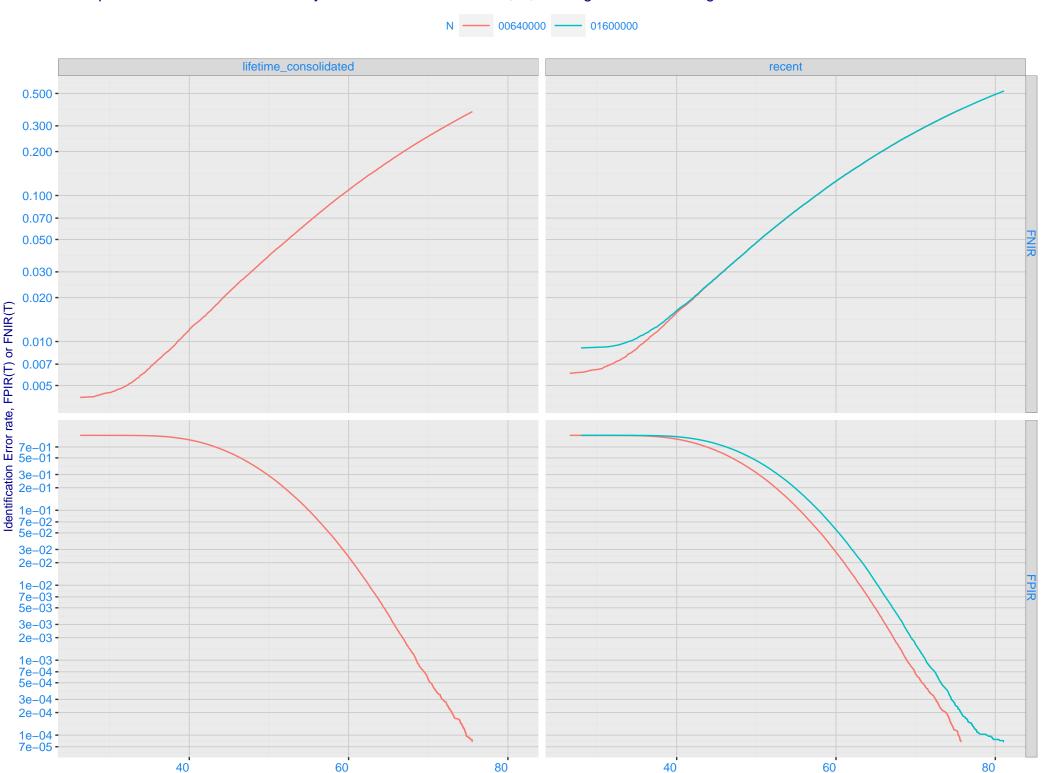




D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 neurotechnology 0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200 - 0.100 - 0 enrolment_style random-ONE-MATE recent-ONE-MATE 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

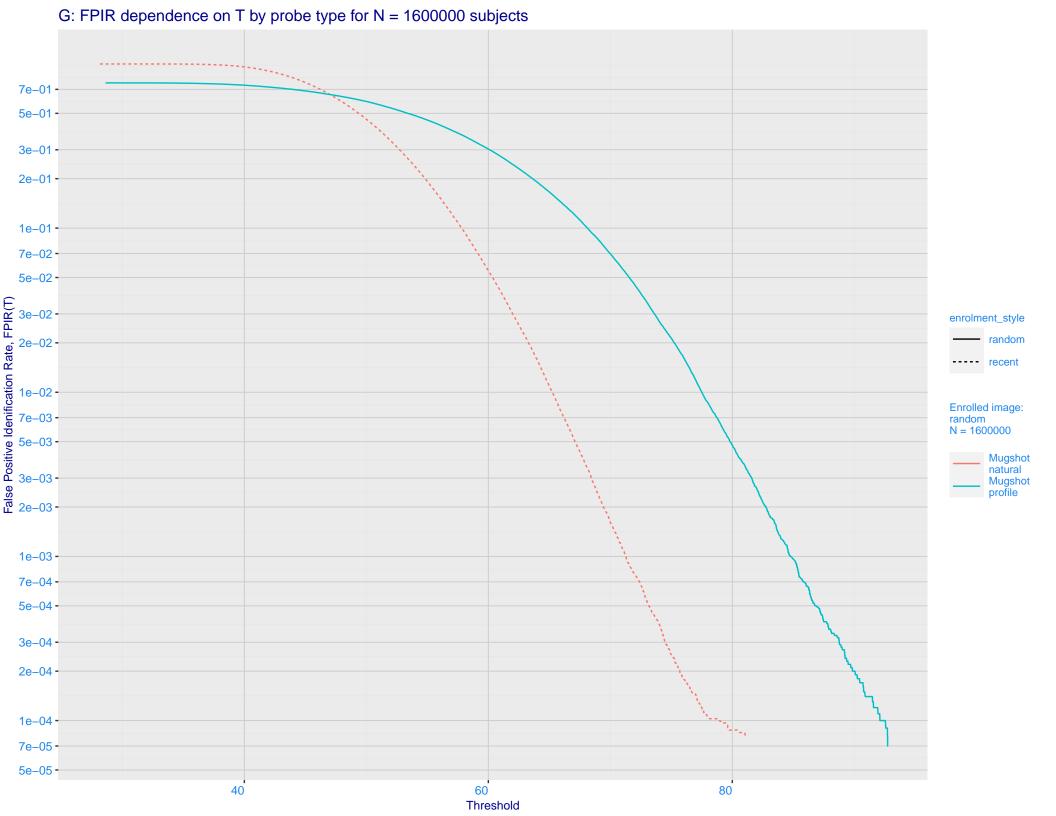
False positive identification rate, FPIR(T)

