A: Datasheet

Algorithm: nec_3

Developer: NEC

Submission Date: 2018_10_30

Template size: 1712 bytes

Template time (2.5 percentile): 660 msec

Template time (median): 665 msec

Template time (97.5 percentile): 1015 msec

Investigation:

Frontal mugshot ranking 9 (out of 259) -- FNIR(1600000, 0, 1) = 0.0014 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 15 (out of 221) -- FNIR(1600000, 0, 1) = 0.0099 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 30 (out of 190) -- FNIR(1600000, 0, 1) = 0.3523 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 18 (out of 142) -- FNIR(1600000, 0, 1) = 0.0037 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 40 (out of 139) -- FNIR(1600000, 0, 1) = 0.1204 vs. lowest 0.0694 from cib_000

Identification:

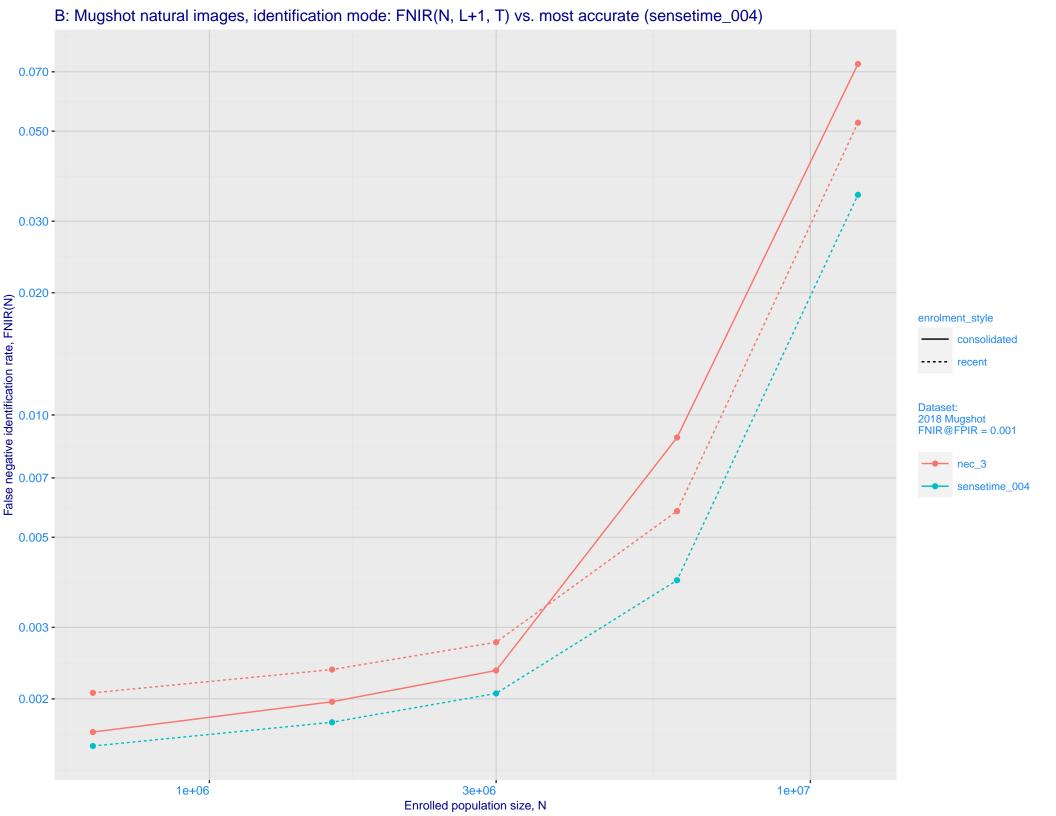
Frontal mugshot ranking 4 (out of 259) -- FNIR(1600000, T, L+1) = 0.0024, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

