## A: Datasheet

Algorithm: lookman\_3

Developer: Lookman Electroplast Industries

Submission Date: 2018\_10\_28

Template size: 292 bytes

Template time (2.5 percentile): 334 msec

Template time (median): 336 msec

Template time (97.5 percentile): 367 msec

Investigation:

Frontal mugshot ranking 117 (out of 265) -- FNIR(1600000, 0, 1) = 0.0088 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 128 (out of 227) -- FNIR(1600000, 0, 1) = 0.0379 vs. lowest 0.0062 from sensetime\_005

Immigration visa-border ranking 89 (out of 148) -- FNIR(1600000, 0, 1) = 0.0351 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 88 (out of 145) -- FNIR(1600000, 0, 1) = 0.2394 vs. lowest 0.0568 from hr\_000

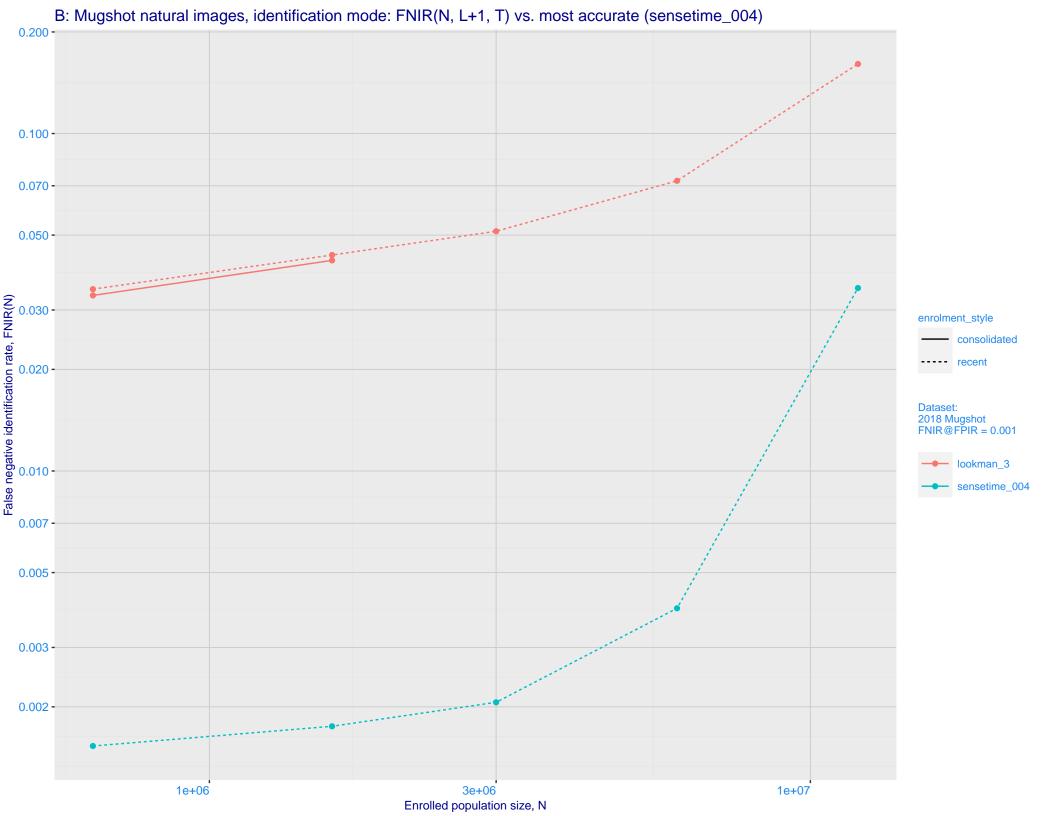
Identification:

