## A: Datasheet

Algorithm: rankone\_2

Developer: Rank One Computing

Submission Date: 2018\_06\_19

Template size: 133 bytes

Template time (2.5 percentile): 107 msec

Template time (median): 111 msec

Template time (97.5 percentile): 127 msec

Investigation:

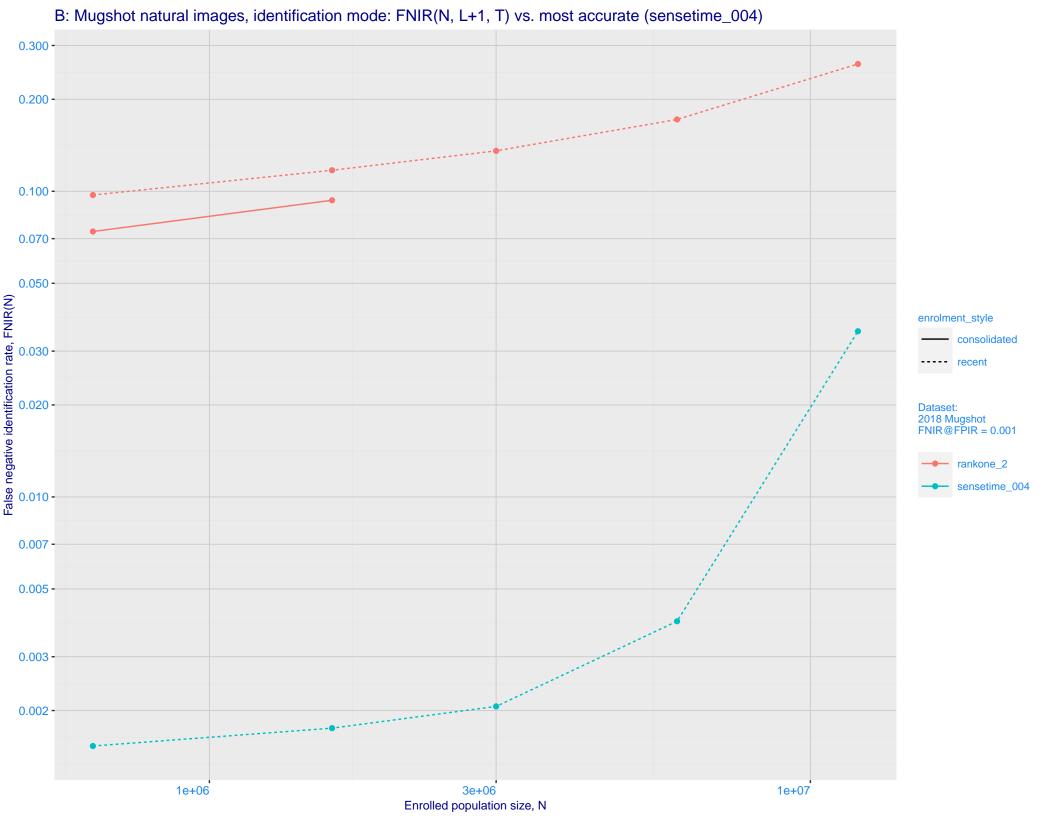
Frontal mugshot ranking 156 (out of 259) -- FNIR(1600000, 0, 1) = 0.0194 vs. lowest 0.0009 from sensetime\_005

