A: Datasheet

Algorithm: nec_2

Developer: NEC

Submission Date: 2018_10_30

Template size: 1616 bytes

Template time (2.5 percentile): 638 msec

Template time (median): 642 msec

Template time (97.5 percentile): 699 msec

Investigation:

Frontal mugshot ranking 4 (out of 265) -- FNIR(1600000, 0, 1) = 0.0010 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 11 (out of 227) -- FNIR(1600000, 0, 1) = 0.0088 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 35 (out of 196) -- FNIR(1600000, 0, 1) = 0.3628 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 19 (out of 148) -- FNIR(1600000, 0, 1) = 0.0034 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 42 (out of 145) -- FNIR(1600000, 0, 1) = 0.1170 vs. lowest 0.0568 from hr_000

Identification:

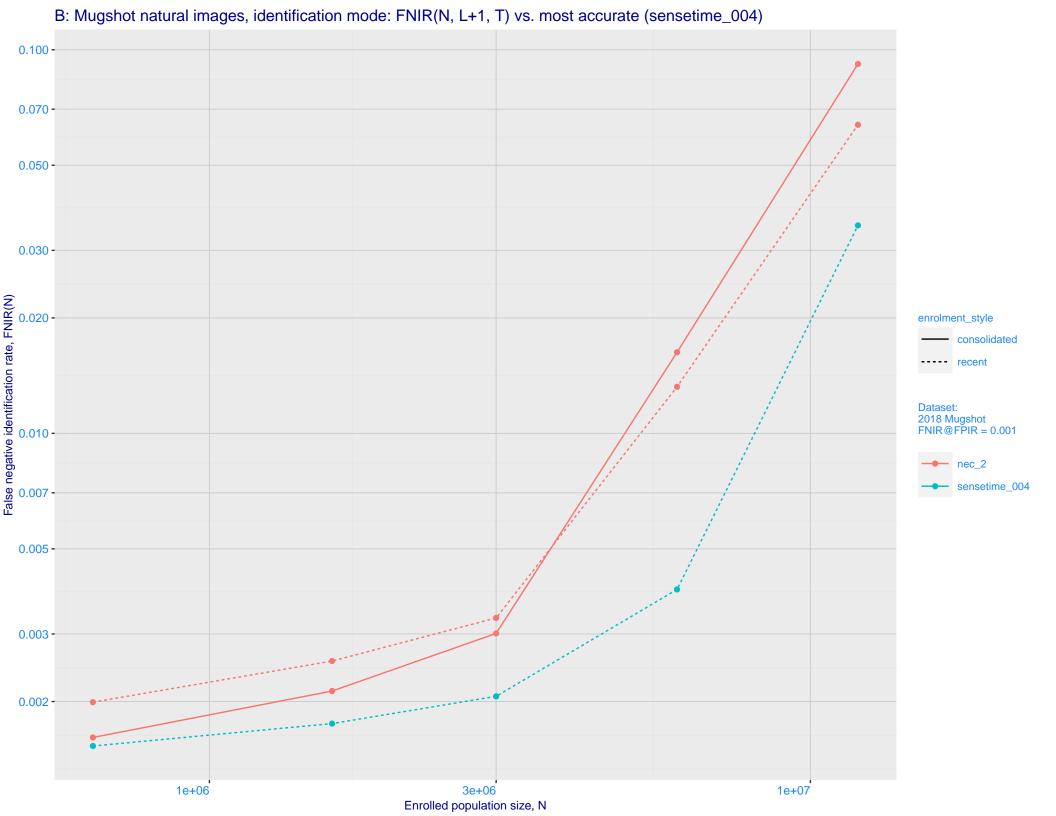
Frontal mugshot ranking 6 (out of 265) -- FNIR(1600000, T, L+1) = 0.0025, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

