A: Datasheet

Algorithm: vocord_5

Developer: Vocord

Submission Date: 2018_10_30

Template size: 768 bytes

Template time (2.5 percentile): 778 msec

Template time (median): 781 msec

Template time (97.5 percentile): 1210 msec

Investigation:

Frontal mugshot ranking 104 (out of 265) -- FNIR(1600000, 0, 1) = 0.0070 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 93 (out of 227) -- FNIR(1600000, 0, 1) = 0.0232 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 99 (out of 196) -- FNIR(1600000, 0, 1) = 0.8121 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 94 (out of 148) -- FNIR(1600000, 0, 1) = 0.0548 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 77 (out of 145) -- FNIR(1600000, 0, 1) = 0.2056 vs. lowest 0.0568 from hr_000

Identification:

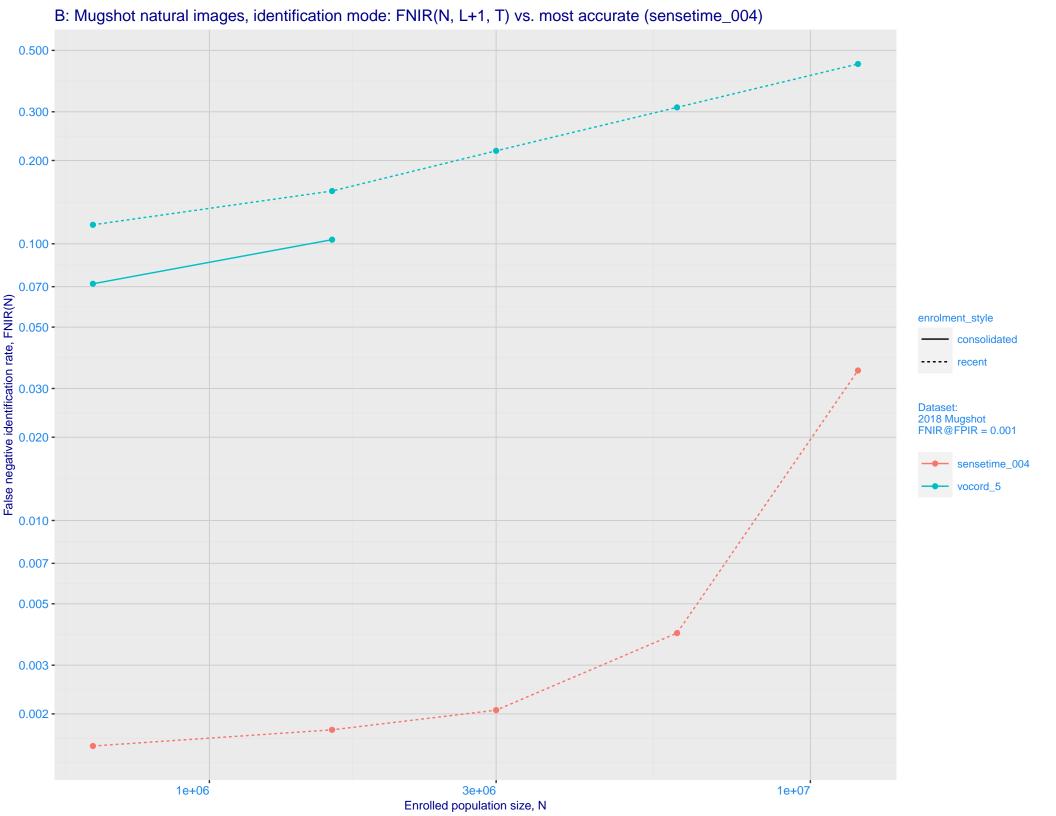
Frontal mugshot ranking 159 (out of 265) -- FNIR(1600000, T, L+1) = 0.1551, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 93 (out of 225) -- FNIR(1600000, T, L+1) = 0.1295, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

