A: Datasheet

Algorithm: visionlabs_7

Developer: VisionLabs

Submission Date: 2018_10_30

Template size: 512 bytes

Template time (2.5 percentile): 289 msec

Template time (median): 289 msec

Template time (97.5 percentile): 308 msec

Investigation:

Frontal mugshot ranking 21 (out of 265) -- FNIR(1600000, 0, 1) = 0.0018 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 44 (out of 227) -- FNIR(1600000, 0, 1) = 0.0149 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 21 (out of 196) -- FNIR(1600000, 0, 1) = 0.2112 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 21 (out of 148) -- FNIR(1600000, 0, 1) = 0.0036 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 21 (out of 145) -- FNIR(1600000, 0, 1) = 0.0954 vs. lowest 0.0568 from hr_000

Identification:

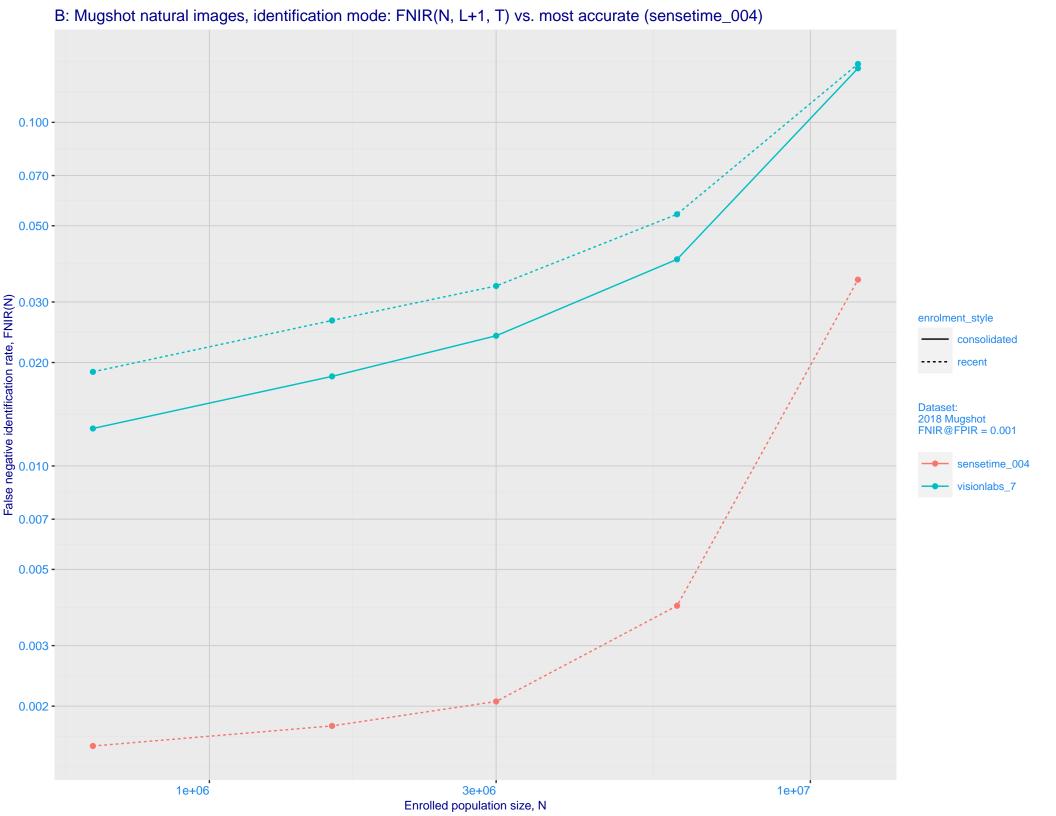
Frontal mugshot ranking 48 (out of 265) -- FNIR(1600000, T, L+1) = 0.0265, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