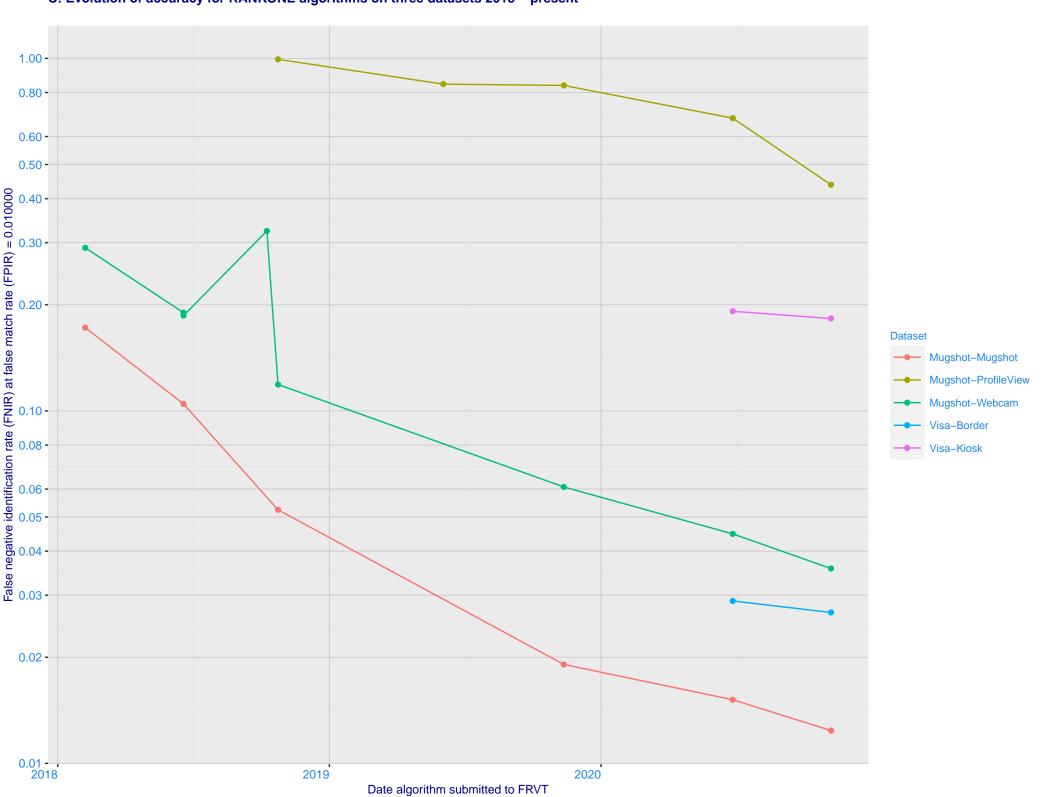
Mugshot webcam ranking 159 (out of 221) -- FNIR(1600000, 0, 1) = 0.0711 vs. lowest 0.0062 from sensetime\_005

Identification:

Frontal mugshot ranking 138 (out of 259) -- FNIR(1600000, T, L+1) = 0.1172, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 140 (out of 219) -- FNIR(1600000, T, L+1) = 0.2609, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