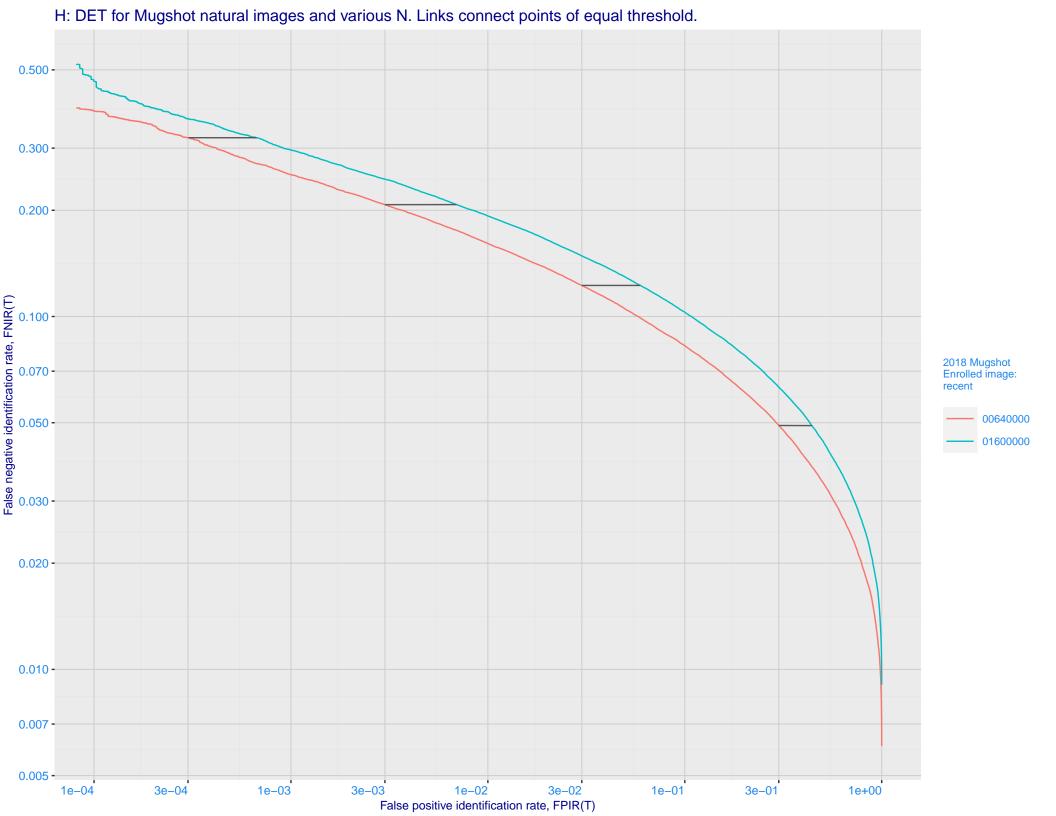
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