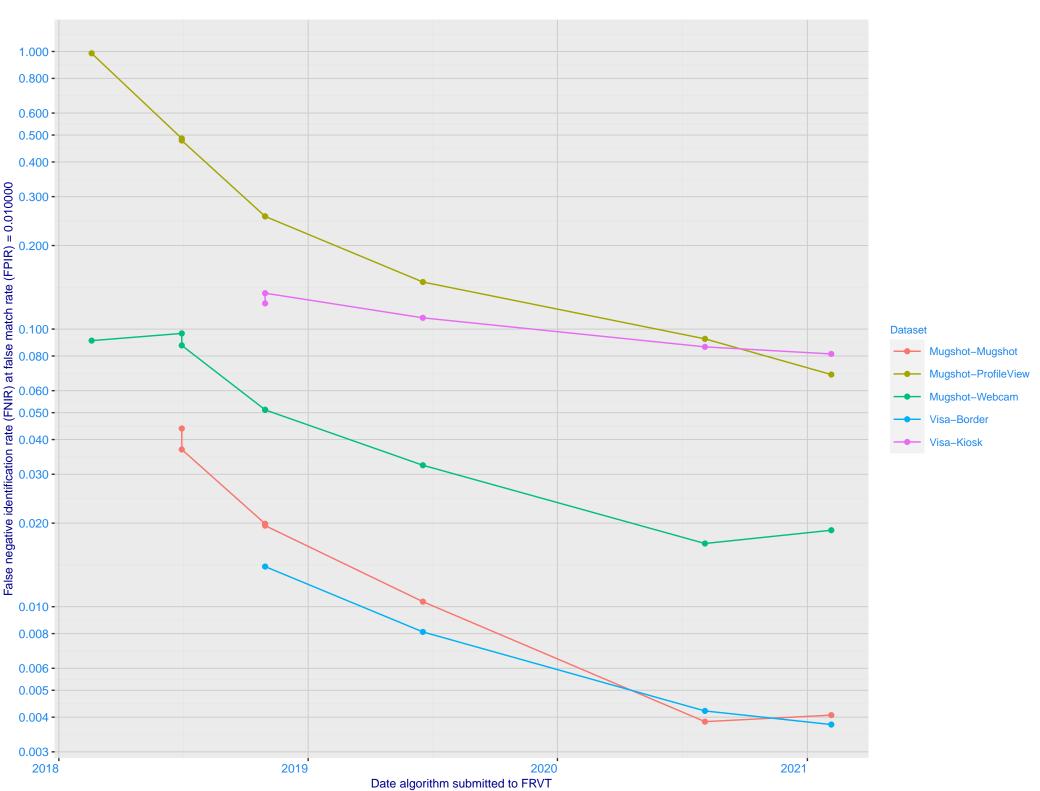
Mugshot webcam ranking 53 (out of 225) -- FNIR(1600000, T, L+1) = 0.0902, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 15 (out of 195) -- FNIR(1600000, T, L+1) = 0.6723, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 28 (out of 146) -- FNIR(1600000, T, L+1) = 0.0313, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 18 (out of 141) — FNIR(1600000, T, L+1) = 0.1847, FPIR=0.001000 vs. lowest 0.0996 from hr_000