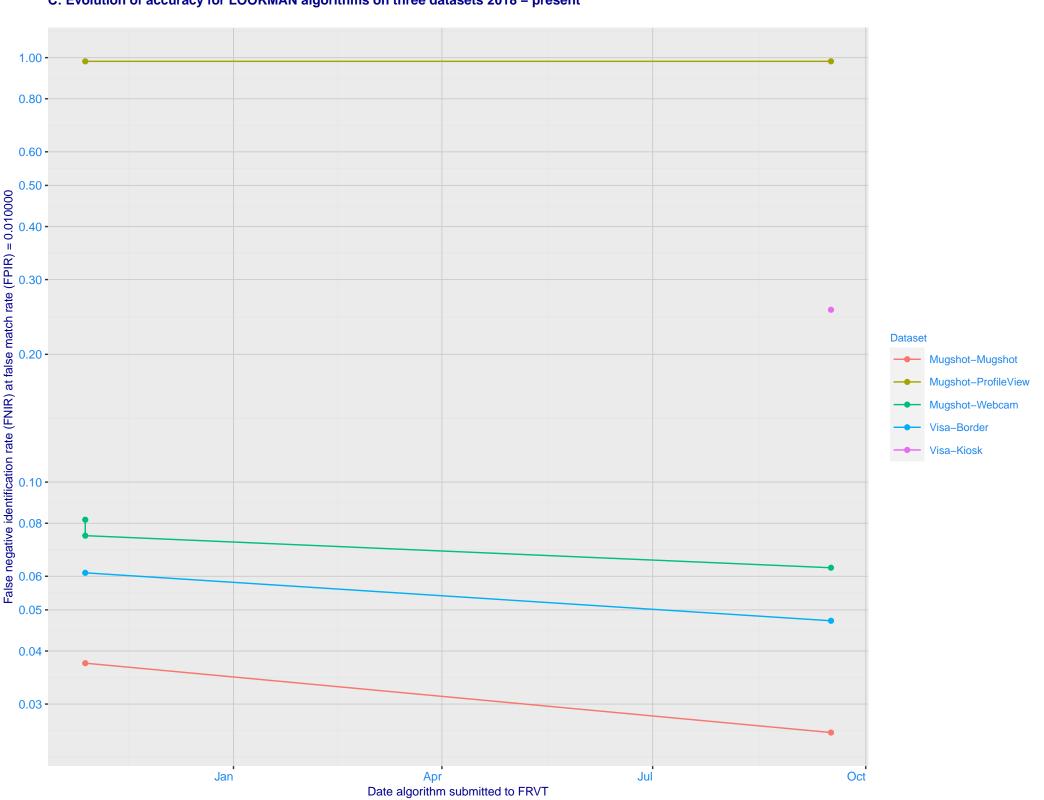
Frontal mugshot ranking 68 (out of 265) -- FNIR(1600000, T, L+1) = 0.0437, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 75 (out of 225) -- FNIR(1600000, T, L+1) = 0.1123, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Immigration visa-border ranking 65 (out of 146) -- FNIR(1600000, T, L+1) = 0.0841, FPIR=0.001000 vs. lowest 0.0049 from hr\_000