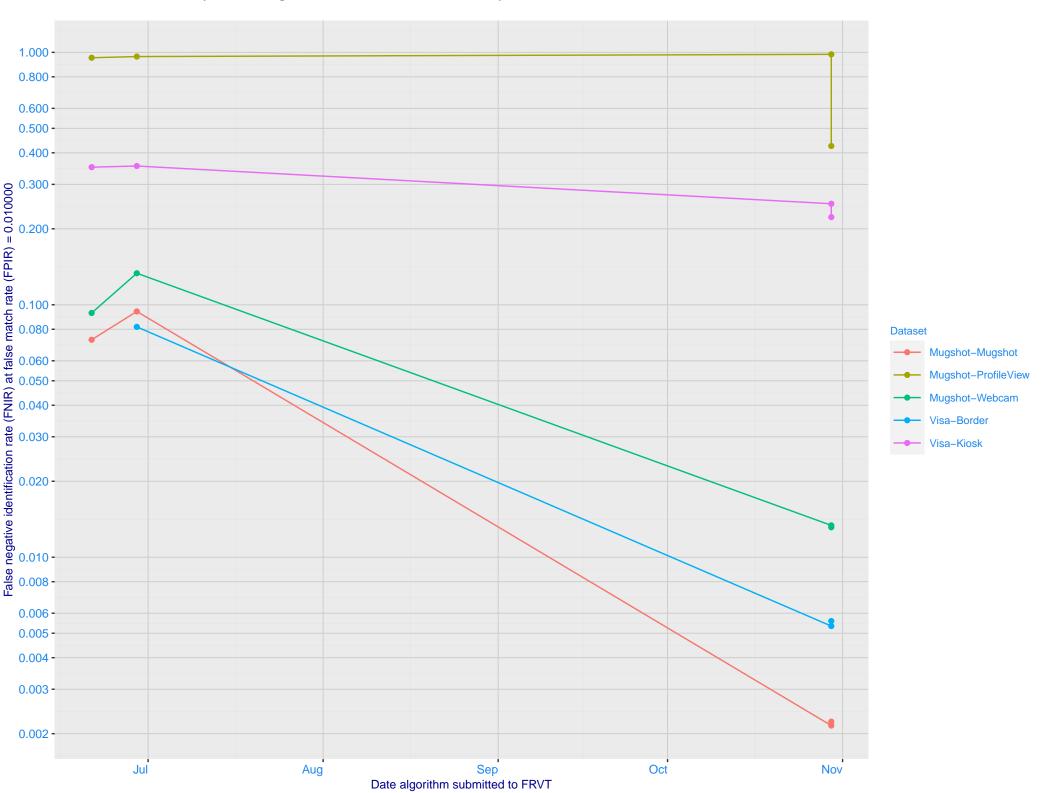
Mugshot webcam ranking 7 (out of 225) -- FNIR(1600000, T, L+1) = 0.0199, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 140 (out of 195) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 6 (out of 146) -- FNIR(1600000, T, L+1) = 0.0079, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 78 (out of 141) -- FNIR(1600000, T, L+1) = 0.6822, FPIR=0.001000 vs. lowest 0.0996 from hr_000

