## A: Datasheet

Algorithm: realnetworks\_1

Developer: Realnetworks Inc

Submission Date: 2018\_06\_21

Template size: 4104 bytes

Template time (2.5 percentile): 234 msec

Template time (median): 239 msec

Template time (97.5 percentile): 259 msec

Investigation:

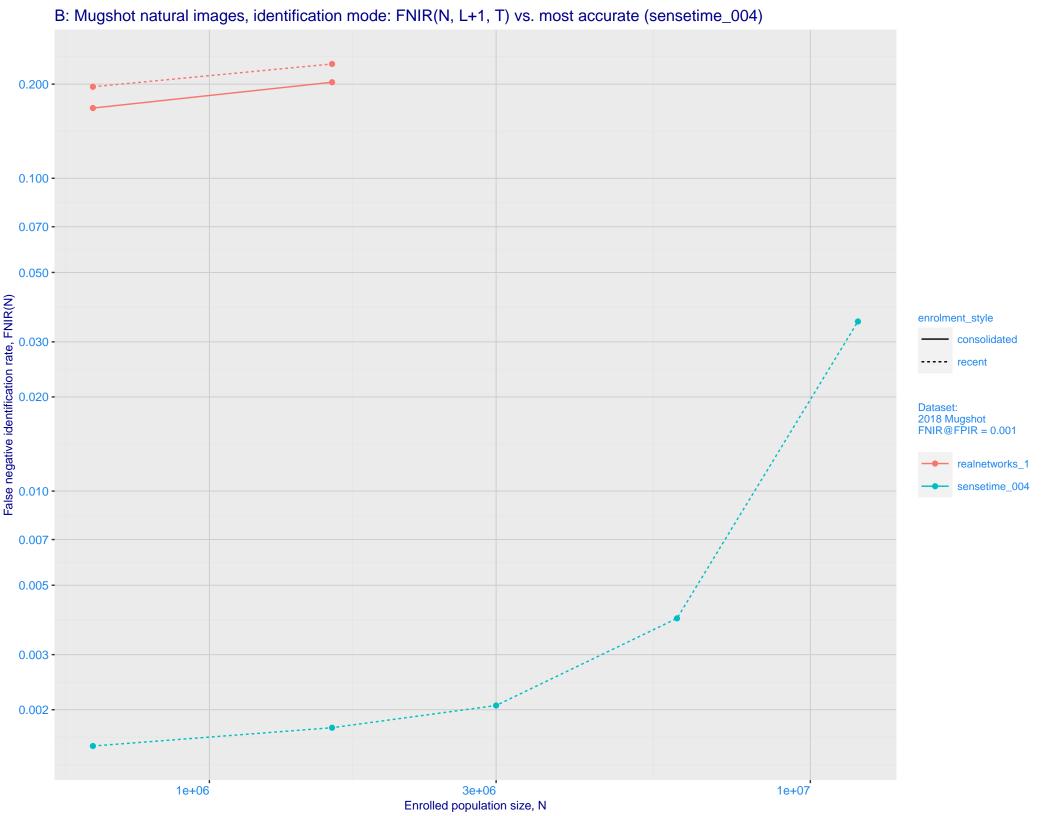
Frontal mugshot ranking 194 (out of 265) -- FNIR(1600000, 0, 1) = 0.0402 vs. lowest 0.0009 from sensetime\_005

