## A: Datasheet

Algorithm: camvi\_1

Developer: Camvi Technologies

Submission Date: 2018\_02\_16

Template size: 1024 bytes

Template time (2.5 percentile): 168 msec

Template time (median): 176 msec

Template time (97.5 percentile): 188 msec

Investigation:

Frontal mugshot ranking 244 (out of 265) -- FNIR(1600000, 0, 1) = 0.2247 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 206 (out of 227) -- FNIR(1600000, 0, 1) = 0.3371 vs. lowest 0.0062 from sensetime\_005

Mugshot profile ranking 143 (out of 196) — FNIR(1600000, 0, 1) = 0.9533 vs. lowest 0.0591 from sensetime\_005

Immigration visa-border ranking 122 (out of 148) -- FNIR(1600000, 0, 1) = 0.3028 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 127 (out of 145) — FNIR(1600000, 0, 1) = 0.6282 vs. lowest 0.0568 from hr\_000

Identification:

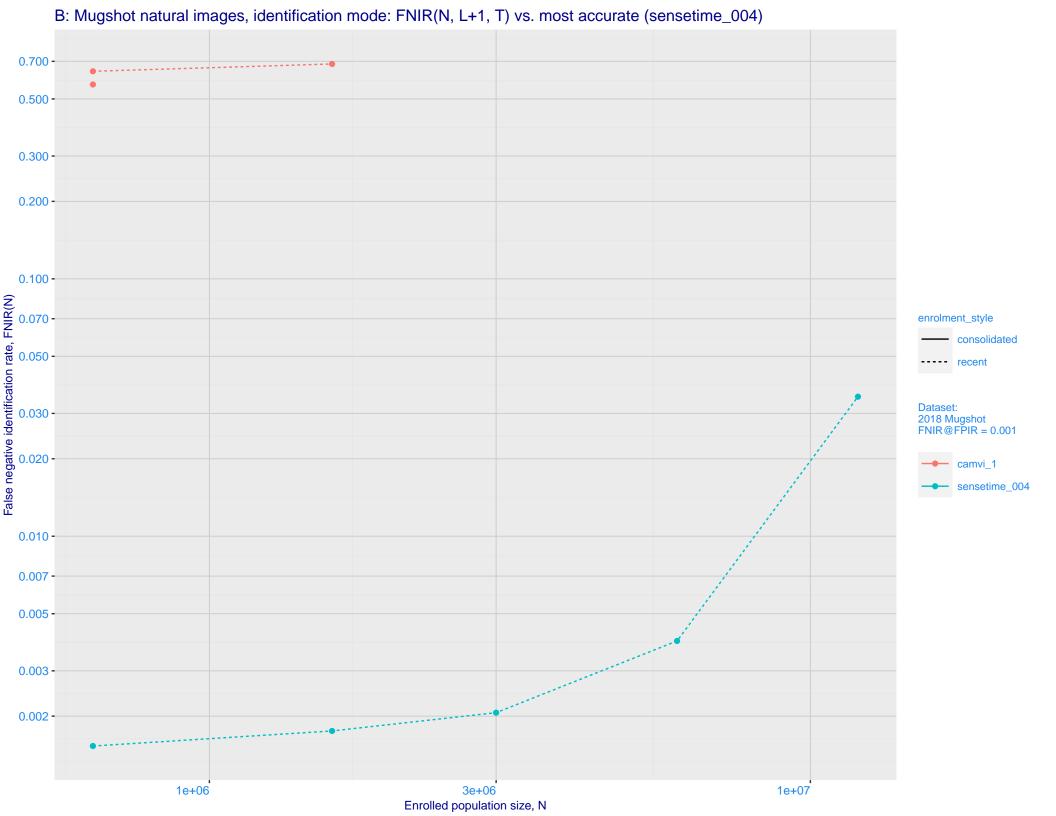
Frontal mugshot ranking 236 (out of 265) -- FNIR(1600000, T, L+1) = 0.6836, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 200 (out of 225) -- FNIR(1600000, T, L+1) = 0.7694, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

