A: Datasheet

Algorithm: rankone_009

Developer: Rank One Computing

Submission Date: 2020_06_26

Template size: 260 bytes

Template time (2.5 percentile): 179 msec

Template time (median): 185 msec

Template time (97.5 percentile): 242 msec

Investigation:

Frontal mugshot ranking 40 (out of 265) -- FNIR(1600000, 0, 1) = 0.0024 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 31 (out of 227) -- FNIR(1600000, 0, 1) = 0.0126 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 56 (out of 196) -- FNIR(1600000, 0, 1) = 0.5492 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 39 (out of 148) -- FNIR(1600000, 0, 1) = 0.0056 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 55 (out of 145) -- FNIR(1600000, 0, 1) = 0.1345 vs. lowest 0.0568 from hr_000

Identification:

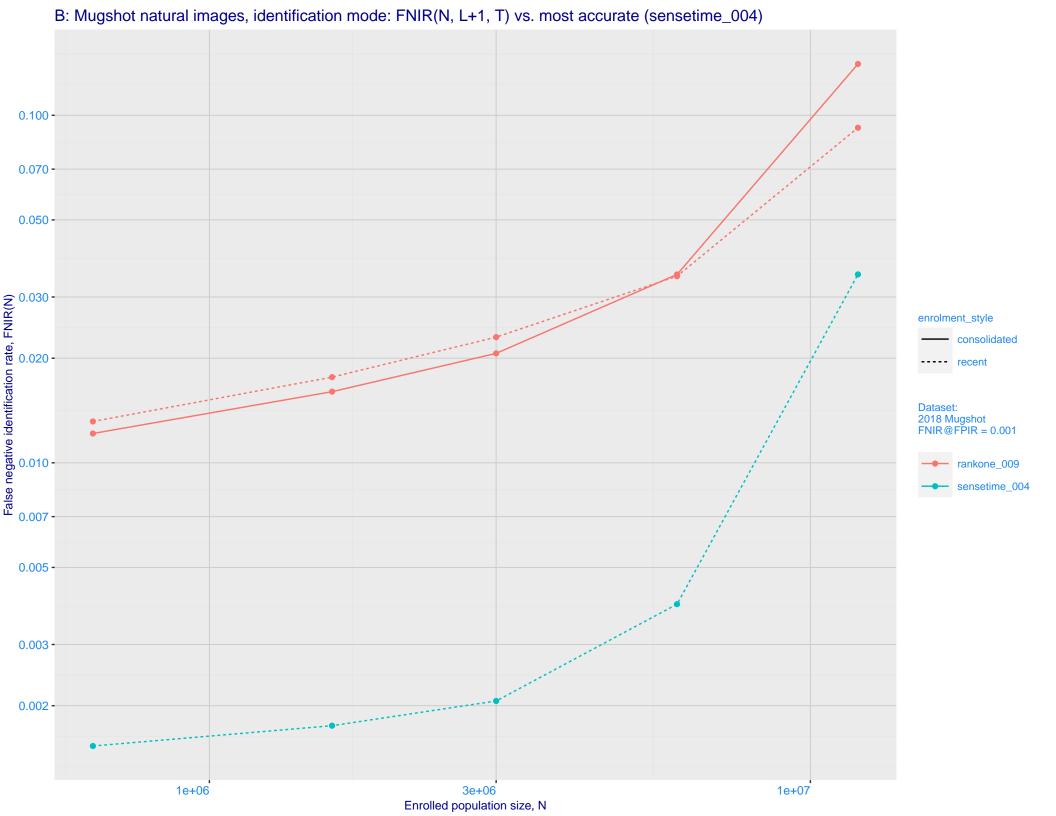
Frontal mugshot ranking 29 (out of 265) -- FNIR(1600000, T, L+1) = 0.0176, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