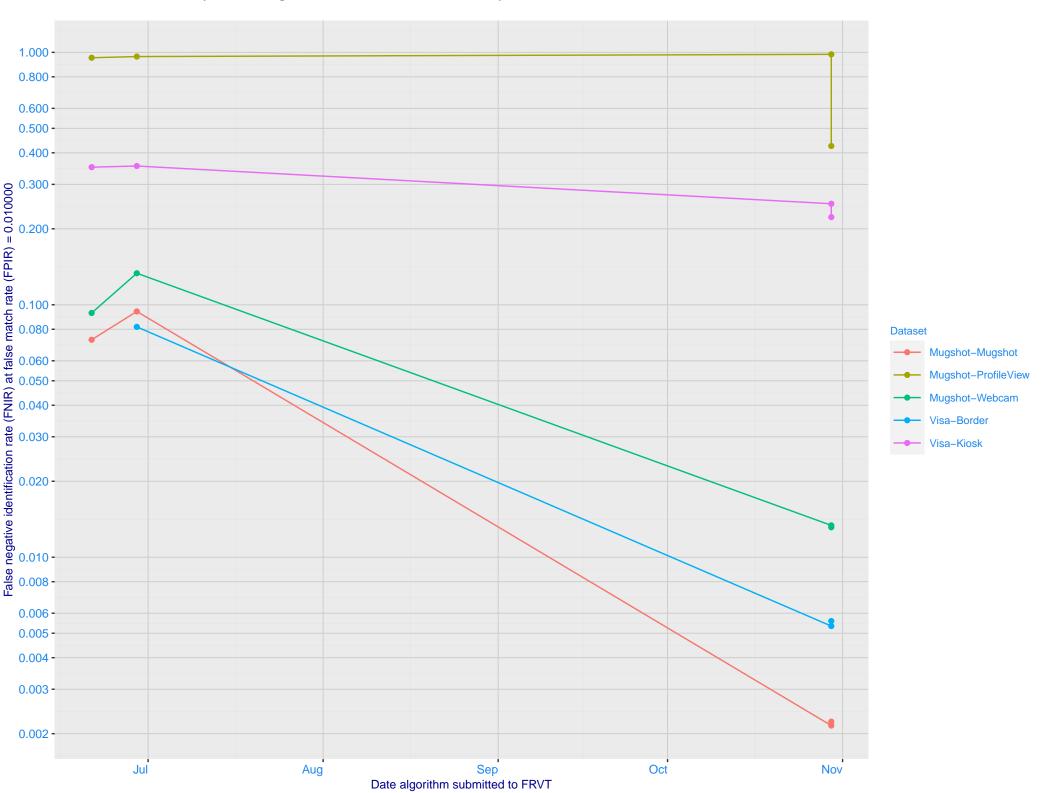
Mugshot webcam ranking 5 (out of 219) -- FNIR(1600000, T, L+1) = 0.0171, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 19 (out of 189) -- FNIR(1600000, T, L+1) = 0.8242, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 7 (out of 139) -- FNIR(1600000, T, L+1) = 0.0081, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 70 (out of 134) -- FNIR(1600000, T, L+1) = 0.6749, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005