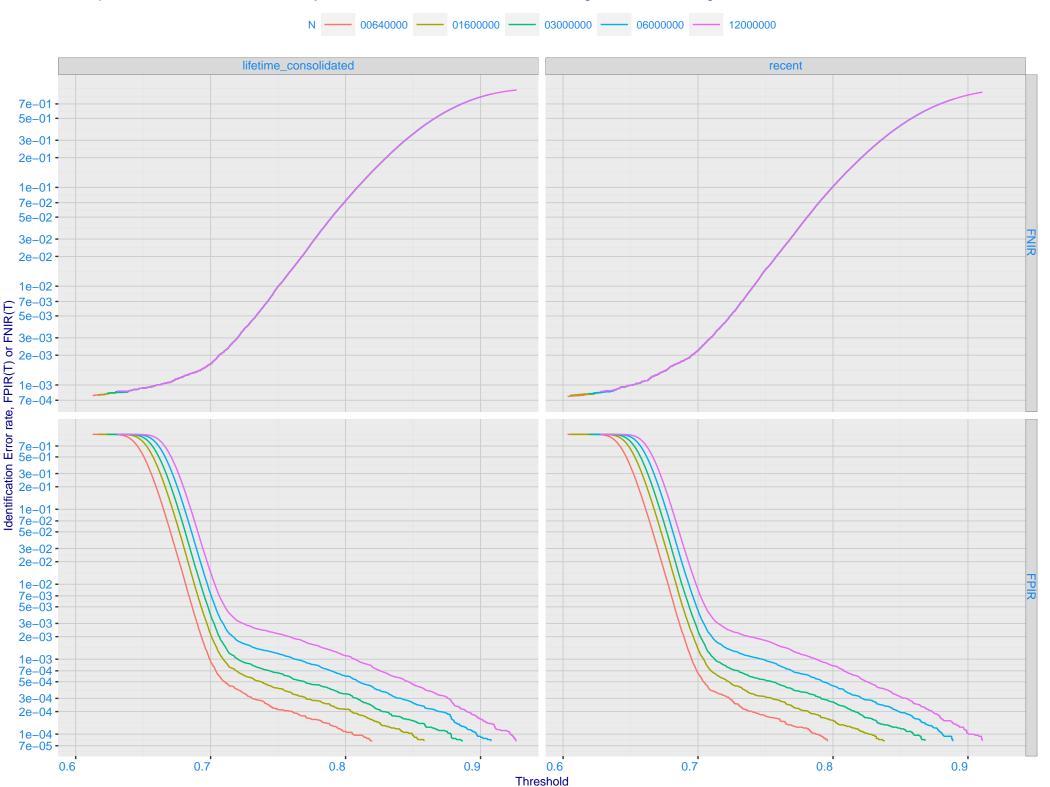




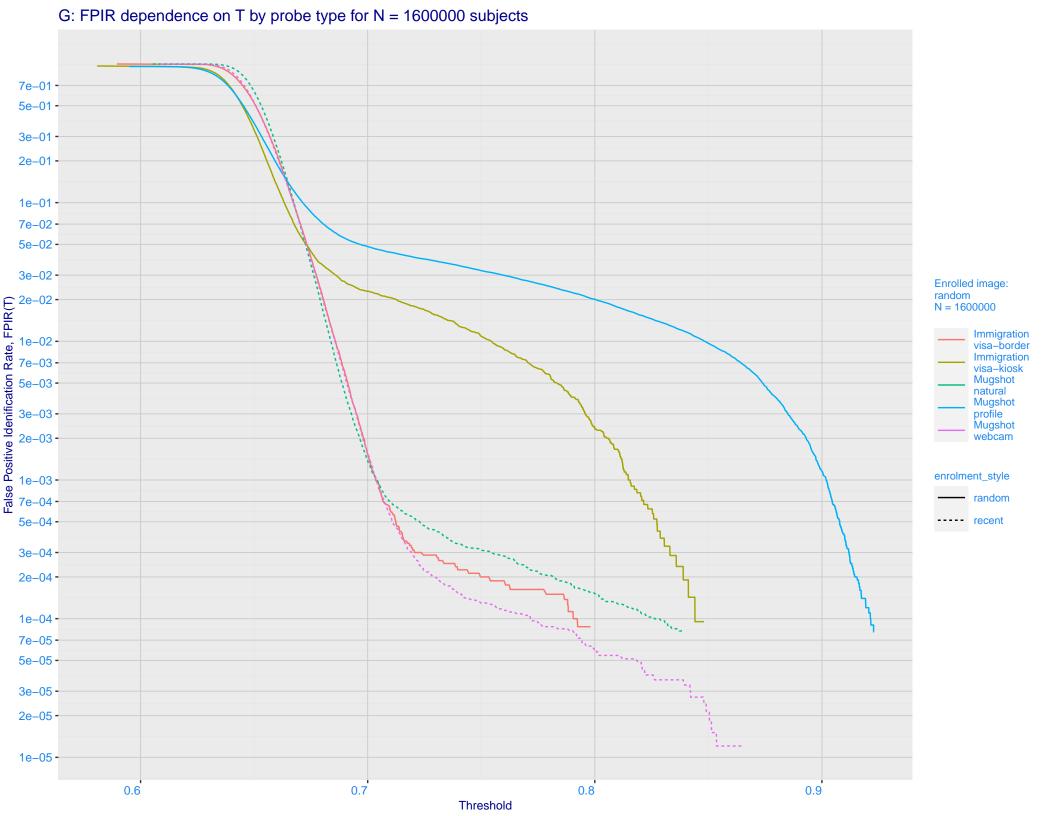
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 - 0.003 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style consolidated-ONE-MATE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