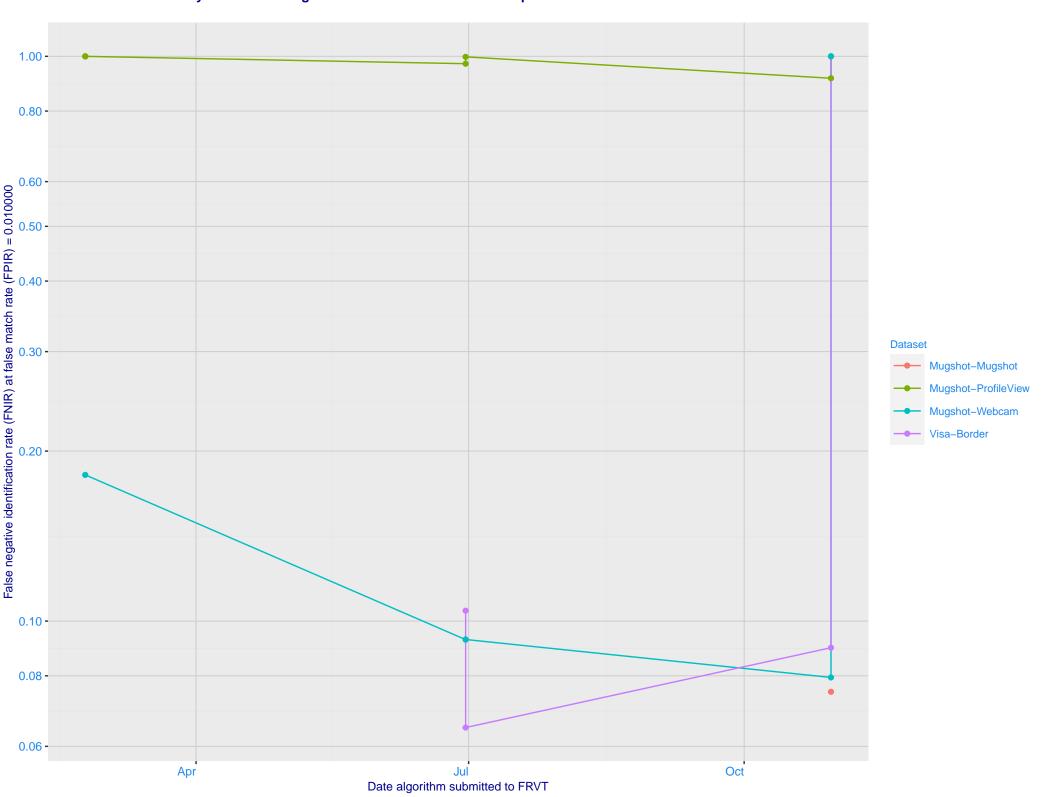
Mugshot profile ranking 108 (out of 195) -- FNIR(1600000, T, L+1) = 0.9973, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 76 (out of 146) -- FNIR(1600000, T, L+1) = 0.1380, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 51 (out of 141) -- FNIR(1600000, T, L+1) = 0.3835, FPIR=0.001000 vs. lowest 0.0996 from hr_000

