A: Datasheet

Algorithm: cyberlink_001

Developer: Cyberlink Corp

Submission Date: 2019_10_07

Template size: 2052 bytes

Template time (2.5 percentile): 423 msec

Template time (median): 424 msec

Template time (97.5 percentile): 464 msec

Investigation:

Frontal mugshot ranking 59 (out of 265) -- FNIR(1600000, 0, 1) = 0.0035 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 62 (out of 227) -- FNIR(1600000, 0, 1) = 0.0175 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 79 (out of 196) -- FNIR(1600000, 0, 1) = 0.7306 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 47 (out of 148) -- FNIR(1600000, 0, 1) = 0.0066 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 53 (out of 145) -- FNIR(1600000, 0, 1) = 0.1330 vs. lowest 0.0568 from hr_000

Identification:

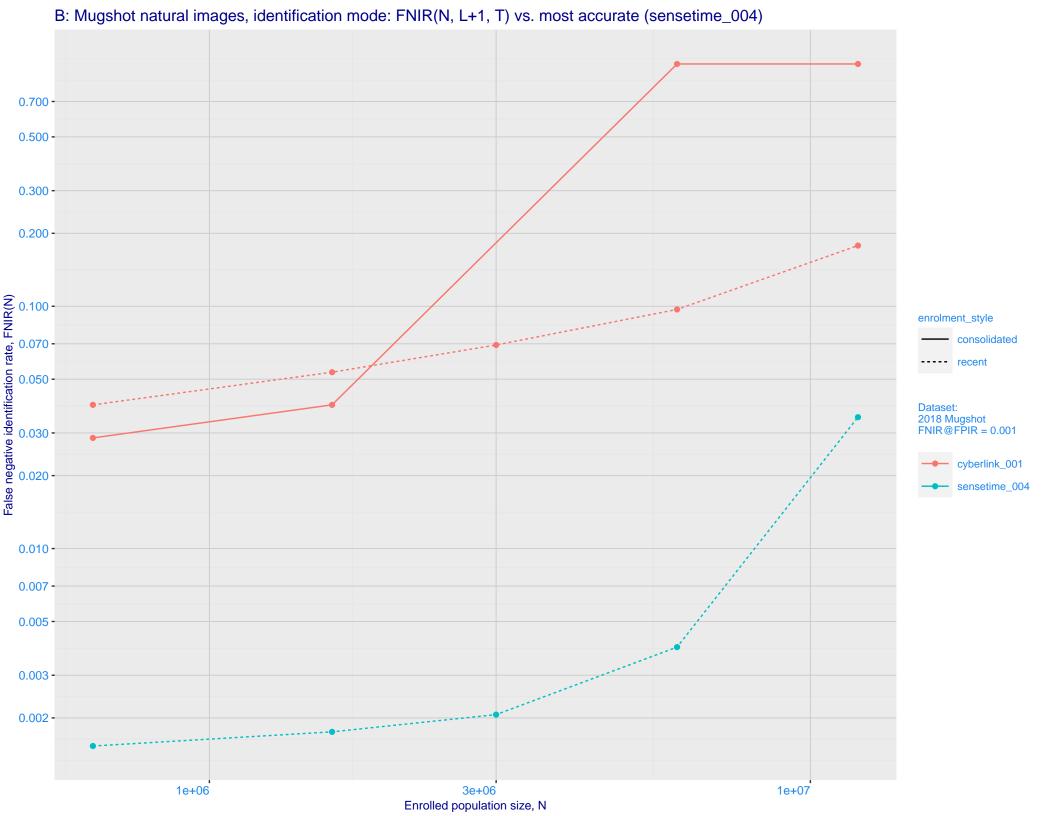
Frontal mugshot ranking 91 (out of 265) -- FNIR(1600000, T, L+1) = 0.0534, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