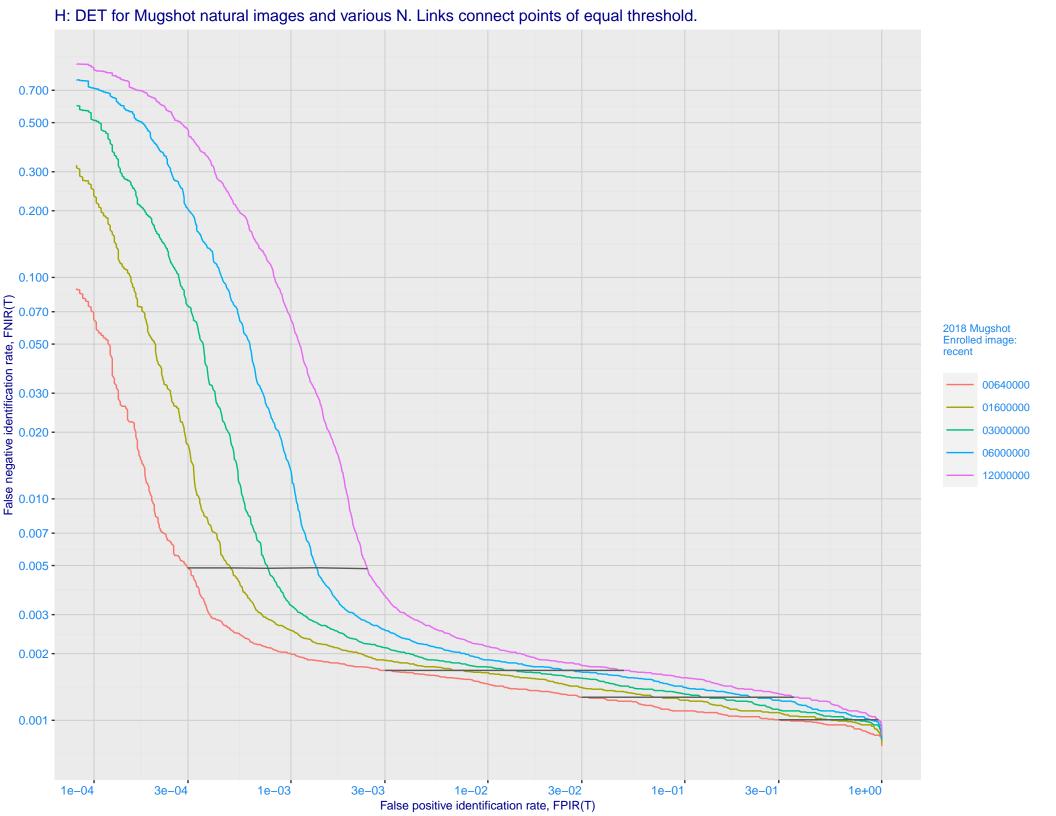
False positive identification rate, FPIR(T)

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 - 7e-02 - 3e-02 - 2e-02 - 2e-02 - 3e-02 **Enrolled images:** recent N = 1600000Mugshot 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-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)