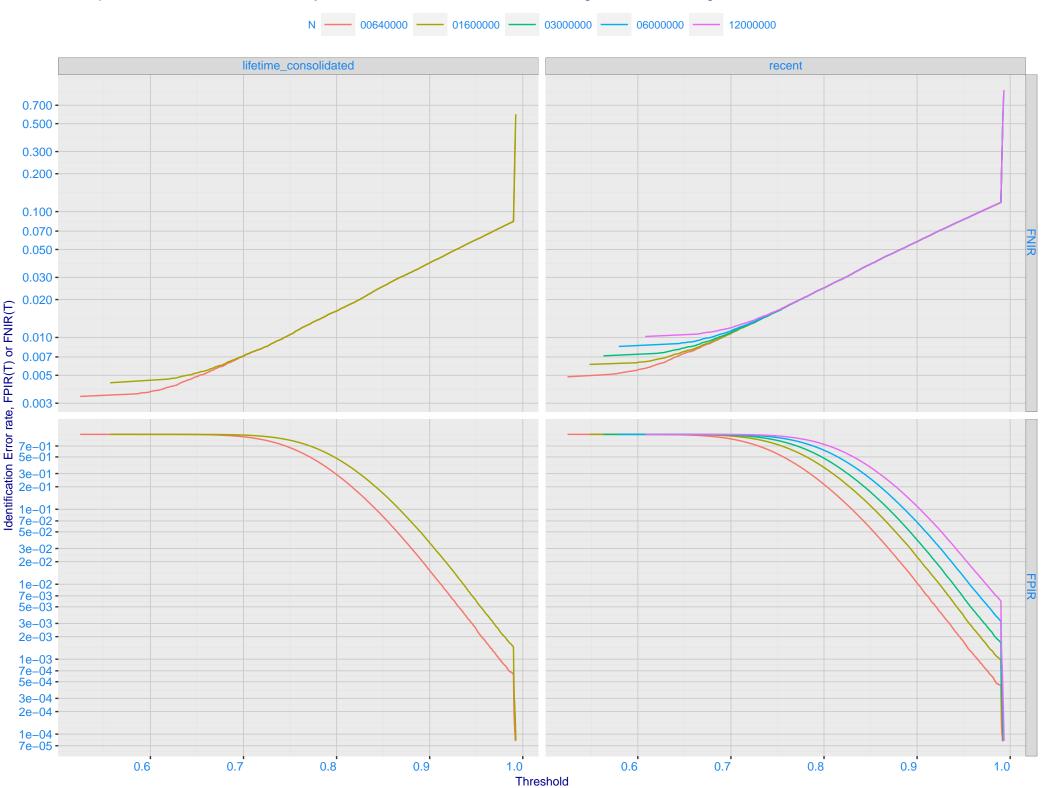




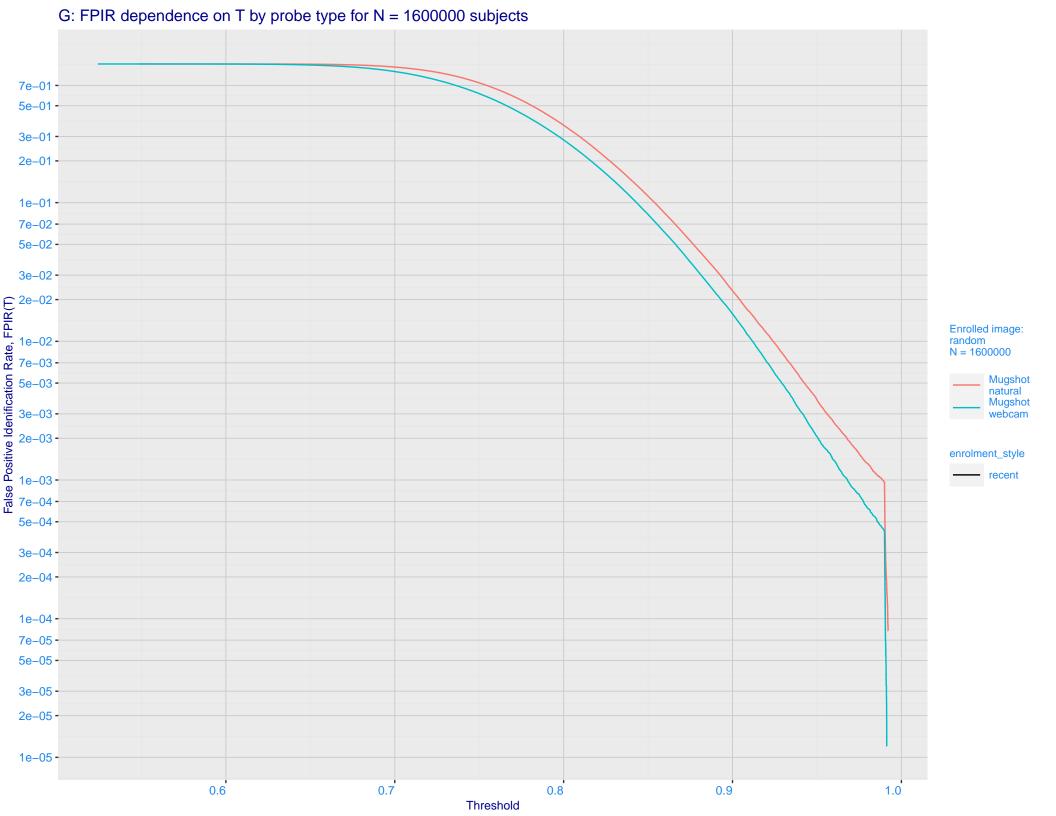
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200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