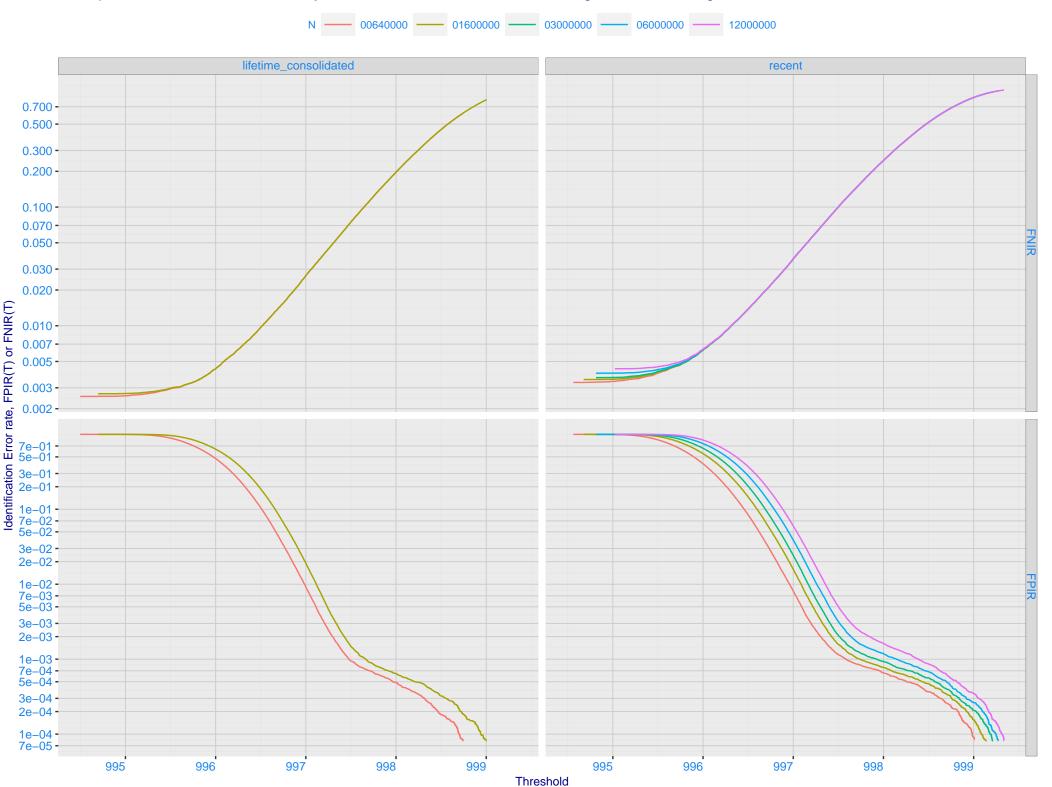


C: Evolution of accuracy for VOCORD algorithms on three datasets 2018 – present

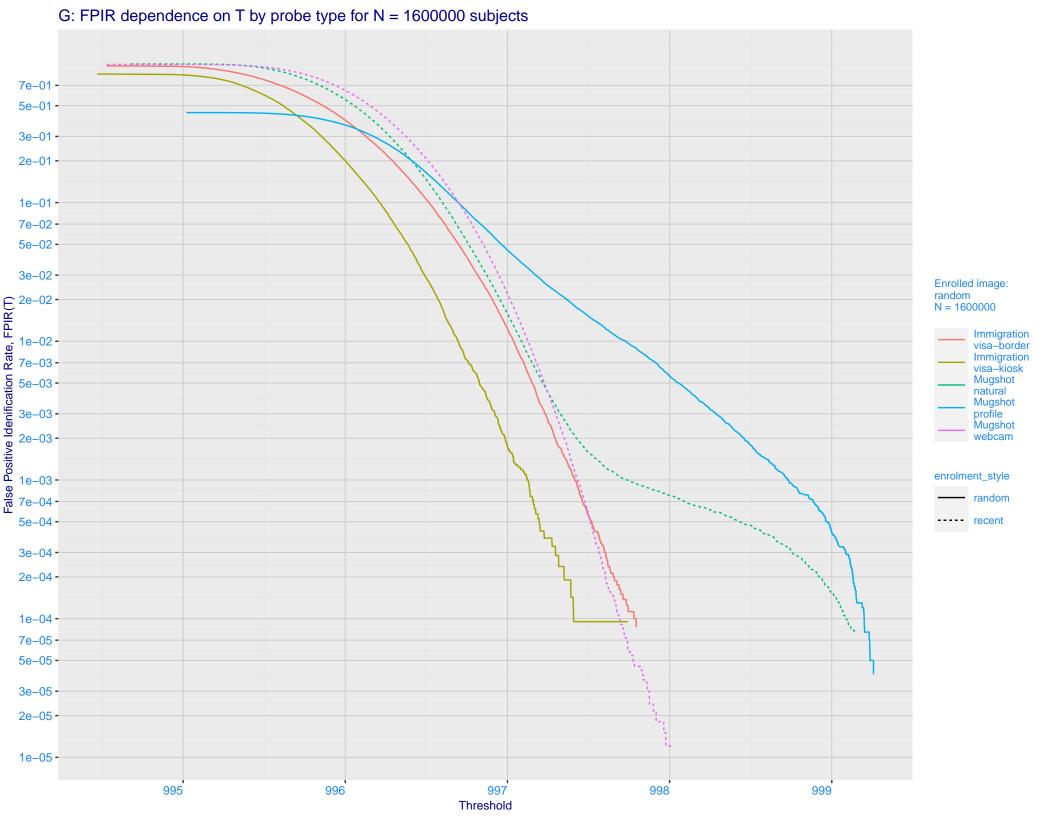


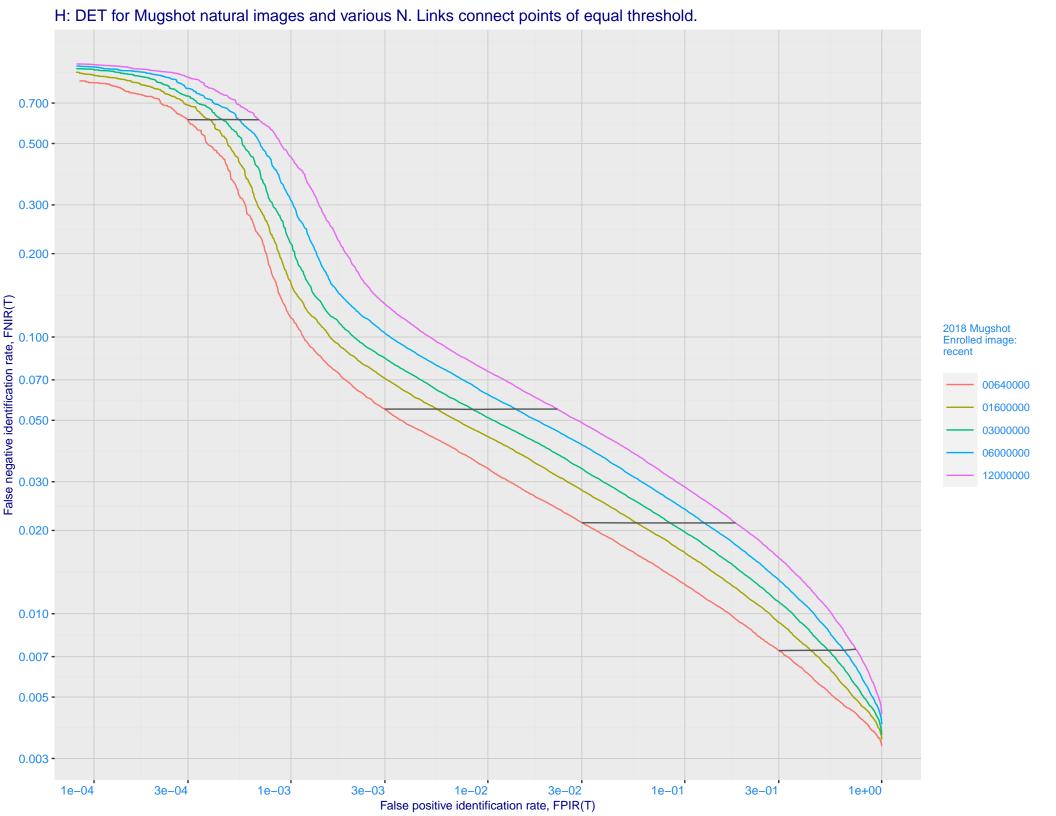
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

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)

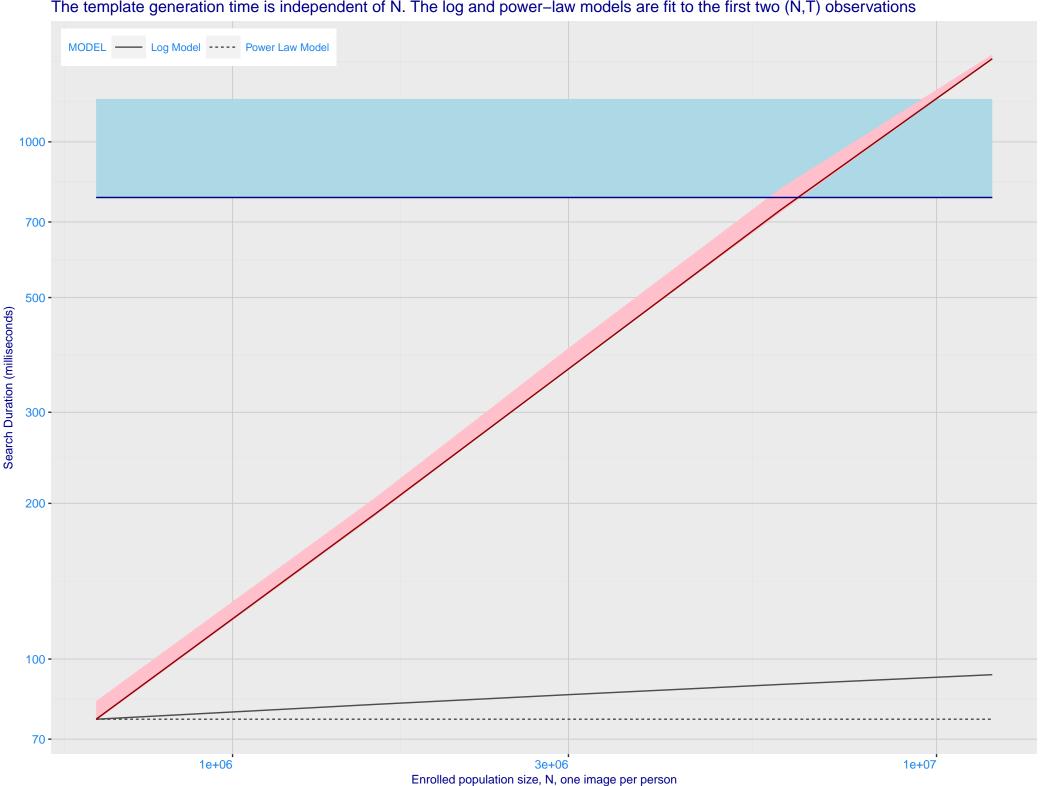




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.001 - 0.100 - 0.070 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 sensetime_005 vocord_5 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 sensetime_005 vocord_5 0.200 -0.100 -0.070 -0.050 enrolment_style False negative identification rate, FNIR(N) lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot 0.005 webcam 0.003 -0.002 -0.001 -3 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



