A: Datasheet

Algorithm: camvi_4

Developer: Camvi Technologies

Submission Date: 2018_10_30

Template size: 1024 bytes

Template time (2.5 percentile): 669 msec

Template time (median): 686 msec

Template time (97.5 percentile): 916 msec

Investigation:

Frontal mugshot ranking 195 (out of 259) -- FNIR(1600000, 0, 1) = 0.0468 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 164 (out of 221) -- FNIR(1600000, 0, 1) = 0.0775 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 77 (out of 190) -- FNIR(1600000, 0, 1) = 0.7437 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 94 (out of 142) -- FNIR(1600000, 0, 1) = 0.0717 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 95 (out of 139) -- FNIR(1600000, 0, 1) = 0.2957 vs. lowest 0.0694 from cib_000

Identification:

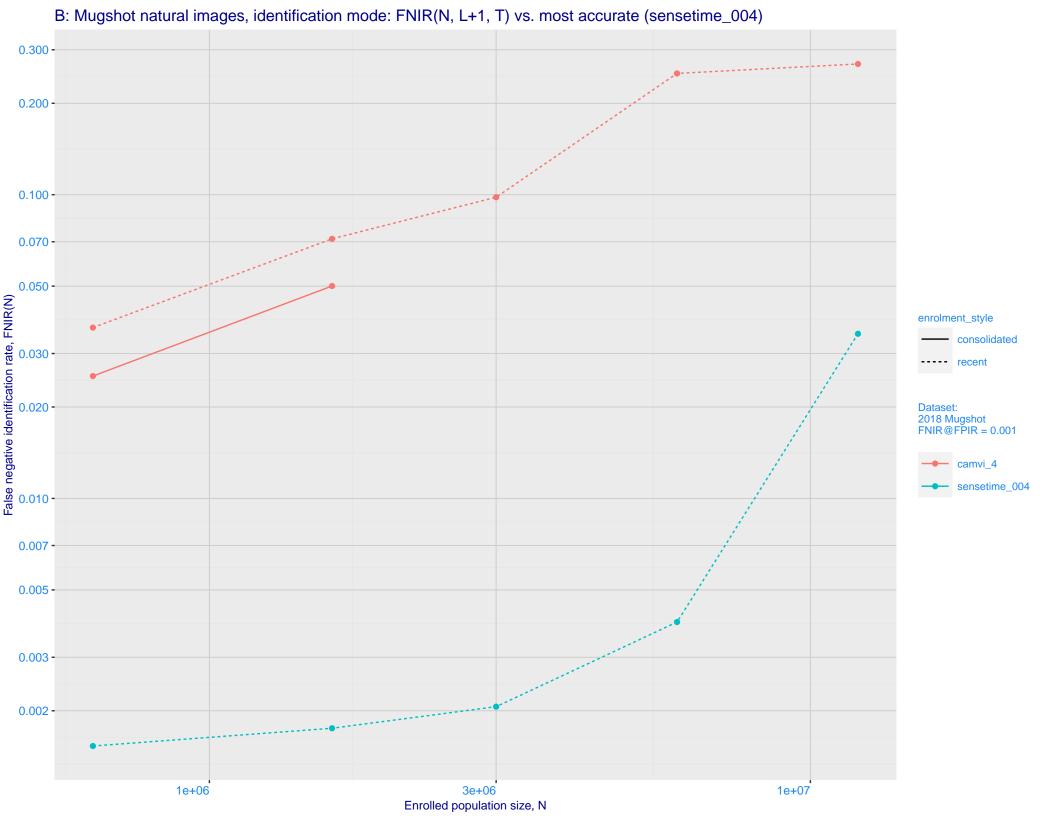
Frontal mugshot ranking 104 (out of 259) -- FNIR(1600000, T, L+1) = 0.0716, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 91 (out of 219) -- FNIR(1600000, T, L+1) = 0.1357, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