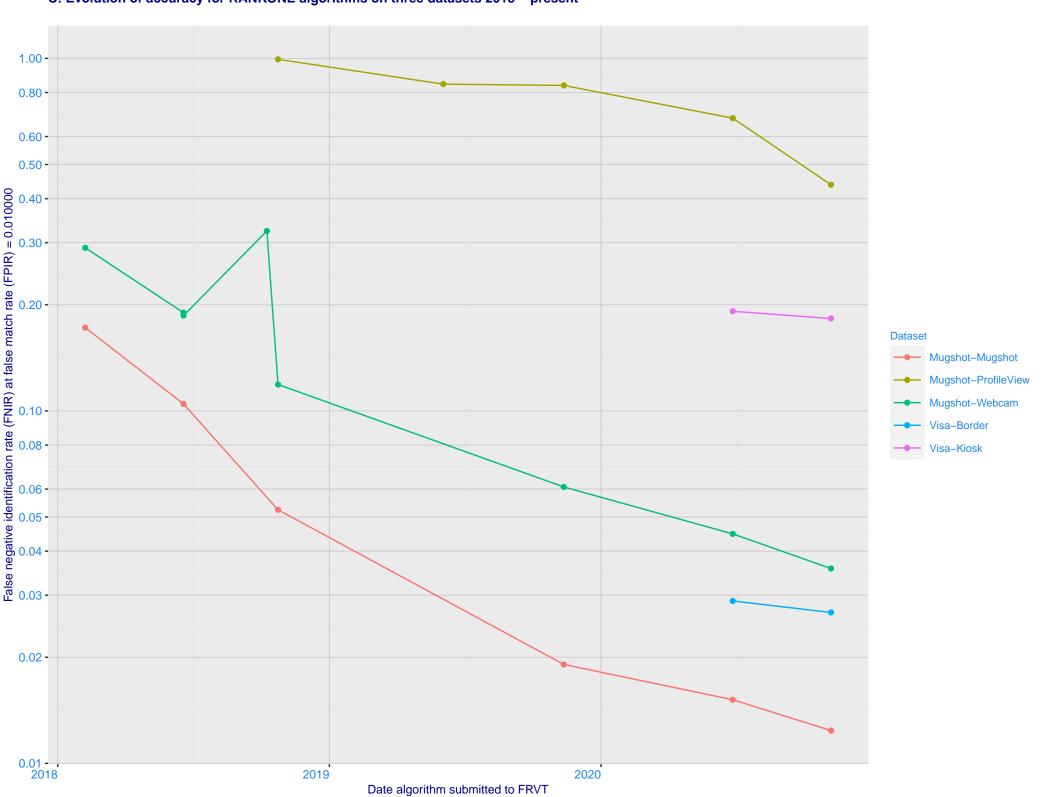
Mugshot webcam ranking 43 (out of 225) -- FNIR(1600000, T, L+1) = 0.0763, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 44 (out of 195) -- FNIR(1600000, T, L+1) = 0.9695, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 51 (out of 146) -- FNIR(1600000, T, L+1) = 0.0616, FPIR=0.001000 vs. lowest 0.0049 from hr_000

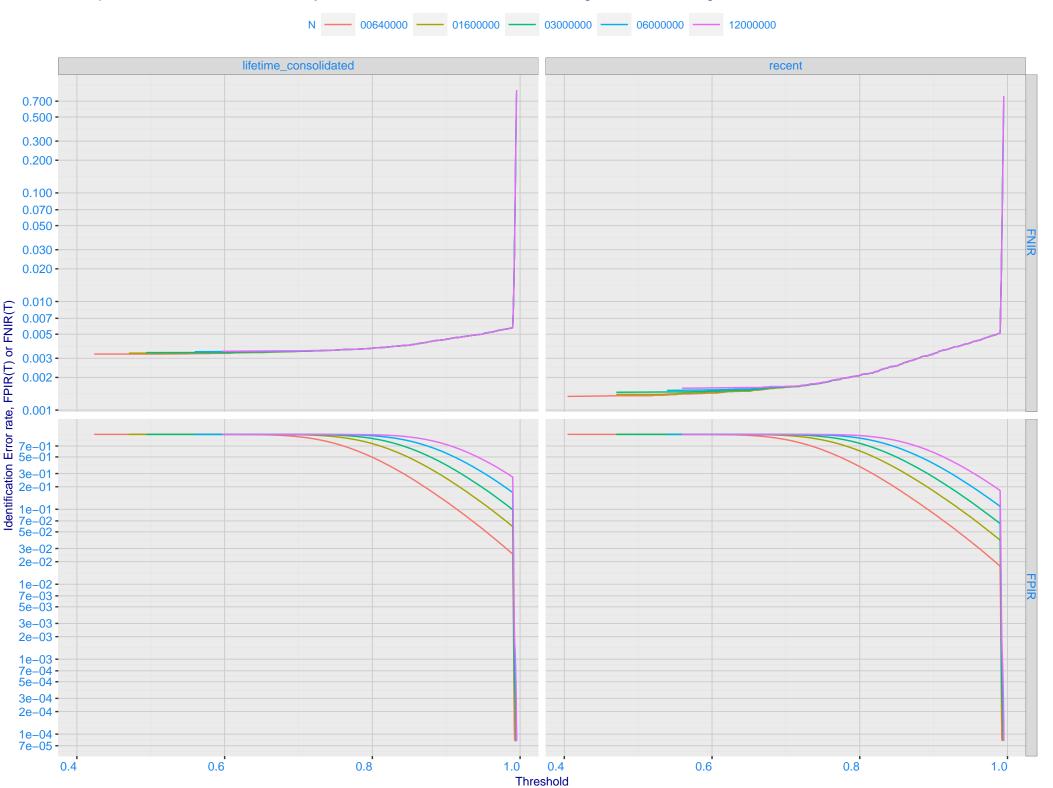
Immigration visa-kiosk ranking 46 (out of 141) -- FNIR(1600000, T, L+1) = 0.3278, FPIR=0.001000 vs. lowest 0.0996 from hr_000