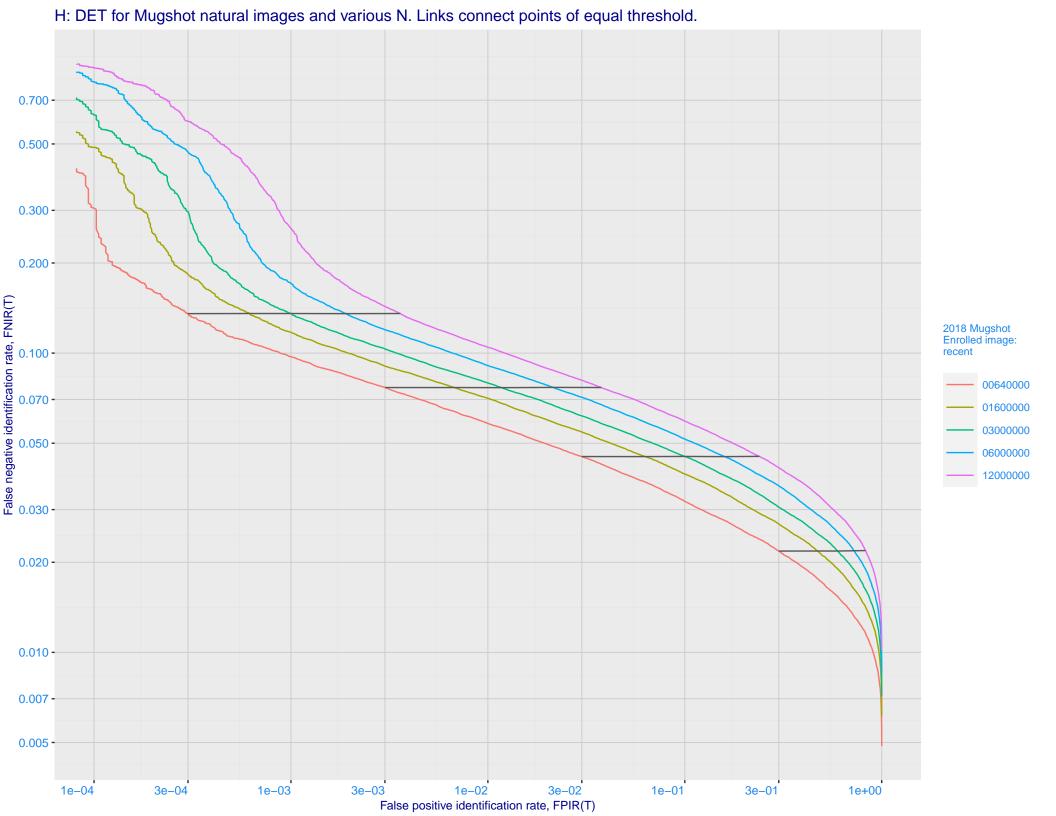
False positive identification rate, FPIR(T)