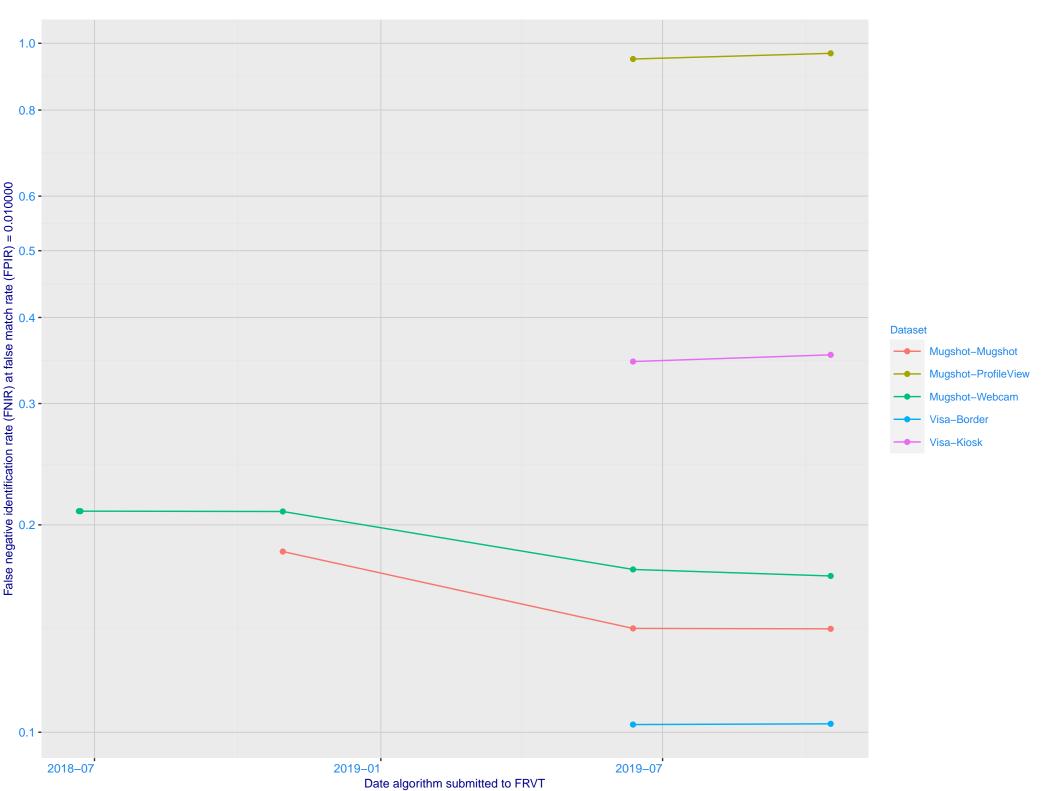
Mugshot webcam ranking 172 (out of 227) -- FNIR(1600000, 0, 1) = 0.0779 vs. lowest 0.0062 from sensetime\_005

Identification:

Frontal mugshot ranking 182 (out of 265) -- FNIR(1600000, T, L+1) = 0.2320, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

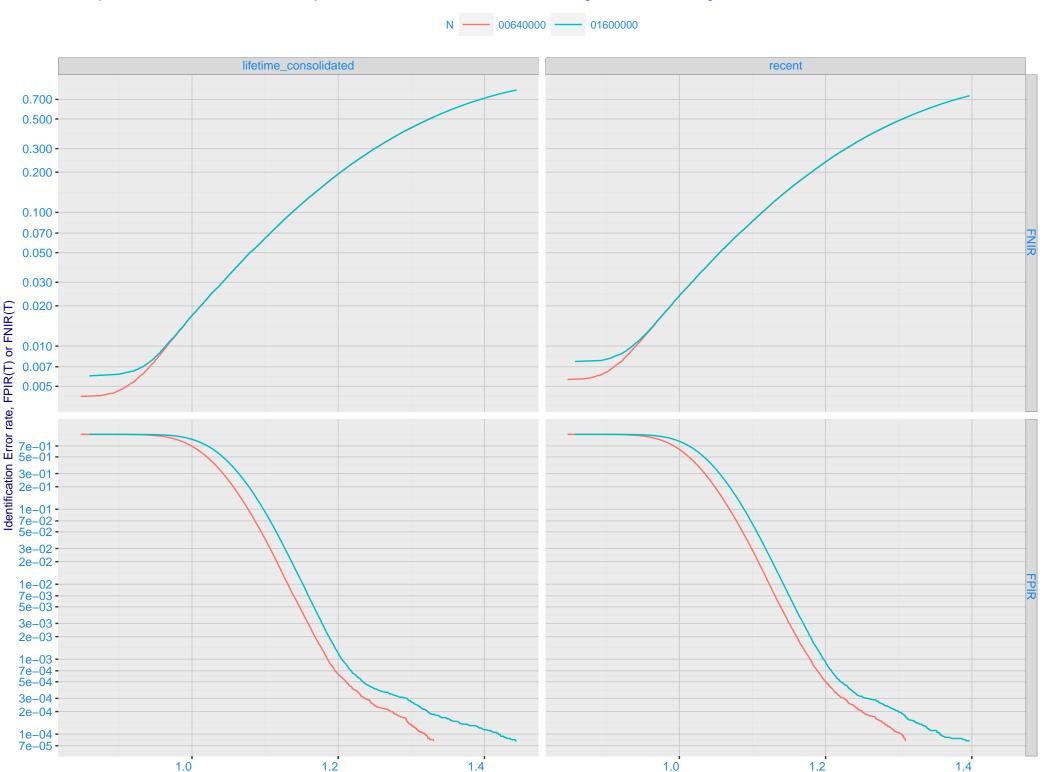
Mugshot webcam ranking 162 (out of 225) -- FNIR(1600000, T, L+1) = 0.3184, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003