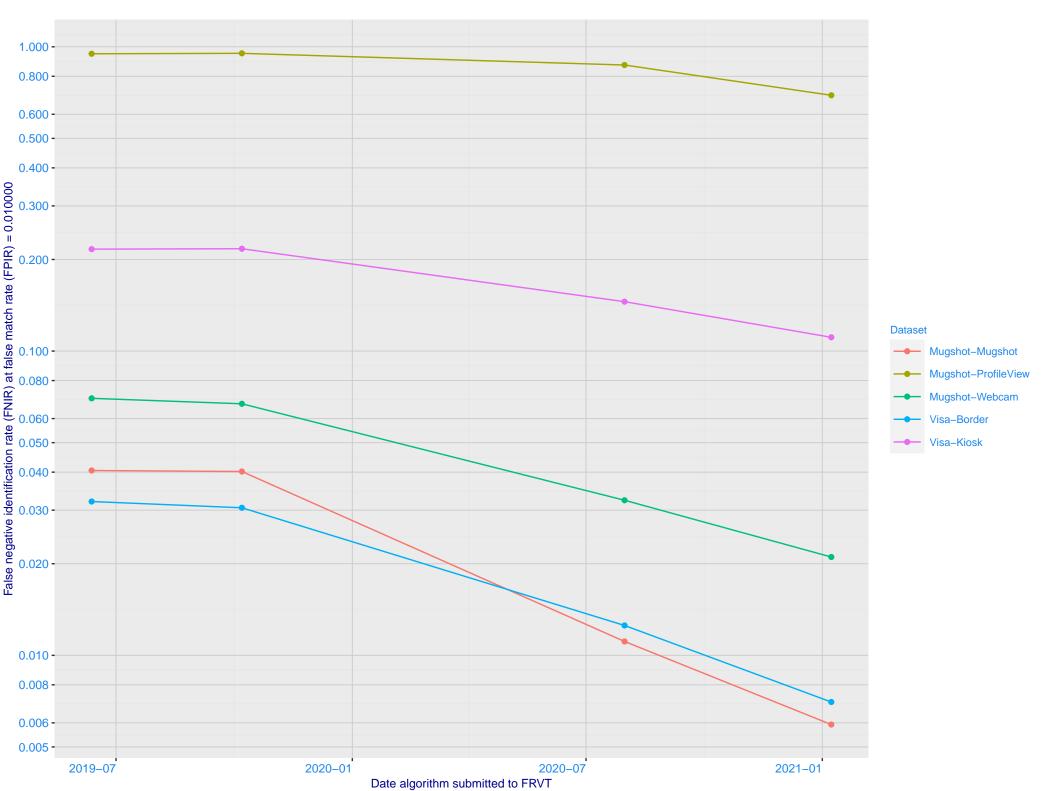
Mugshot webcam ranking 74 (out of 225) -- FNIR(1600000, T, L+1) = 0.1087, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 98 (out of 195) -- FNIR(1600000, T, L+1) = 0.9947, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 52 (out of 146) -- FNIR(1600000, T, L+1) = 0.0624, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 77 (out of 141) -- FNIR(1600000, T, L+1) = 0.6756, FPIR=0.001000 vs. lowest 0.0996 from hr_000