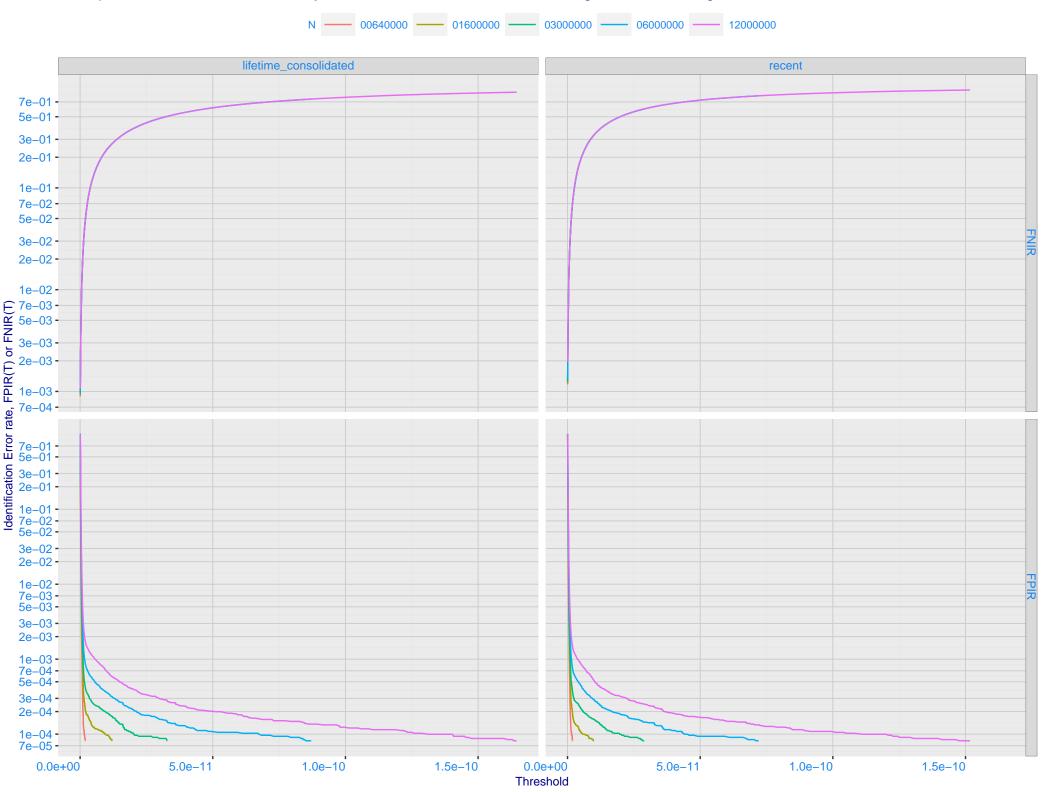




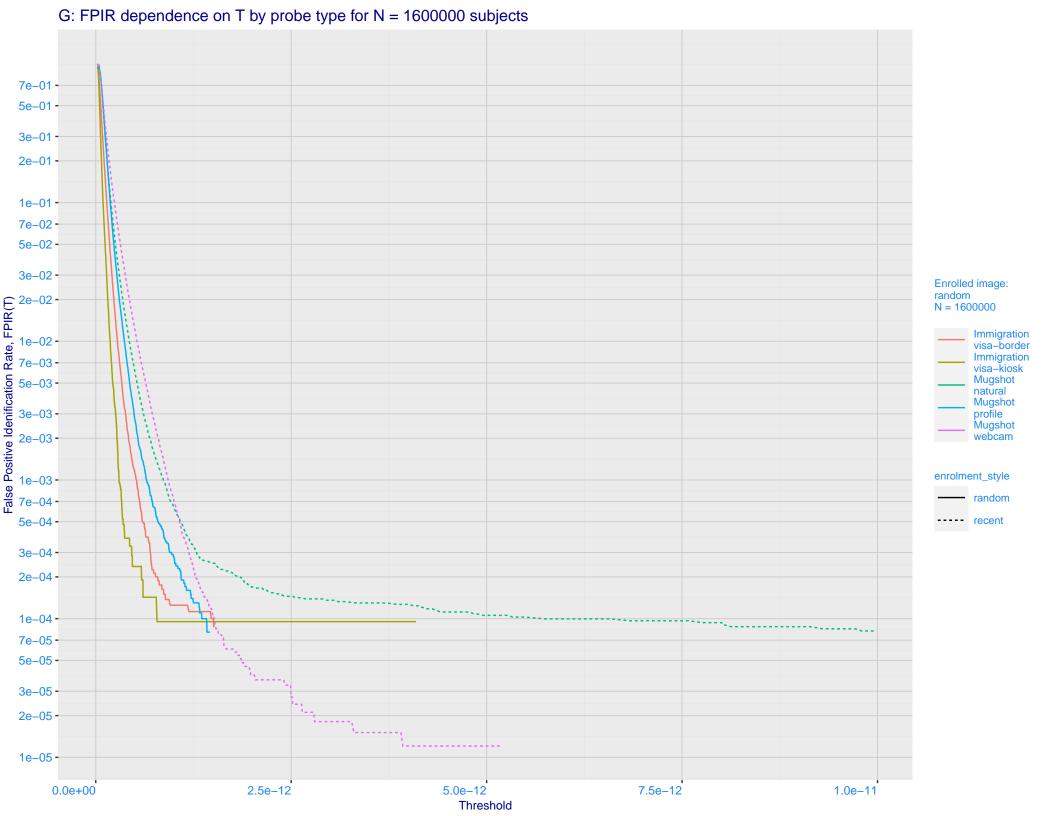
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.002 - 0.001 - 0.500 - 0.200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