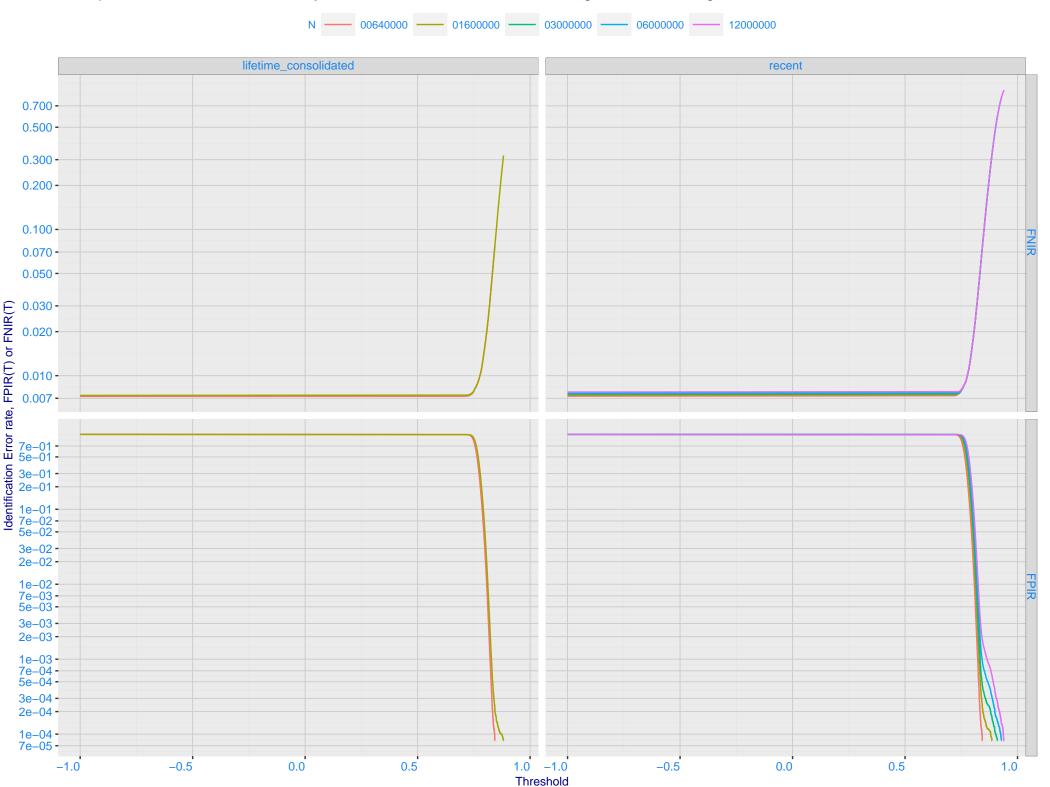
Immigration visa-kiosk ranking 49 (out of 141) -- FNIR(1600000, T, L+1) = 0.3572, FPIR=0.001000 vs. lowest 0.0996 from hr\_000