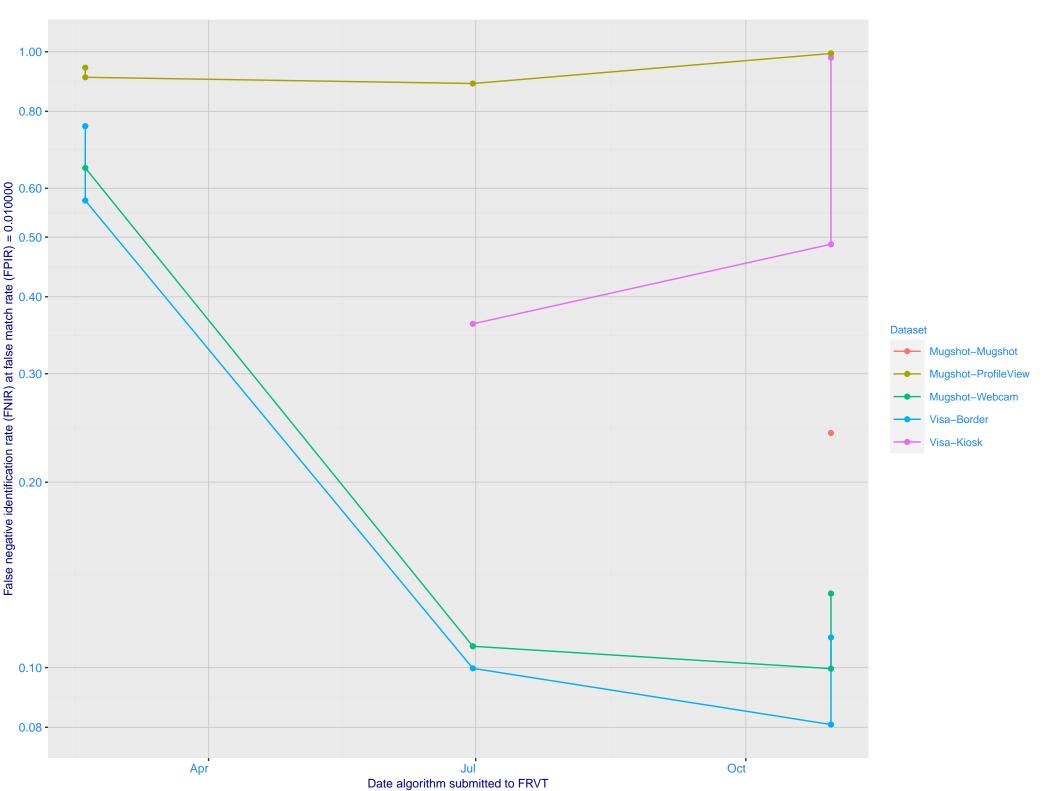
Mugshot profile ranking 134 (out of 189) -- FNIR(1600000, T, L+1) = 0.9994, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 62 (out of 139) -- FNIR(1600000, T, L+1) = 0.1004, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 80 (out of 134) -- FNIR(1600000, T, L+1) = 0.7873, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



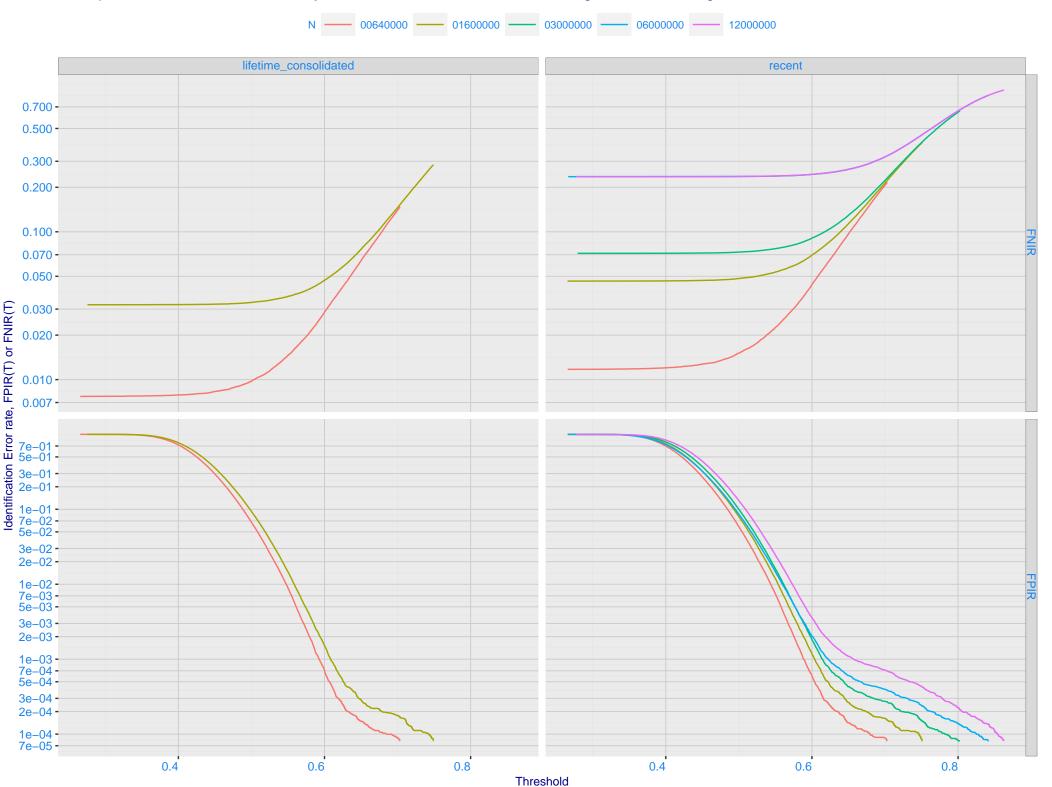
C: Evolution of accuracy for CAMVI algorithms on three datasets 2018 – present



