A: Datasheet

Algorithm: vocord_4

Developer: Vocord

Submission Date: 2018_06_30

Template size: 896 bytes

Template time (2.5 percentile): 479 msec

Template time (median): 516 msec

Template time (97.5 percentile): 648 msec

Investigation:

Frontal mugshot ranking 120 (out of 279) -- FNIR(1600000, 0, 1) = 0.0079 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 89 (out of 241) -- FNIR(1600000, 0, 1) = 0.0207 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 102 (out of 210) — FNIR(1600000, 0, 1) = 0.7916 vs. lowest 0.0587 from xforwardai_002

Immigration visa-border ranking 78 (out of 168) -- FNIR(1600000, 0, 1) = 0.0122 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 56 (out of 165) -- FNIR(1600000, 0, 1) = 0.1270 vs. lowest 0.0568 from cloudwalk_hr_000

Identification:

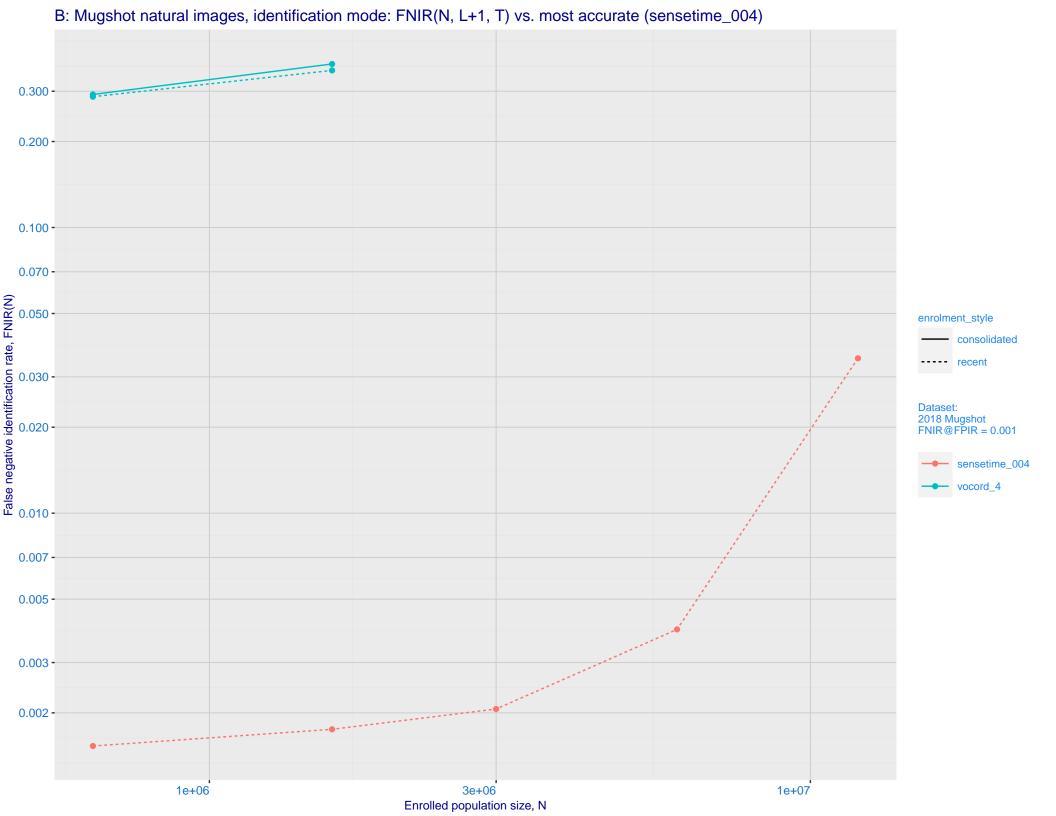
Frontal mugshot ranking 214 (out of 279) -- FNIR(1600000, T, L+1) = 0.3548, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 131 (out of 236) -- FNIR(1600000, T, L+1) = 0.1726, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