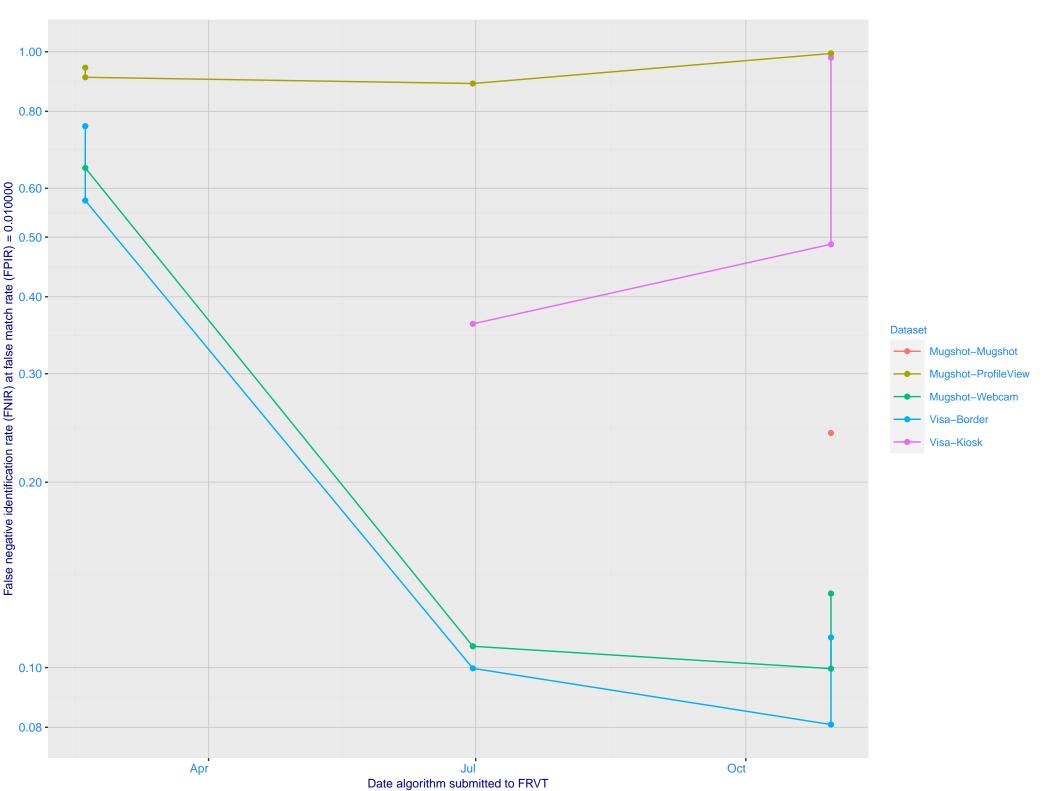
Mugshot profile ranking 89 (out of 195) -- FNIR(1600000, T, L+1) = 0.9935, FPIR=0.001000 vs. lowest 0.1331 from hr\_000

Immigration visa-border ranking 122 (out of 146) -- FNIR(1600000, T, L+1) = 0.8972, FPIR=0.001000 vs. lowest 0.0049 from hr\_000

Immigration visa-kiosk ranking 113 (out of 141) -- FNIR(1600000, T, L+1) = 0.9521, FPIR=0.001000 vs. lowest 0.0996 from hr\_000