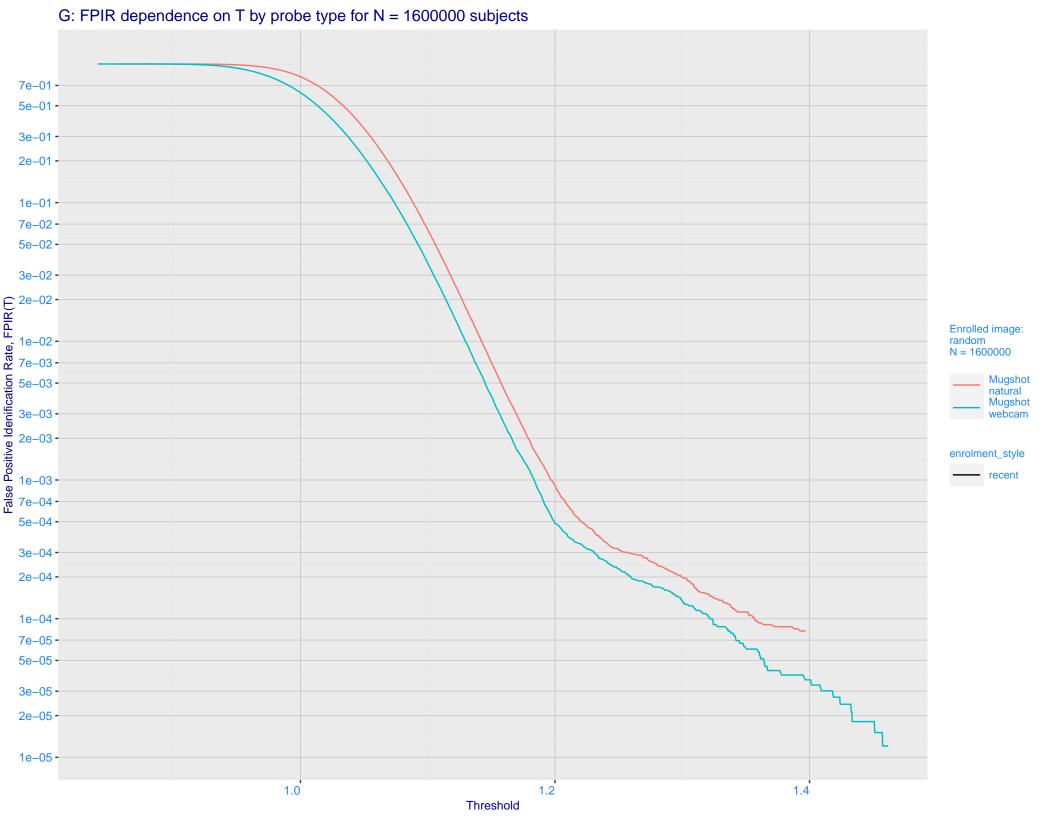
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.002 - 0.002 - 0.000 - 0.500 - 0.200 - 0. enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