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

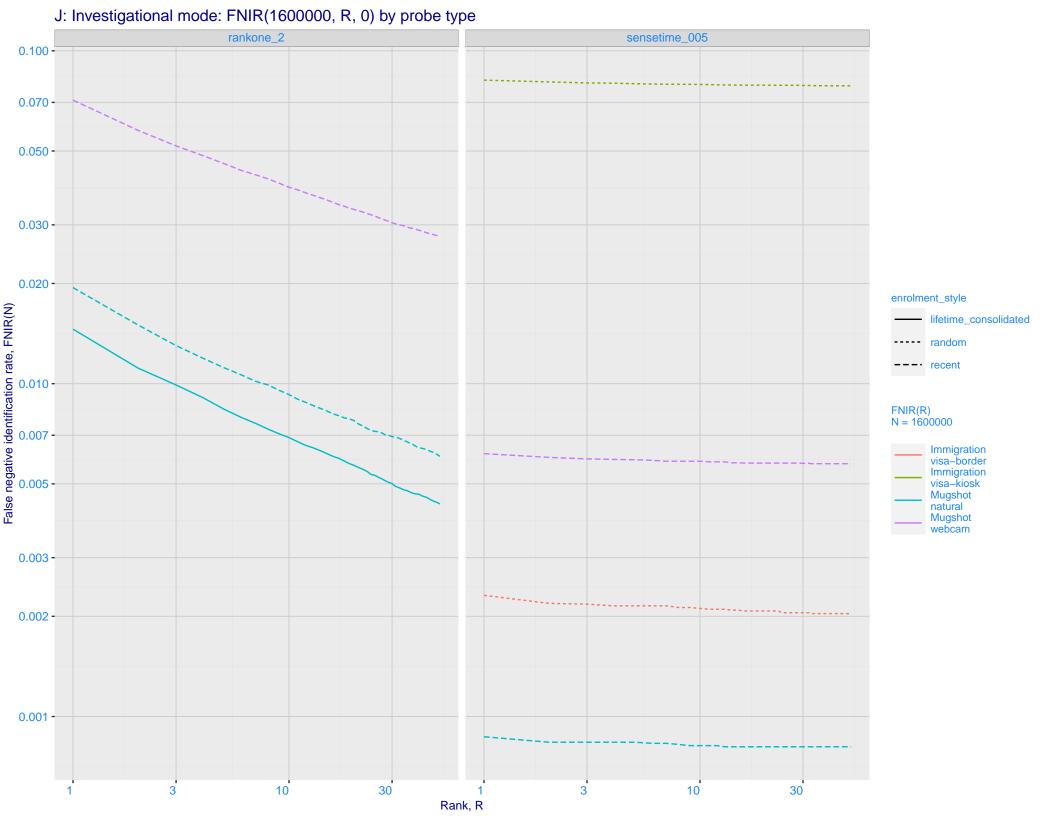


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 - 7e-02 - 5e-02 - 3e-02 - 2e-02 - 1e-02 **Enrolled images:** recent N = 1600000 Mugshot natural Mugshot 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-02 1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 3e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

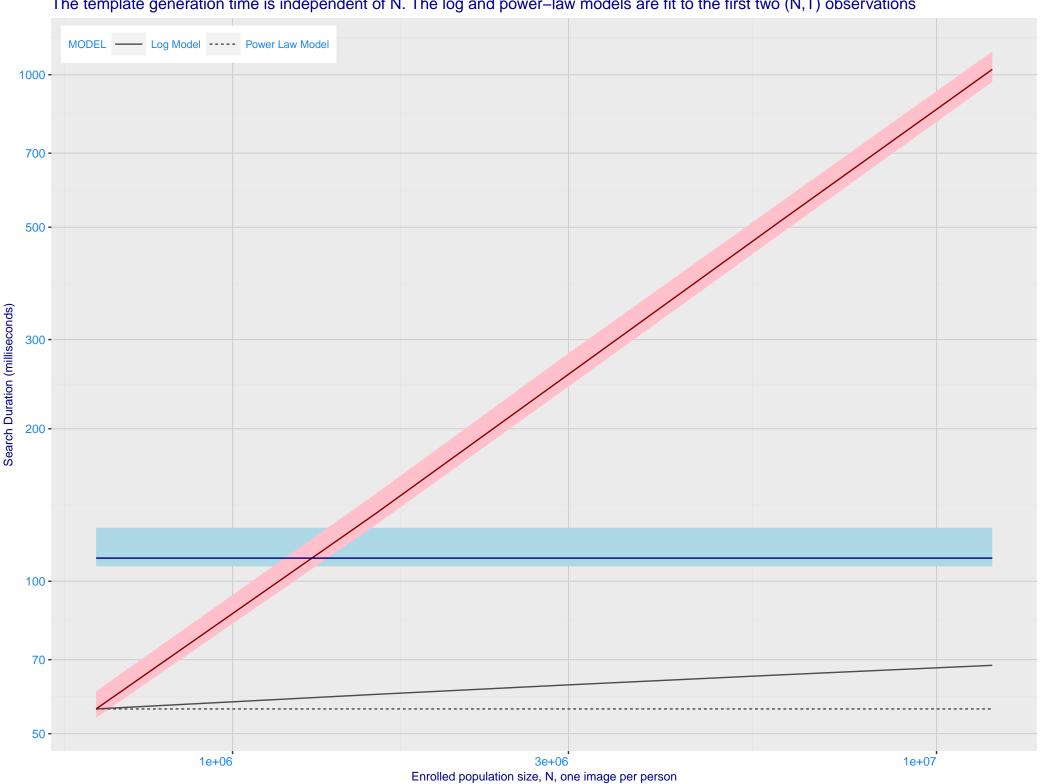




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.030 - 0. enrolment\_style consolidated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