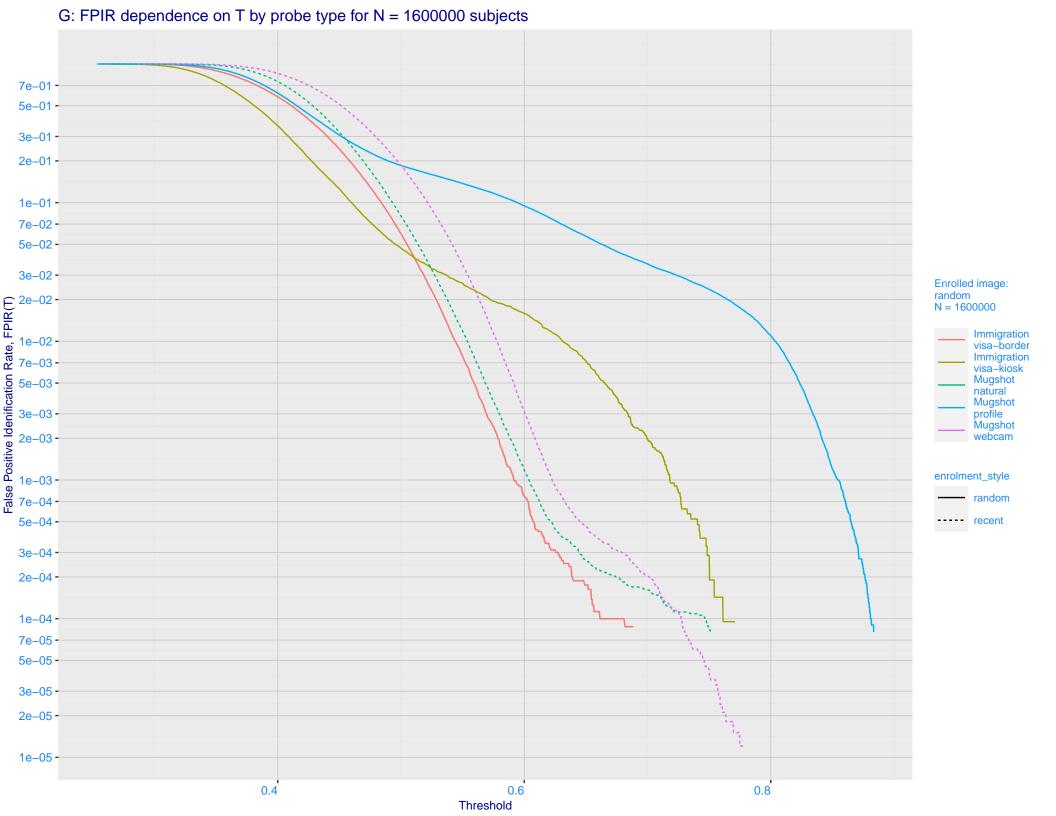
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