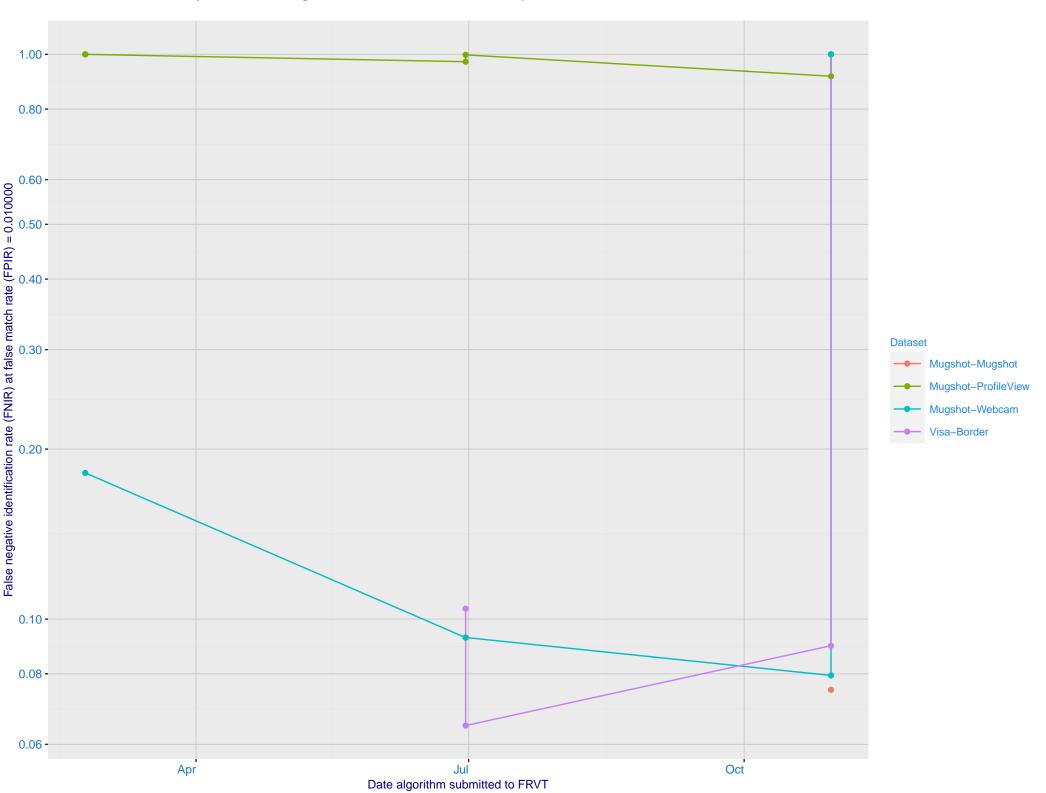
Mugshot profile ranking 168 (out of 209) -- FNIR(1600000, T, L+1) = 0.9998, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk_hr_000

Immigration visa-border ranking 101 (out of 167) -- FNIR(1600000, T, L+1) = 0.1943, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa-kiosk ranking 137 (out of 162) -- FNIR(1600000, T, L+1) = 0.9911, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk_hr_000



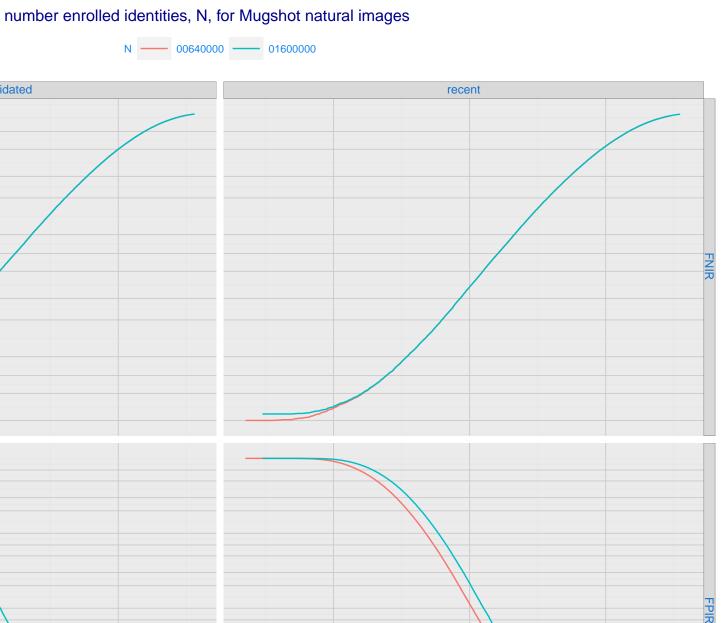
C: Evolution of accuracy for VOCORD algorithms on three datasets 2018 – present