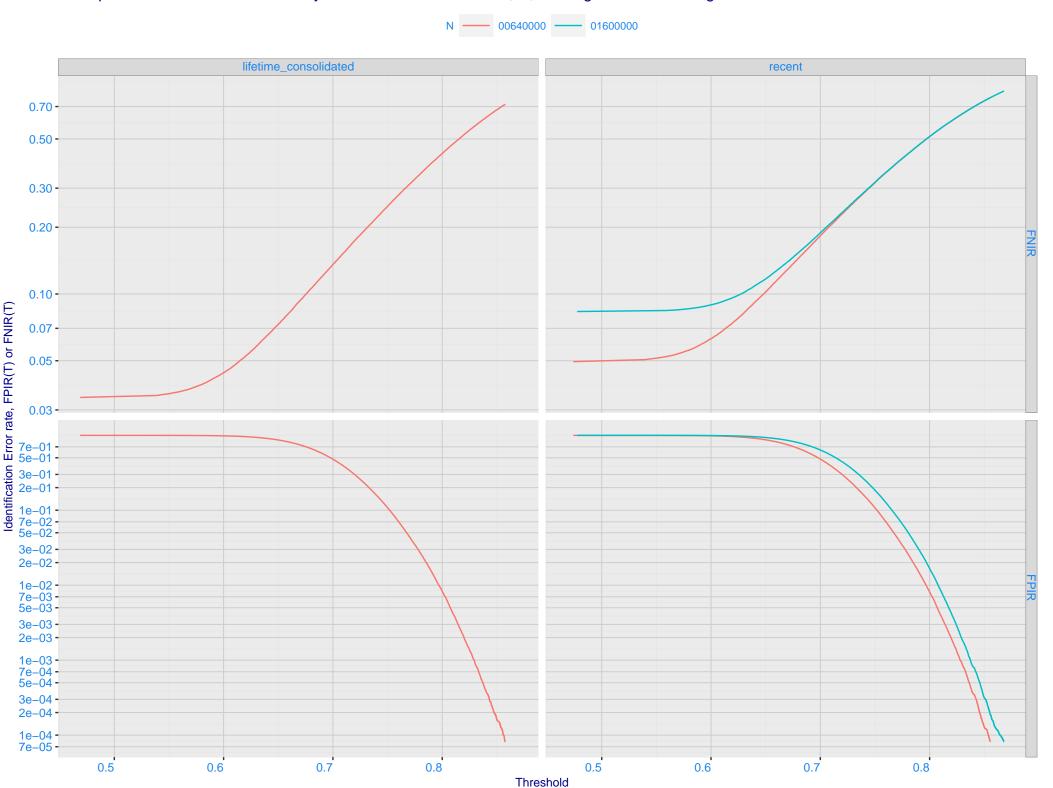


C: Evolution of accuracy for CAMVI algorithms on three datasets 2018 – present

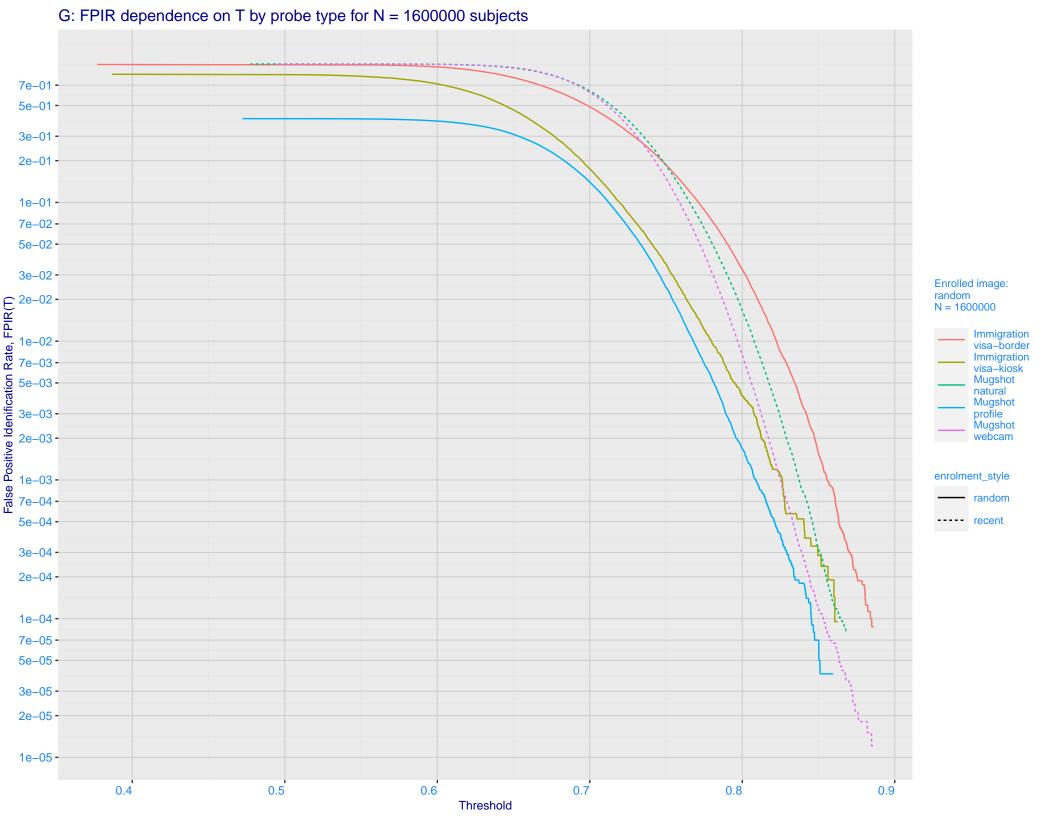


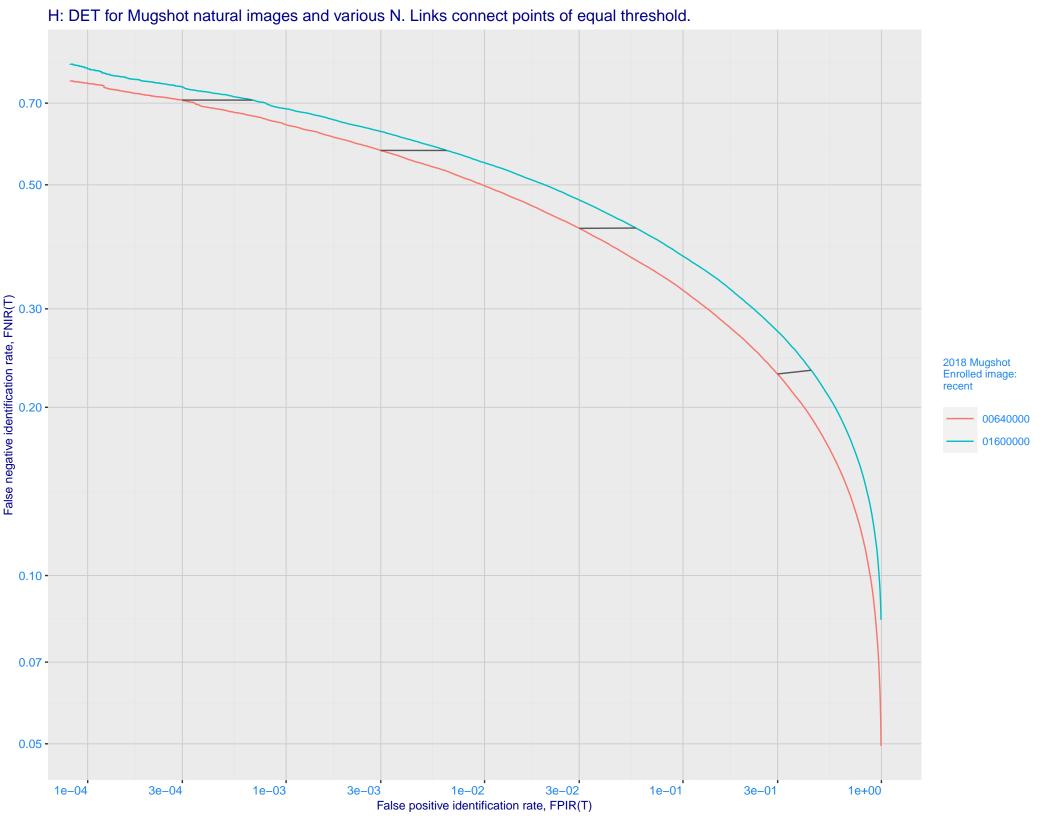
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style random-ONE-MATE 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 -False positive identification rate, FPIR(T)