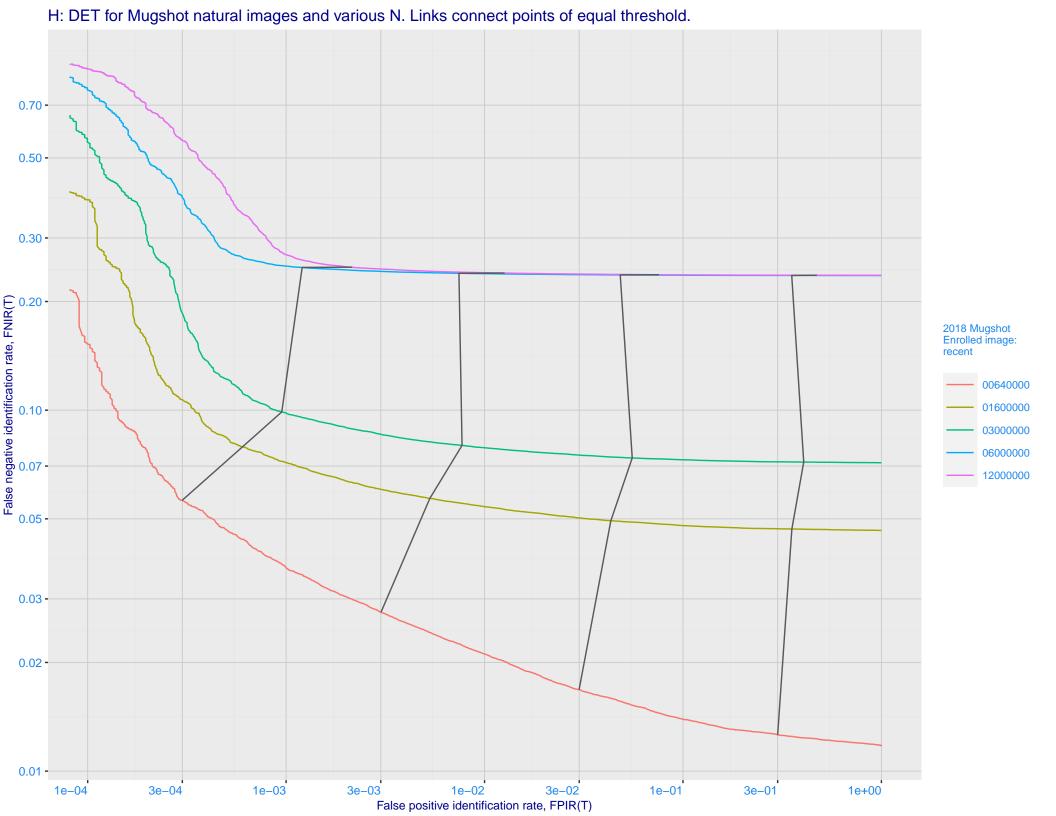
False positive identification rate, FPIR(T)

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)