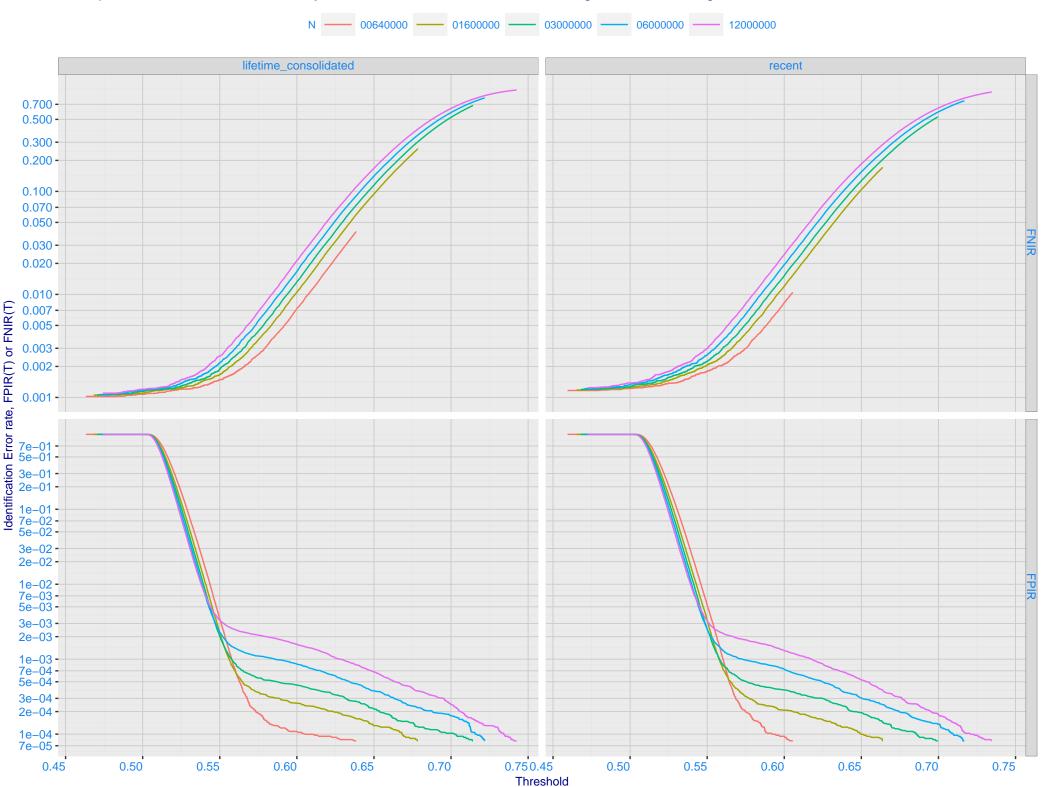




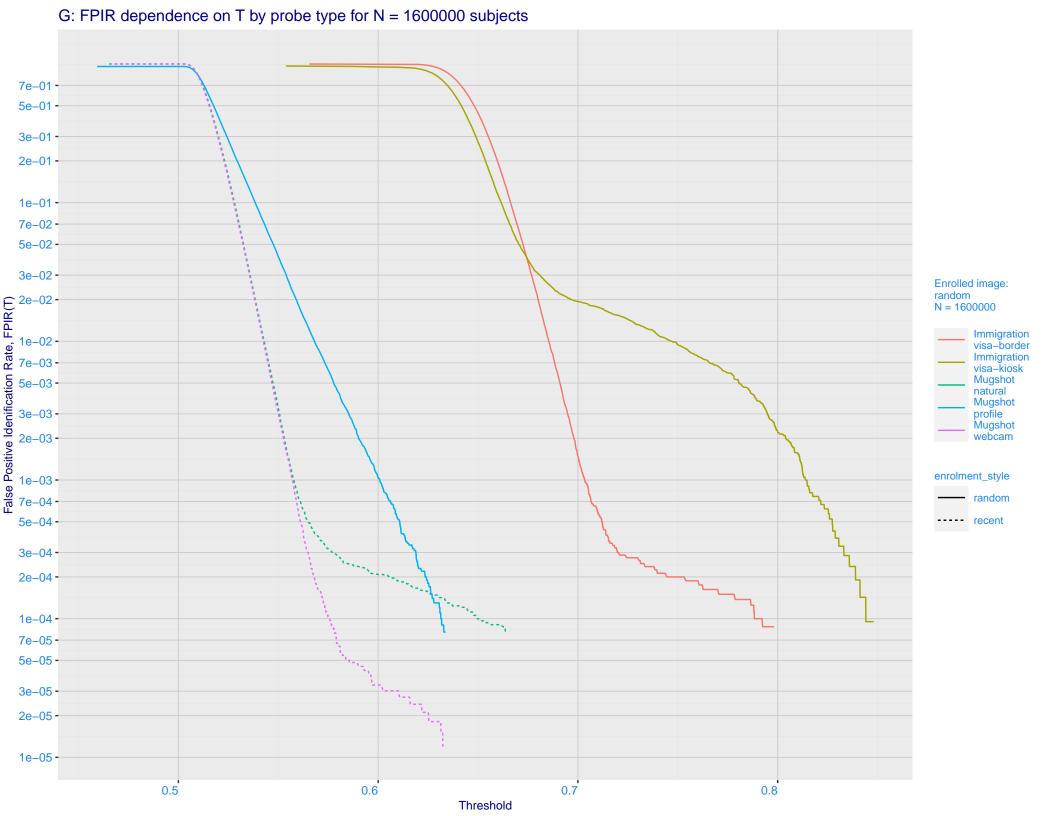
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.002 - 0.001 - 0.500 - 0.500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