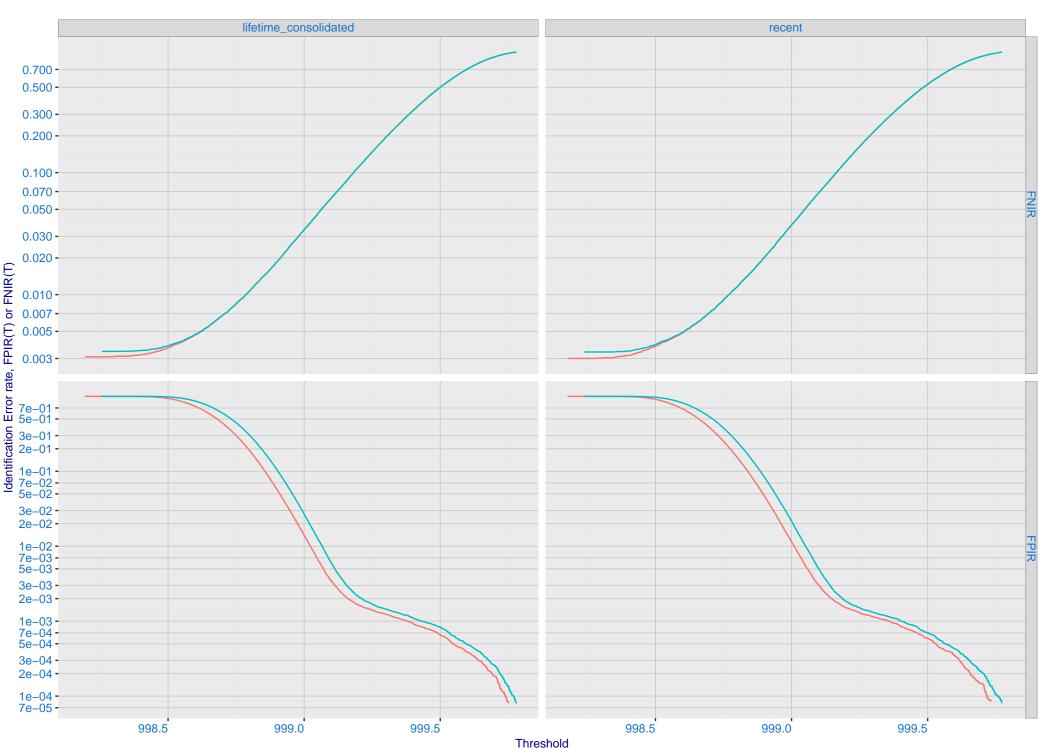


D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style consolidated-ONE-MATE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