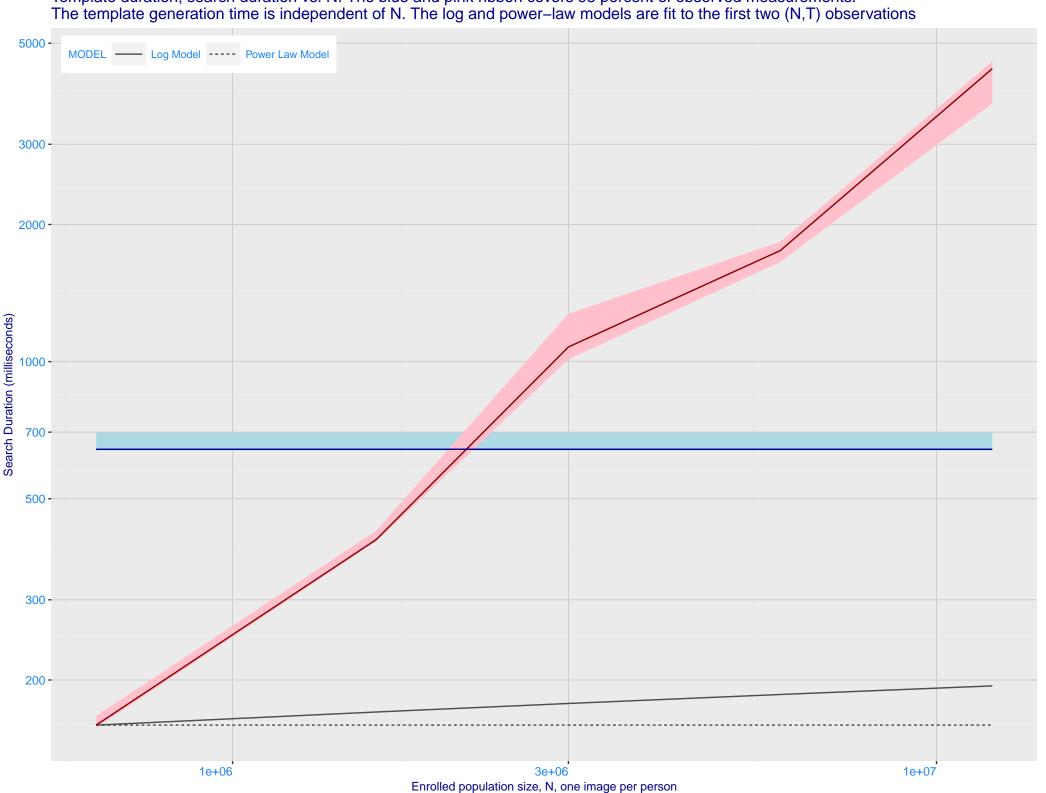


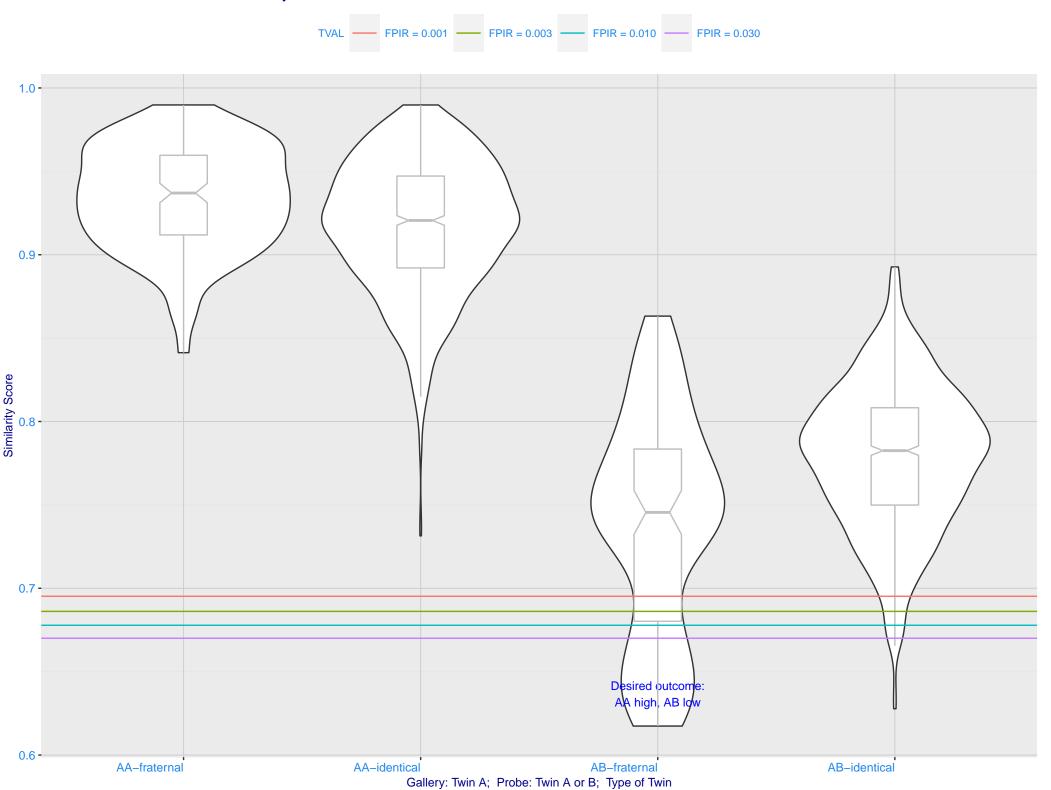


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -• 0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.000 - 0.050 enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 ____ nec_2 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 nec_2 sensetime_005 0.100 -0.070 -0.050 -0.030 enrolment_style False negative identification rate, FNIR(N) 0.000 - 0.0007 - 0.0005 - 0.000 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 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