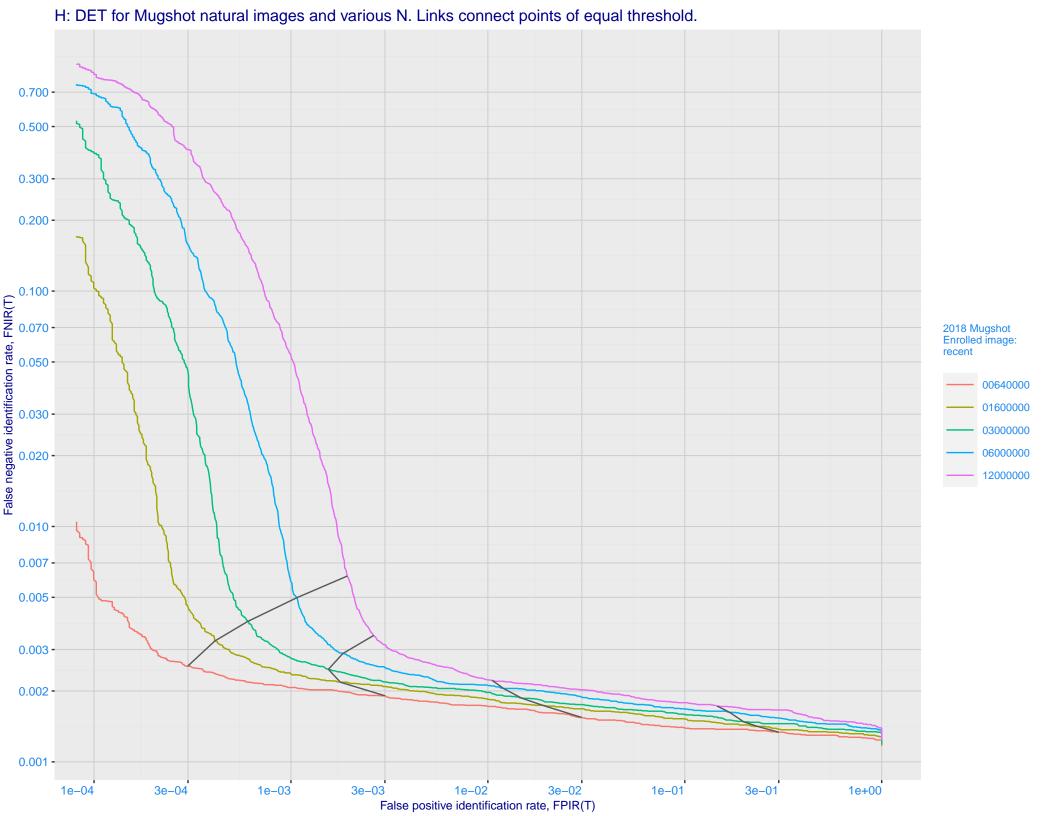
False positive identification rate, FPIR(T)

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-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)