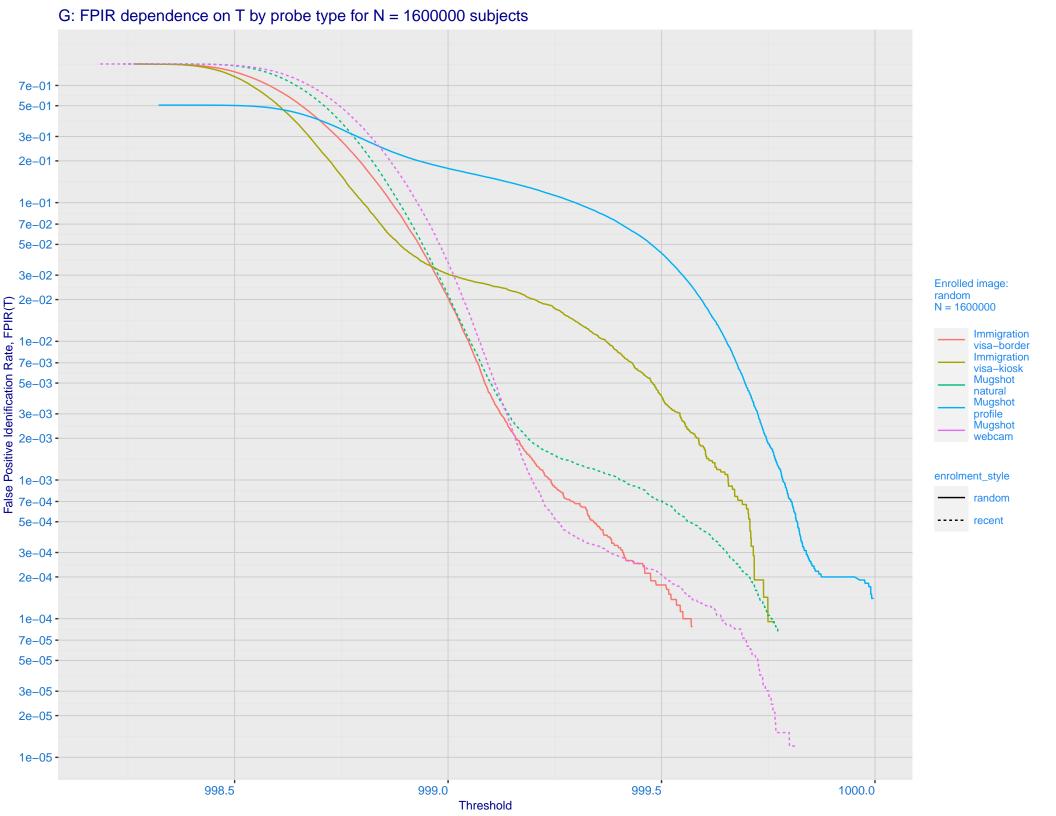
0.001 -

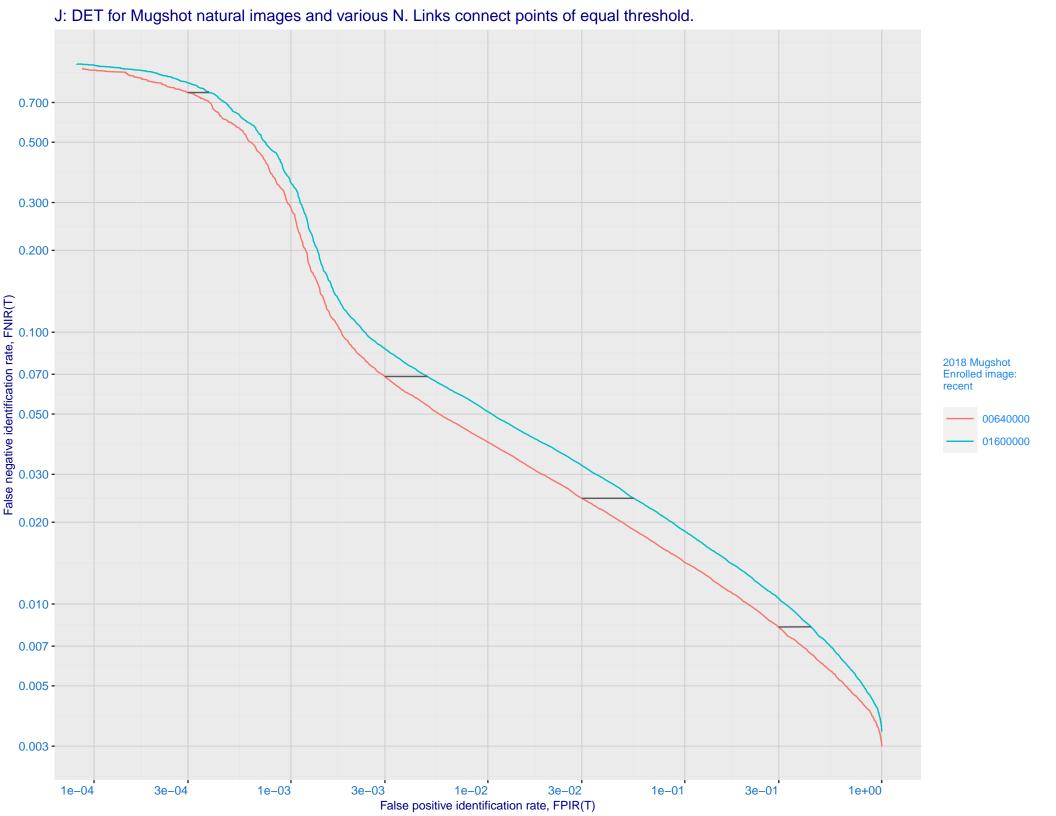
E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images