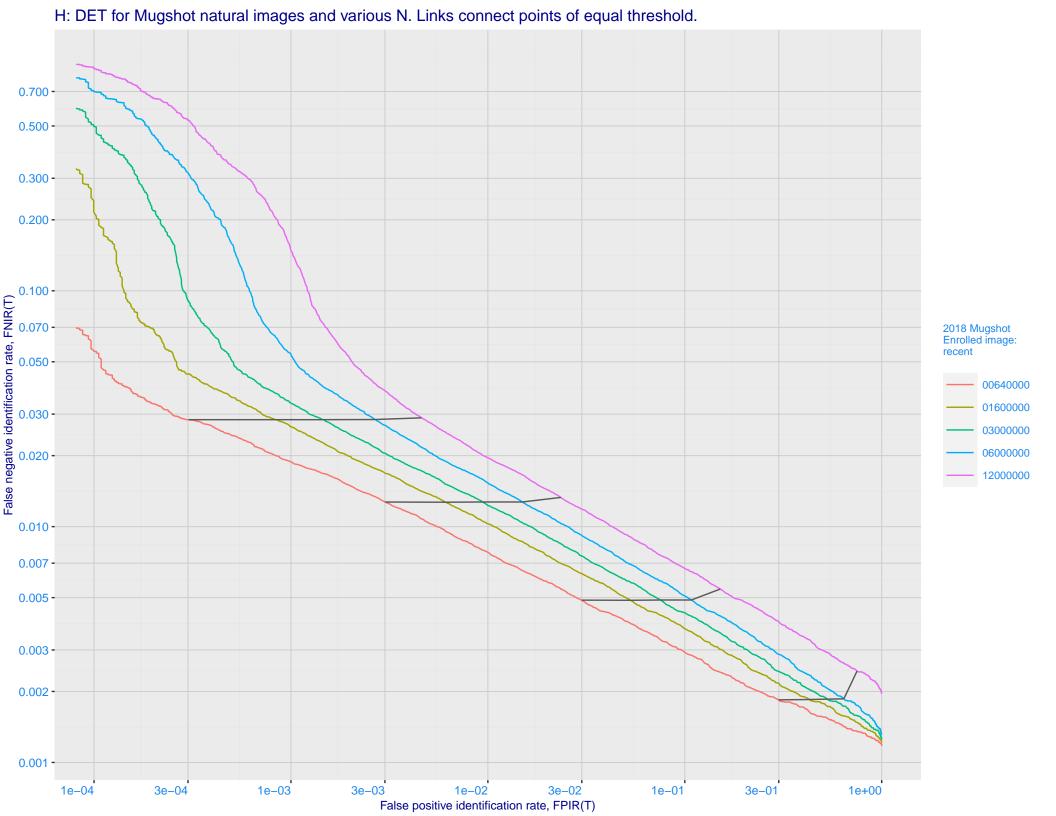
False positive identification rate, FPIR(T)

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-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)



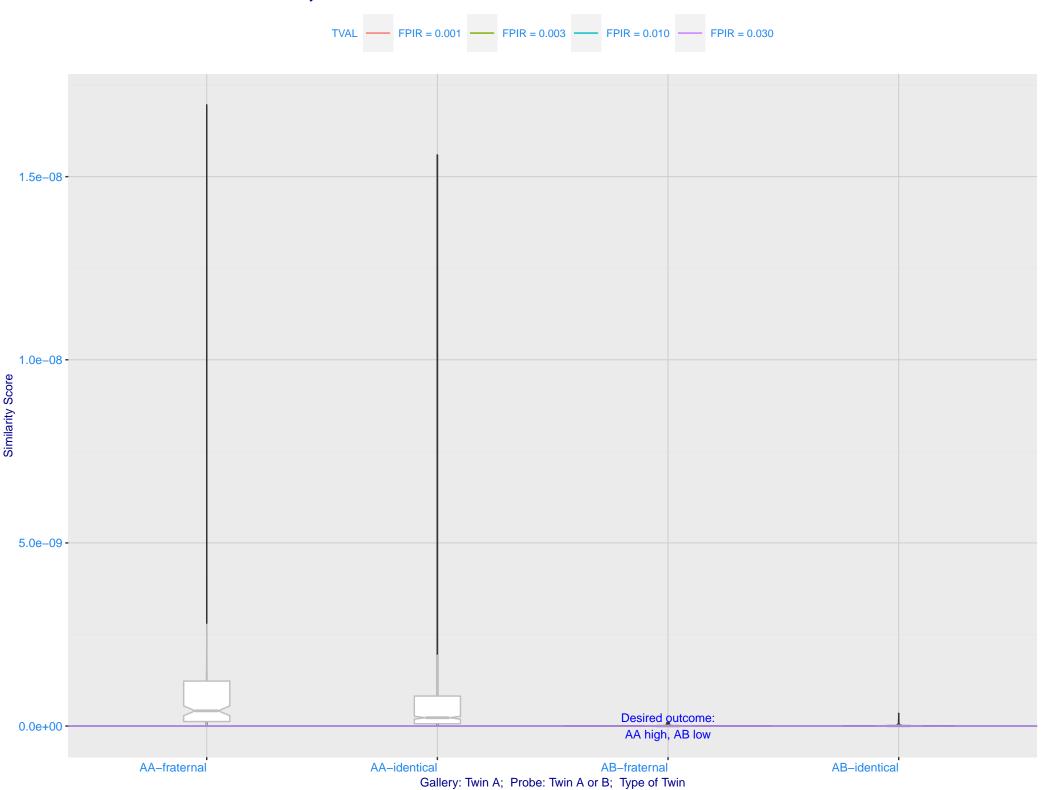


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 sensetime_005 visionlabs_7 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 visionlabs_7 0.100 -0.070 -0.050 -0.030 -0.020 - 0.000 enrolment_style 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 - Log Model ---- Power Law Model 300 -200 -100 -70 -50 -1e+06 3e+06 1e+07 Enrolled population size, N, one image per person

Search Duration (milliseconds)



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