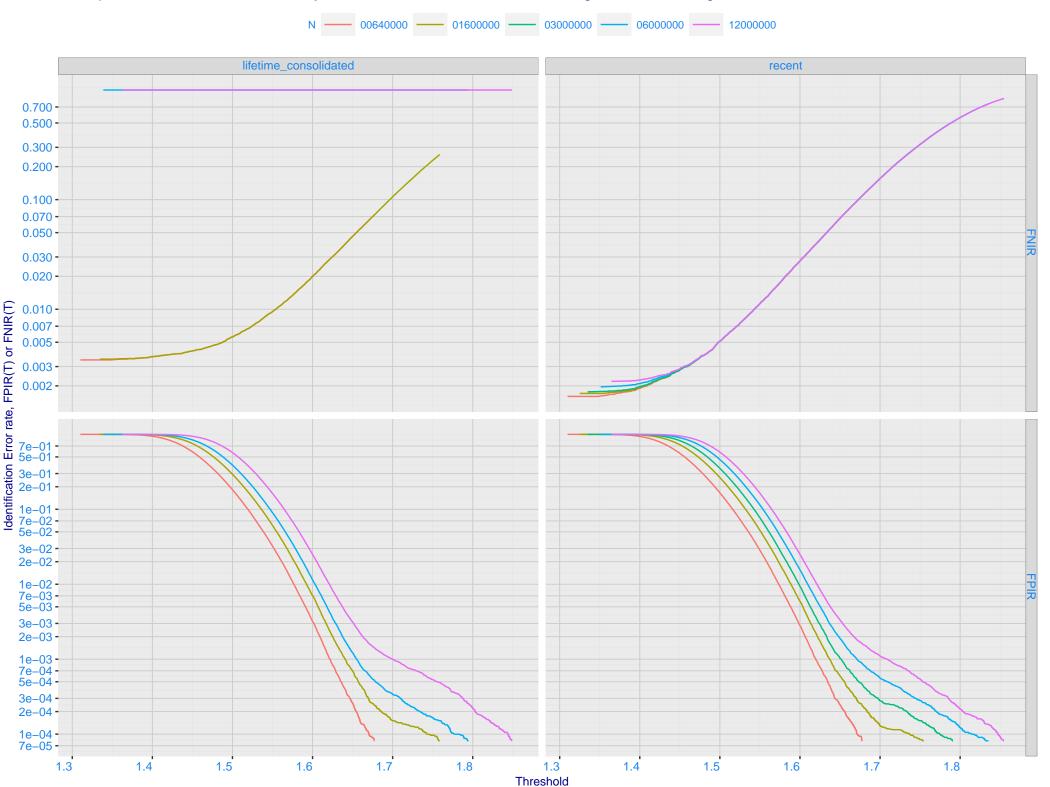




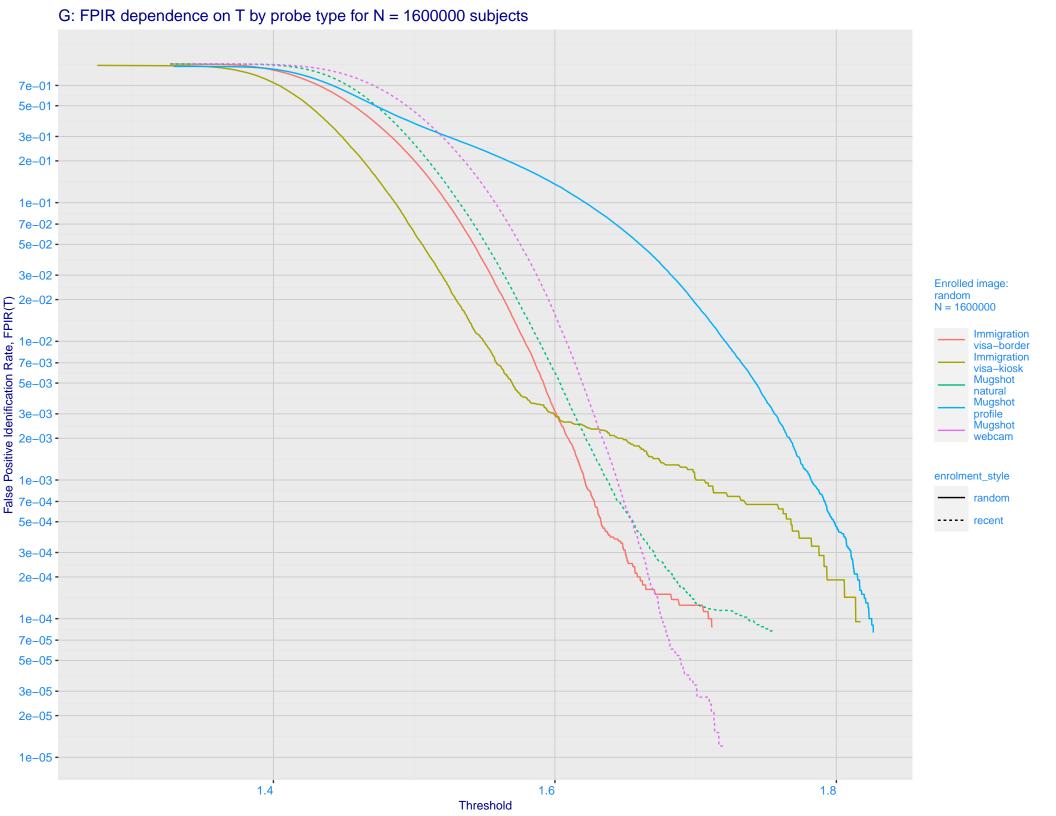
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