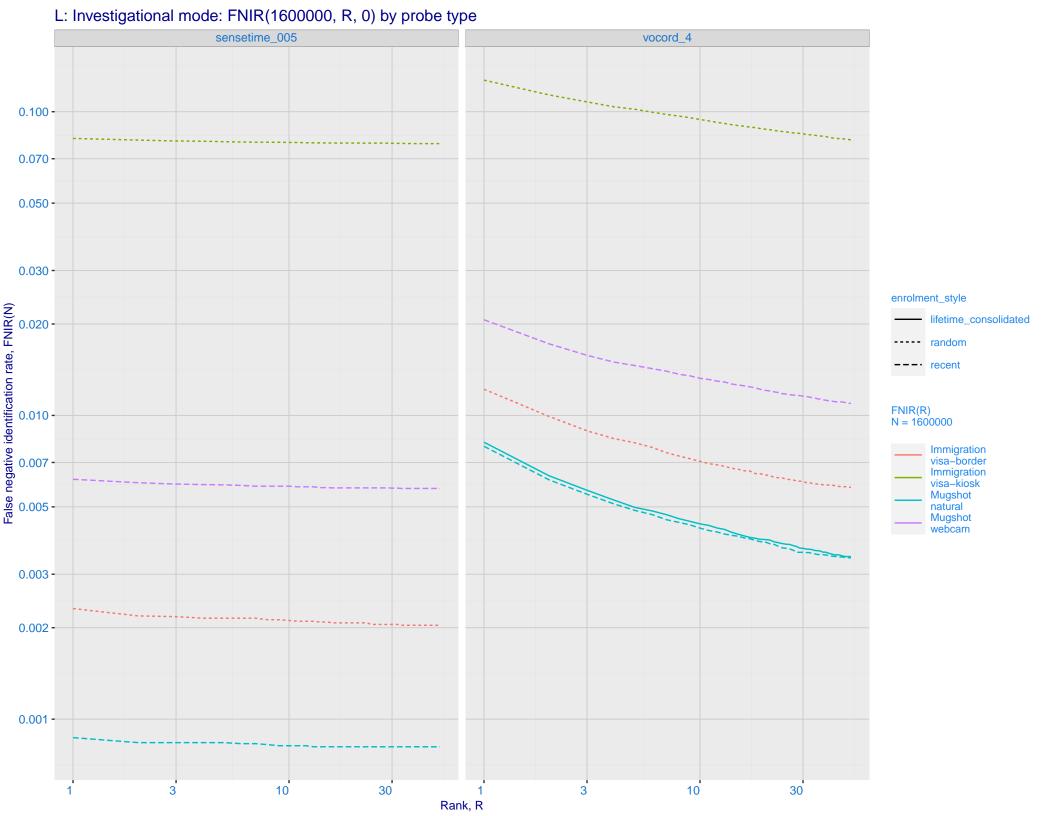


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 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)





K: 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 Mugshot webcam natural FNIR@Rank = 1 sensetime_005 vocord_4 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



M: 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 700 -Log Model ---- Power Law Model 500 -Search Duration (milliseconds) 300 -200 -100 -7e+05 8e+05 1e+06 Enrolled population size, N, one image per person

Q: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing