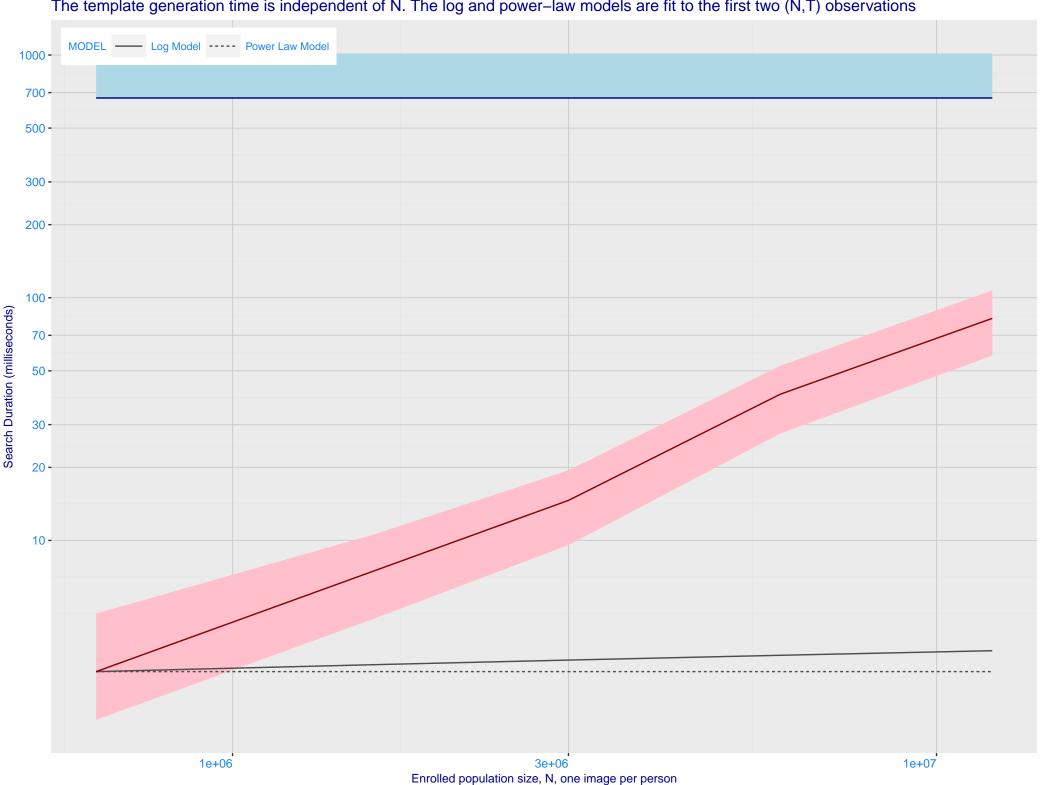


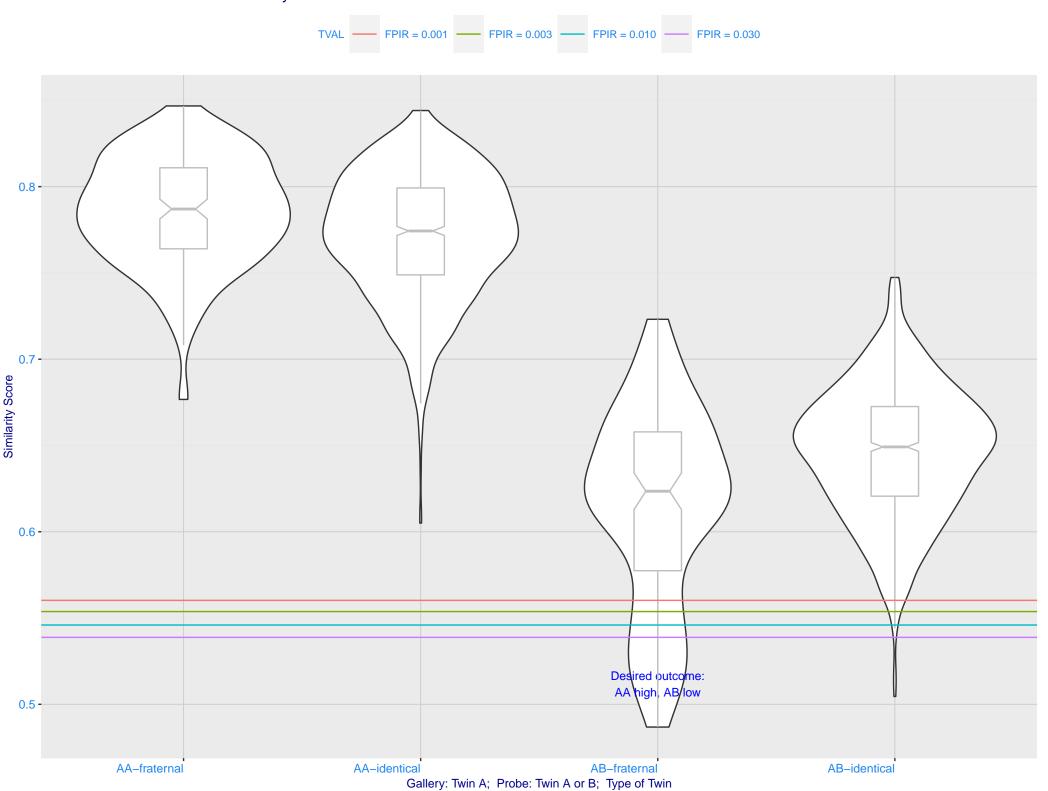


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.000 - 0.050 enrolment_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 -- nec_3 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_3 sensetime_005 0.100 -0.070 -0.050 -0.030 enrolment_style False negative identification rate, FNIR(N) 0.000 - 0. 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