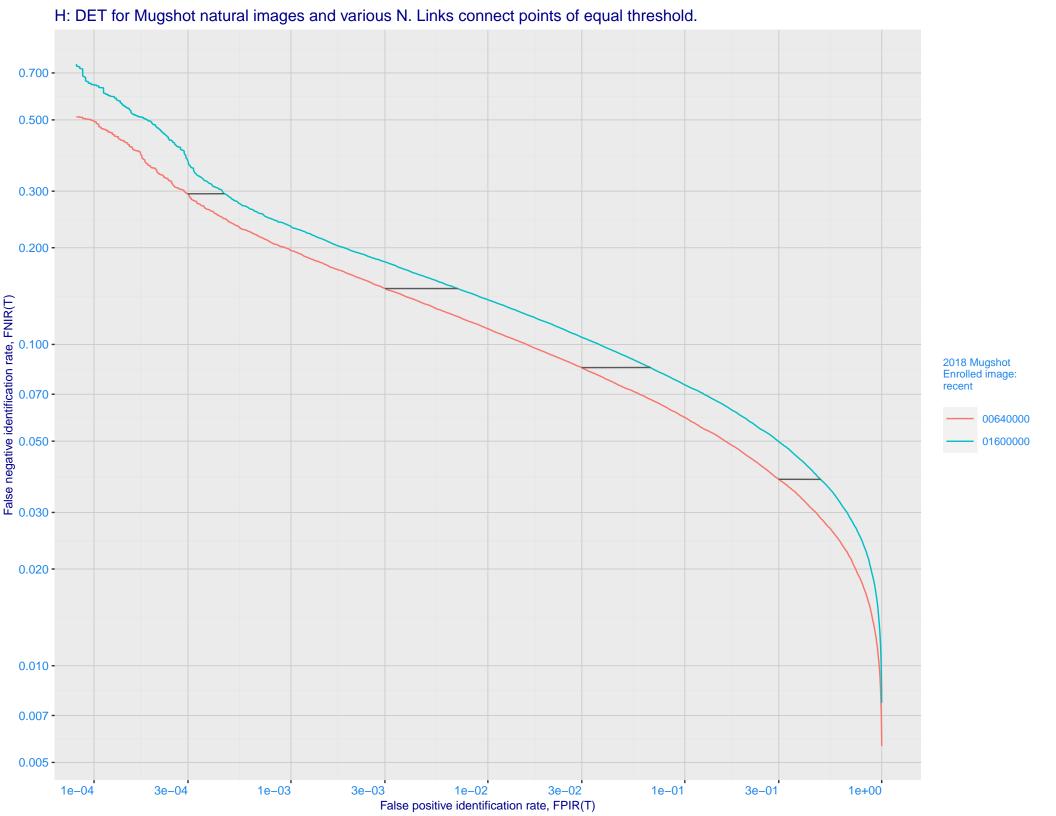
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