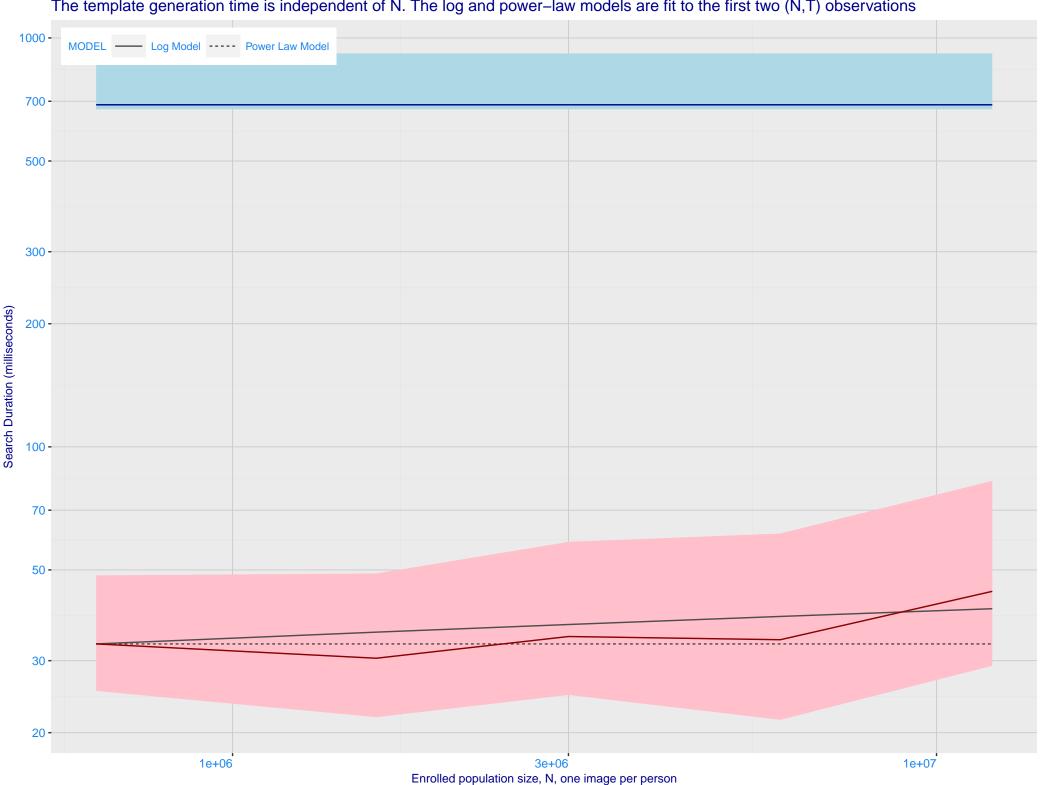


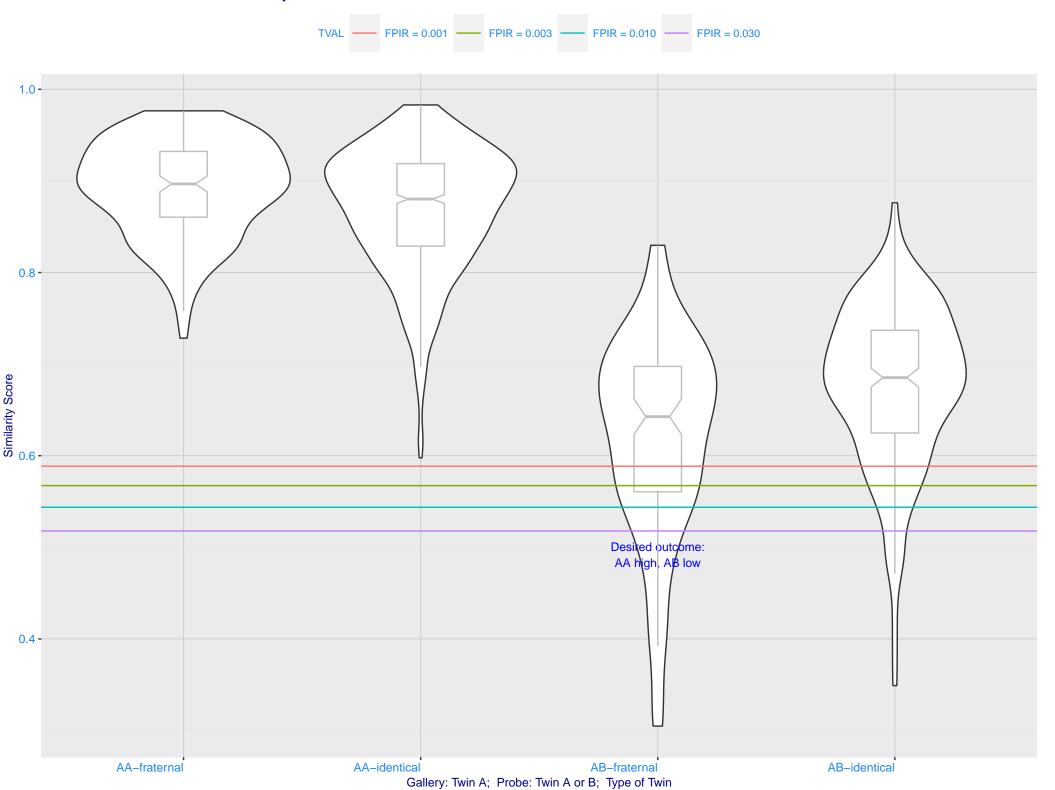


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.300 - 0.100 - 0.070 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 camvi_4 sensetime_005 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 camvi_4 sensetime_005 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 webcam 0.005 -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 Log Model ---- Power Law Model





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