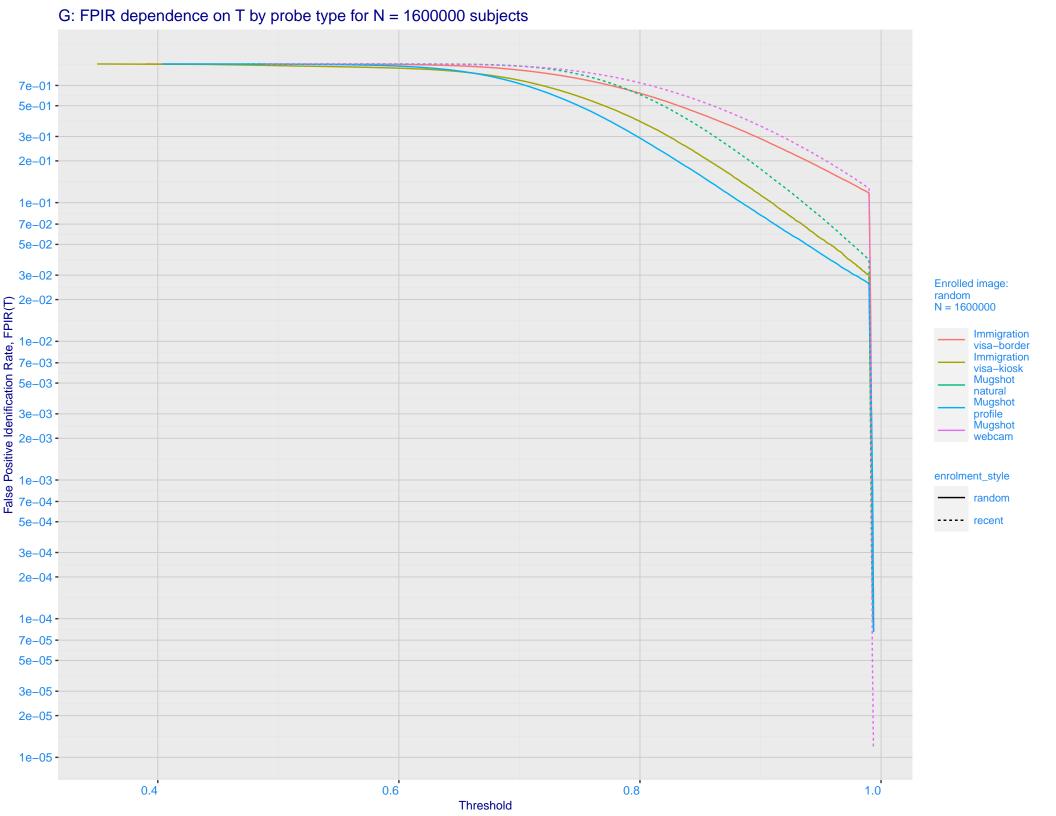


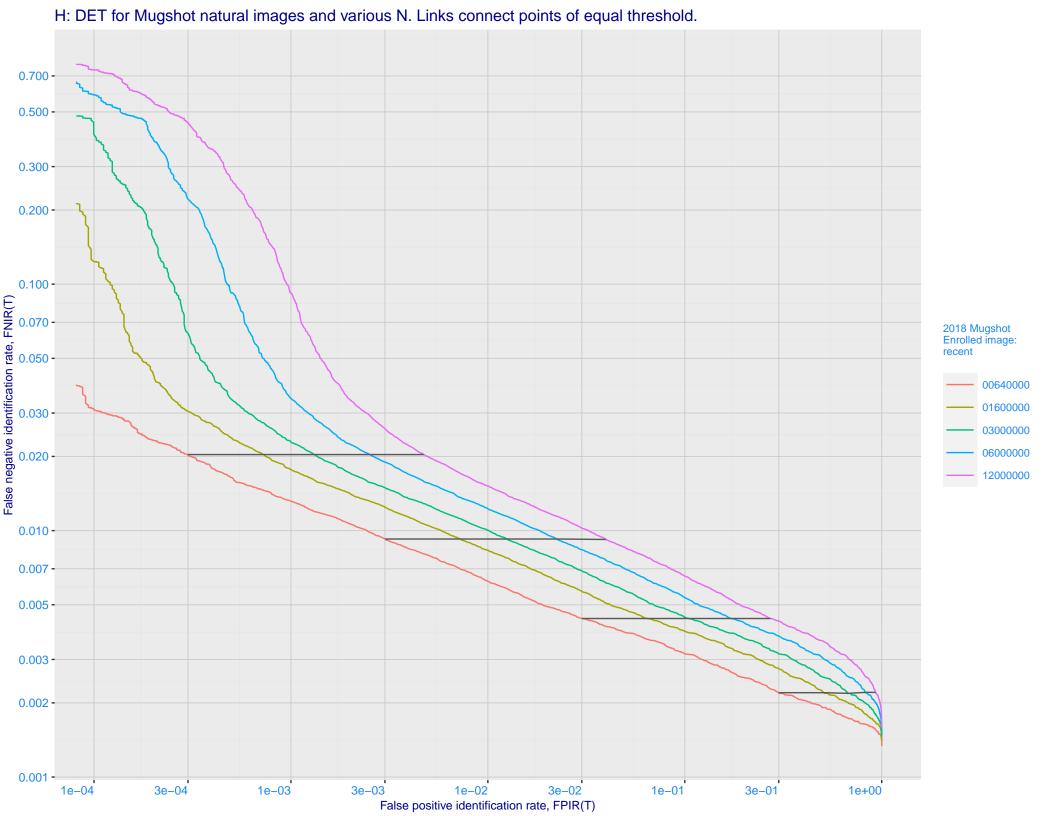
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200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



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 -3e-02 -1e-02 -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)

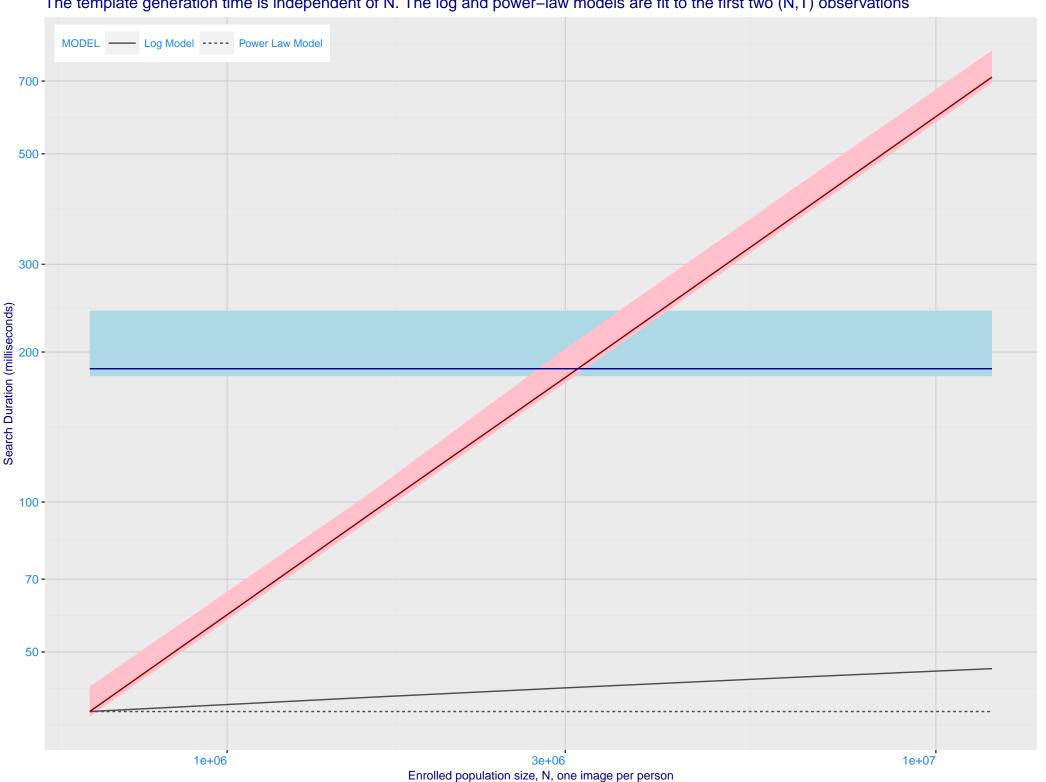




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 rankone_009 sensetime_005 0.030 -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

J: Investigational mode: FNIR(1600000, R, 0) by probe type rankone_009 sensetime_005 0.100 -0.070 -0.050 -0.030 enrolment_style False negative identification rate, FNIR(N) 0.000 - 0.000 - 0.0007 - 0.0005 lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.003 -0.002 -0.001 -10 30 3 10 30 Rank, R

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