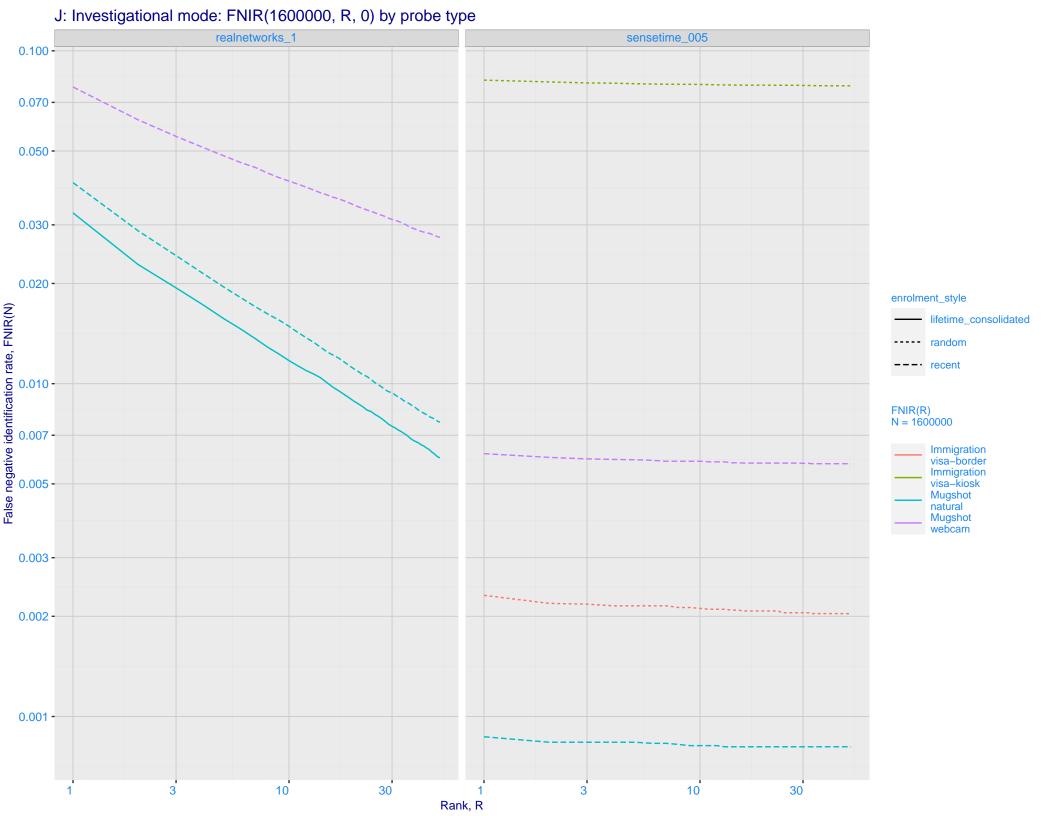
Threshold

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

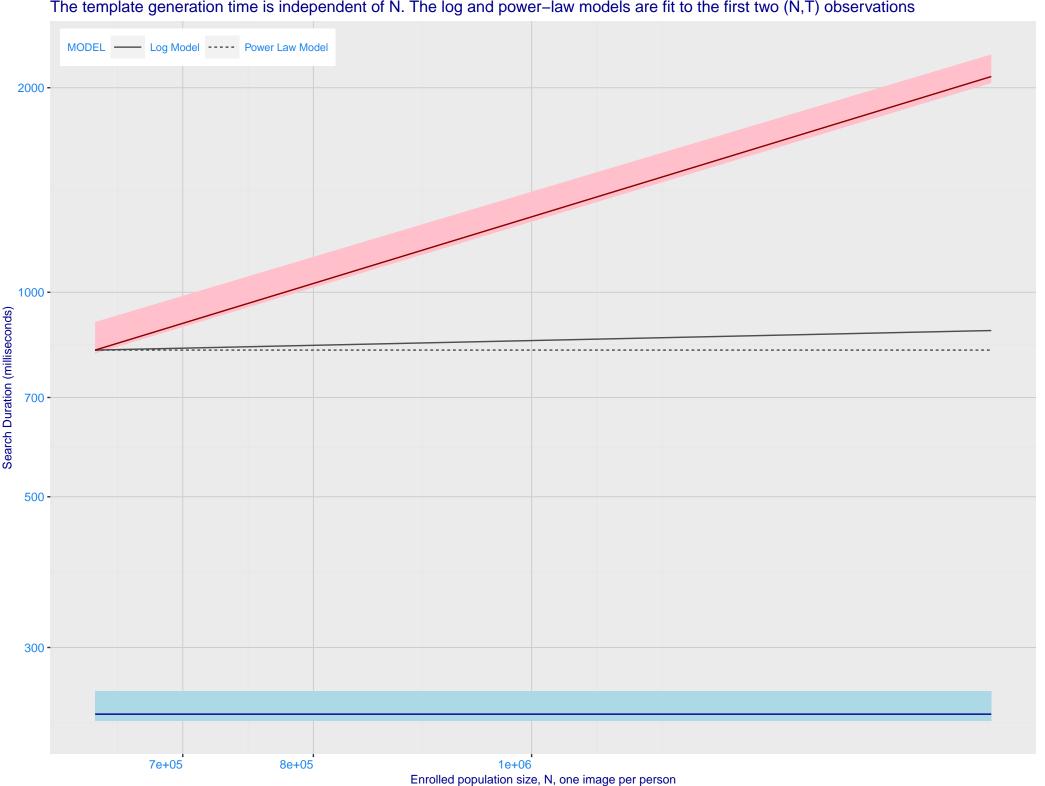




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.030 - 0. enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 realnetworks\_1 - 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