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

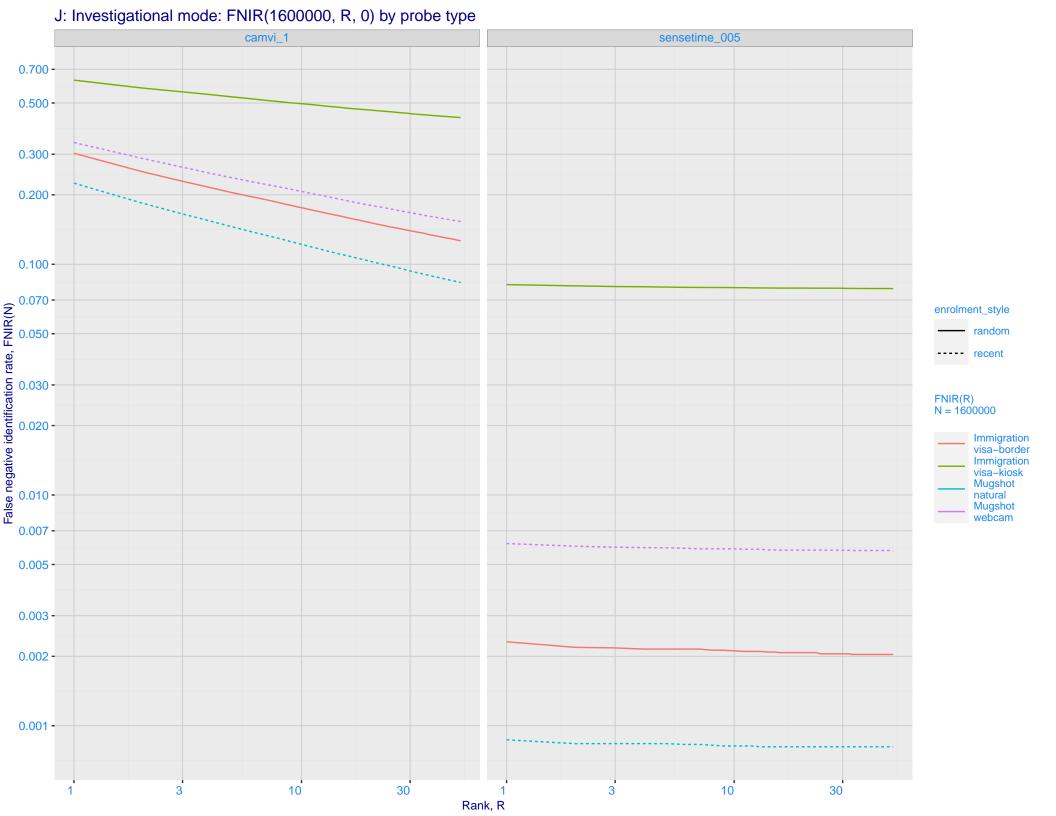


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

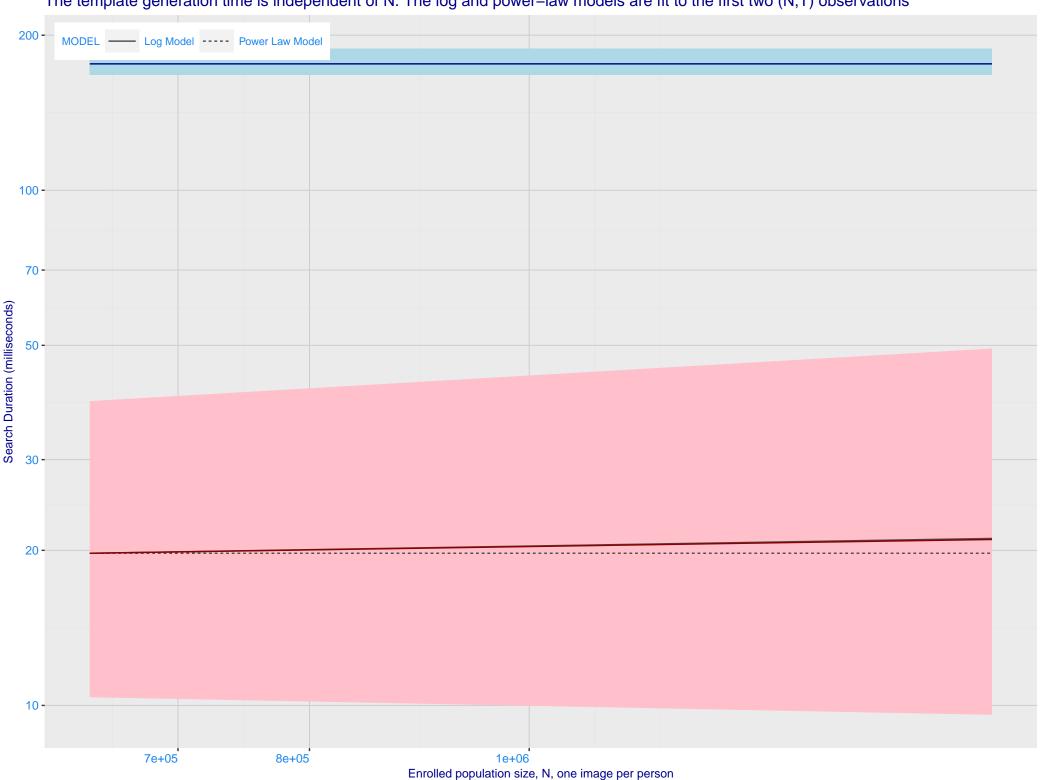




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.500 - 0.500 - 0.200 - 0. enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 -- camvi\_1 sensetime\_005 0.100 -0.070 -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



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