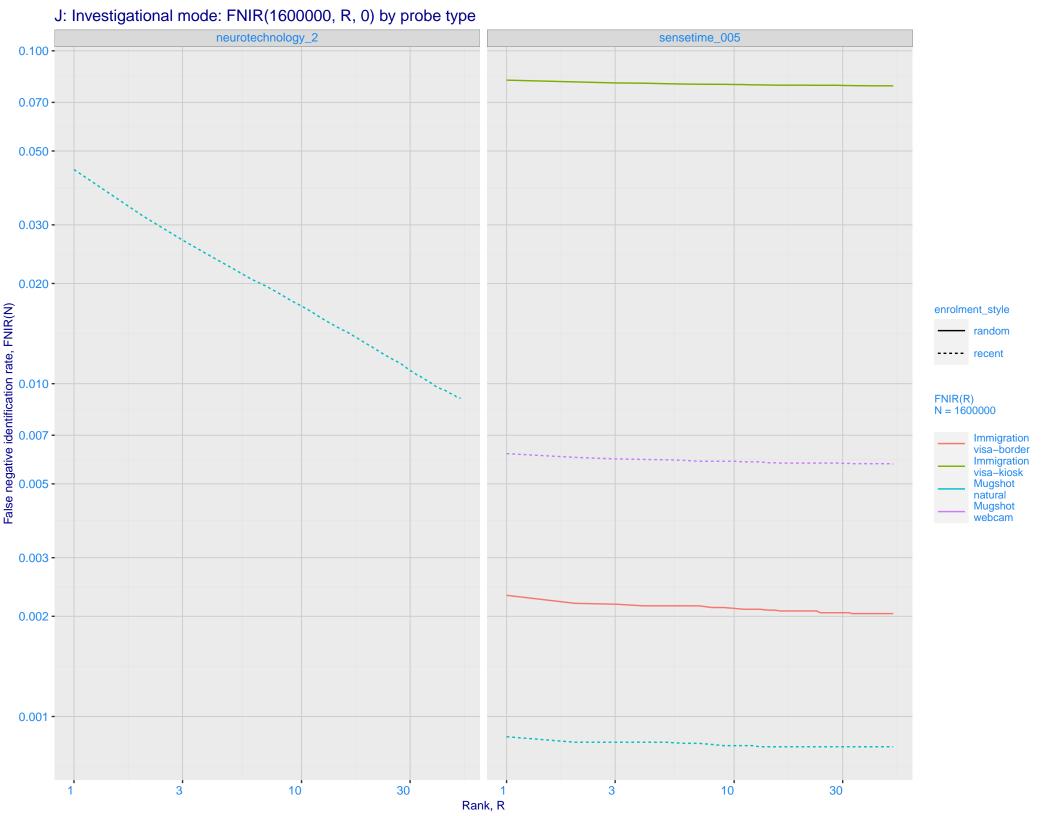
Threshold

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 -Selectivity, SEL(T) 1e-01 - 5e-02 - 5e-02 - 3e-02 - 3e-02 - 5e-02 - 5 Enrolled images: recent N = 1600000 Mugshot natural 2e-02 -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 -1e-04 3e-04 1e-03 3e-03 1e-02 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

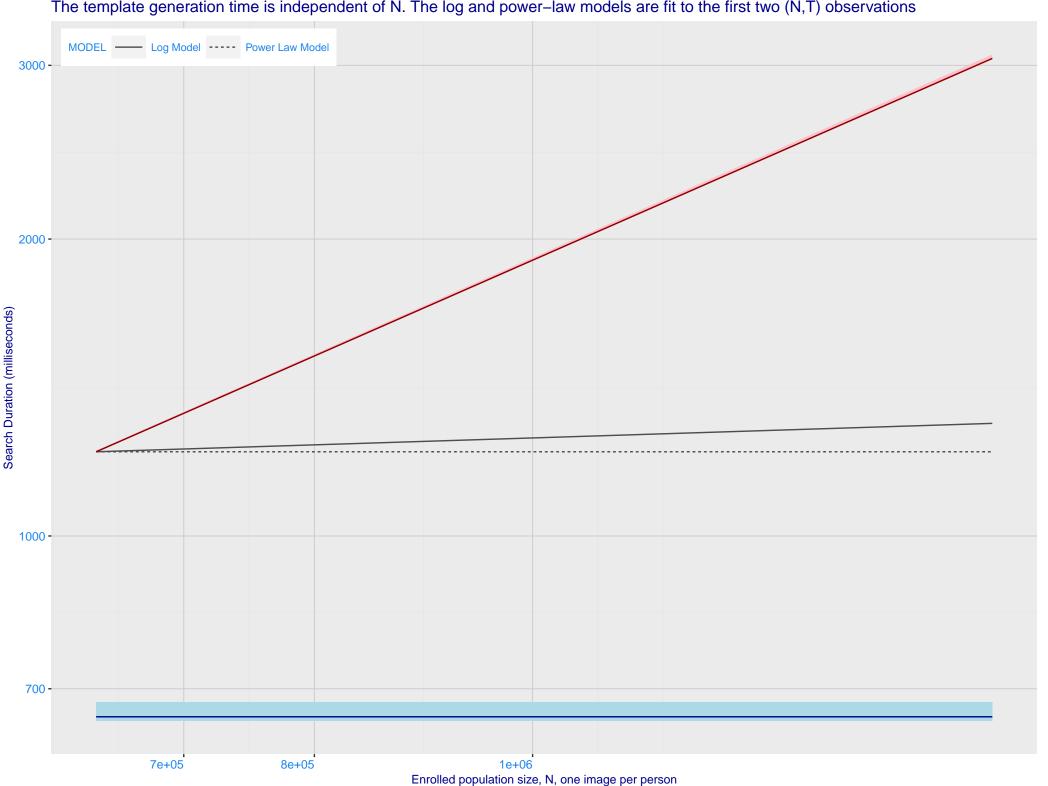




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 neurotechnology_2 sensetime_005 0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -1e+06 3e+06 1e+07 1e+06 3e+06 1e+07 Enrolled population size, N



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