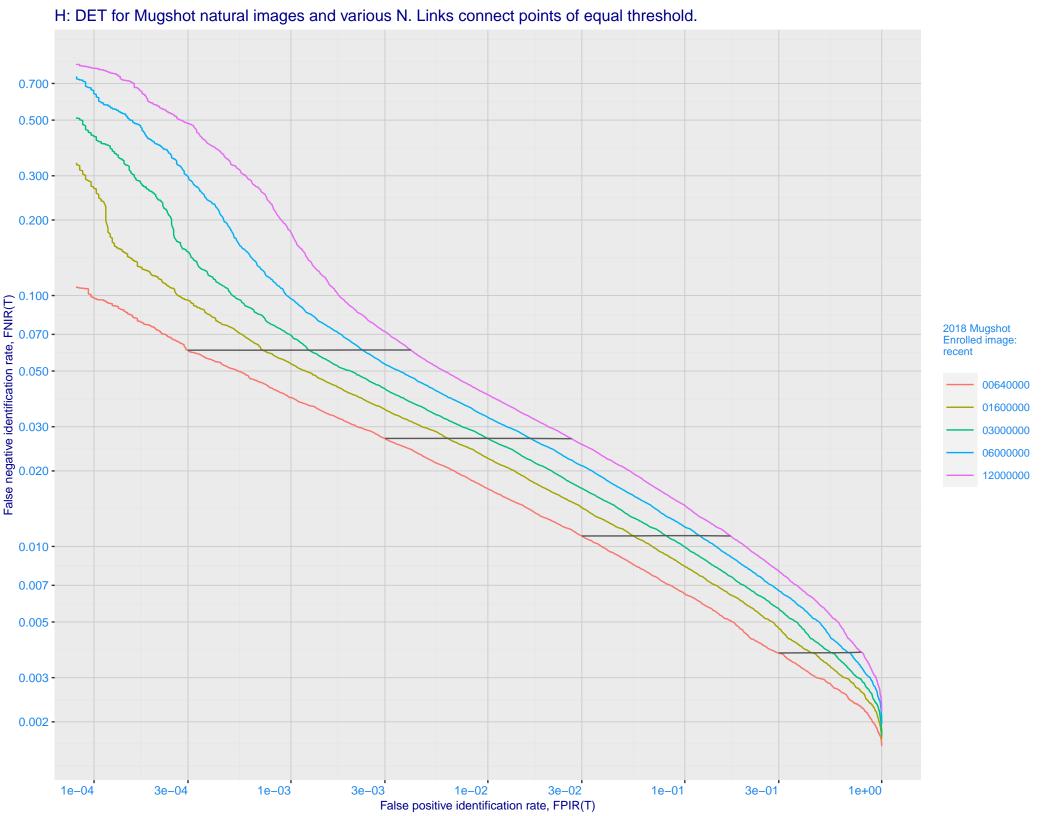
False positive identification rate, FPIR(T)

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 -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)





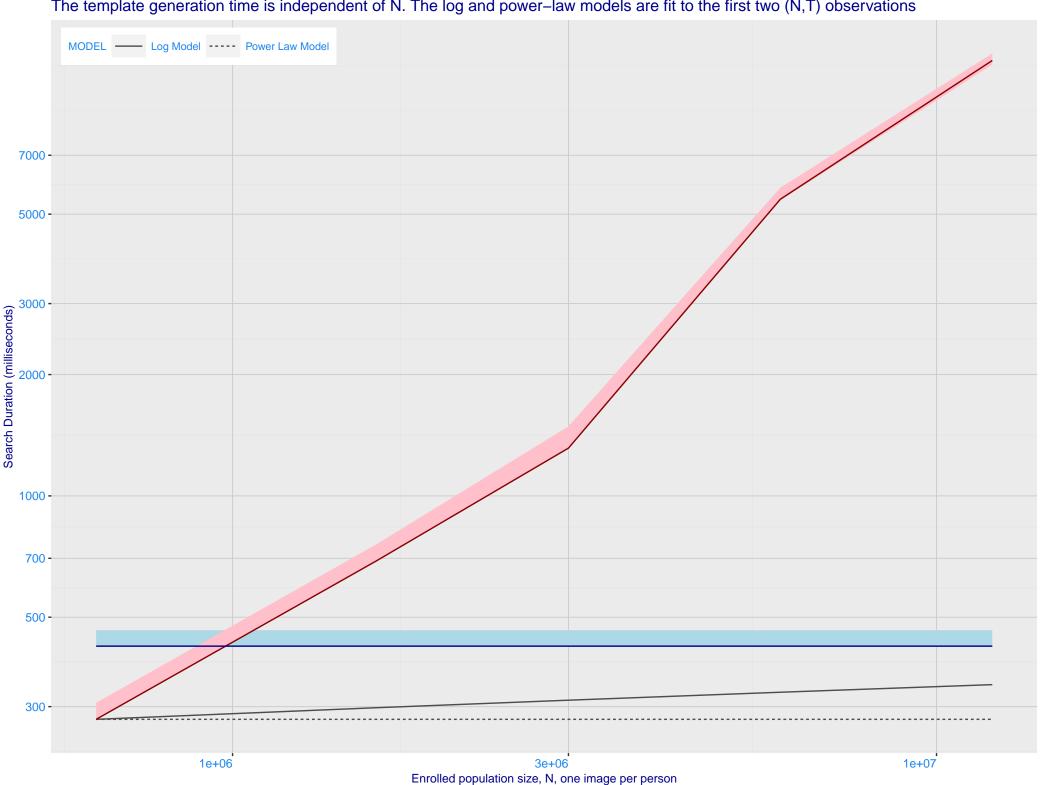
I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.300 - 0.200 enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 -- cyberlink_001 sensetime_005 0.100 -0.070 -0.050 -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 cyberlink_001 sensetime_005 0.100 -0.070 -0.050 -0.030 enrolment_style False negative identification rate, FNIR(N)

0.000

0.007 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