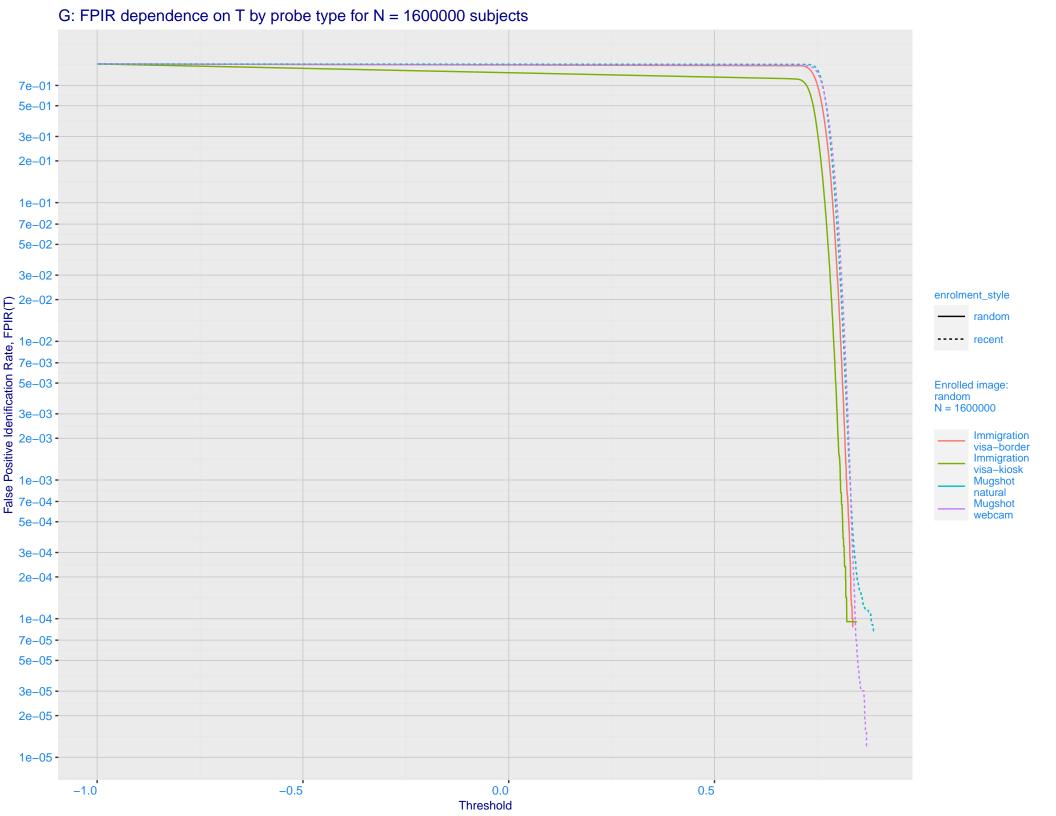


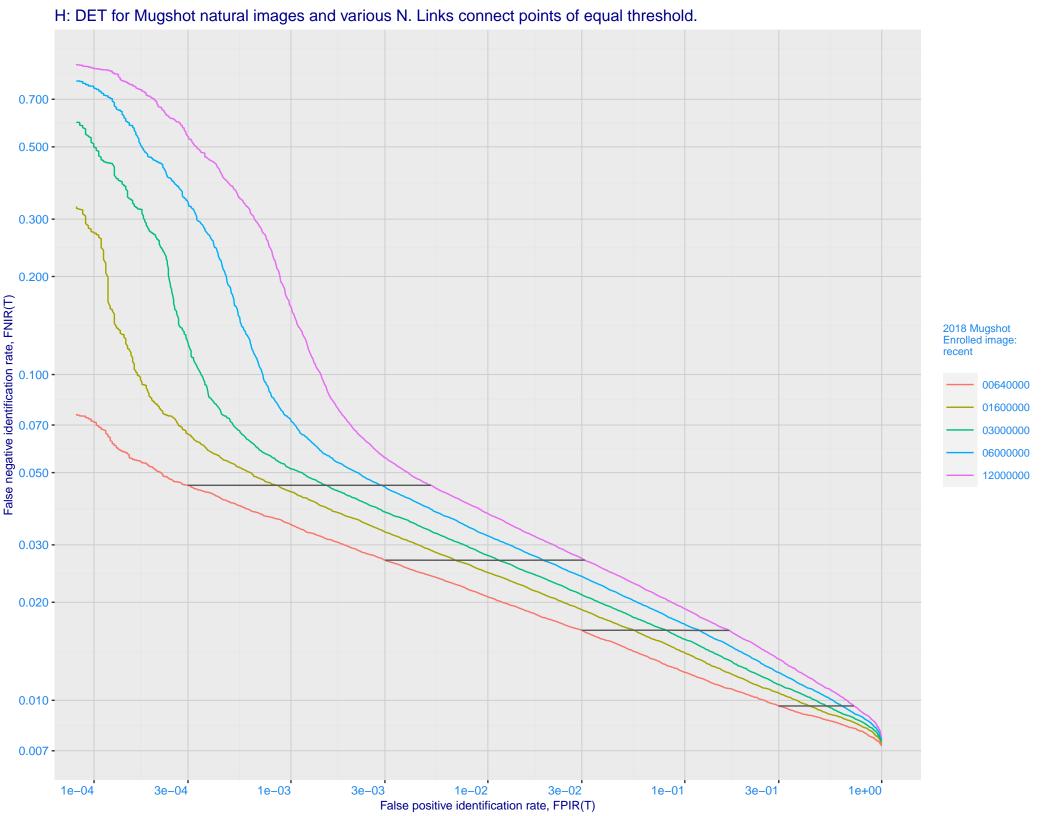
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200 - 0.100 - 0 enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 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)

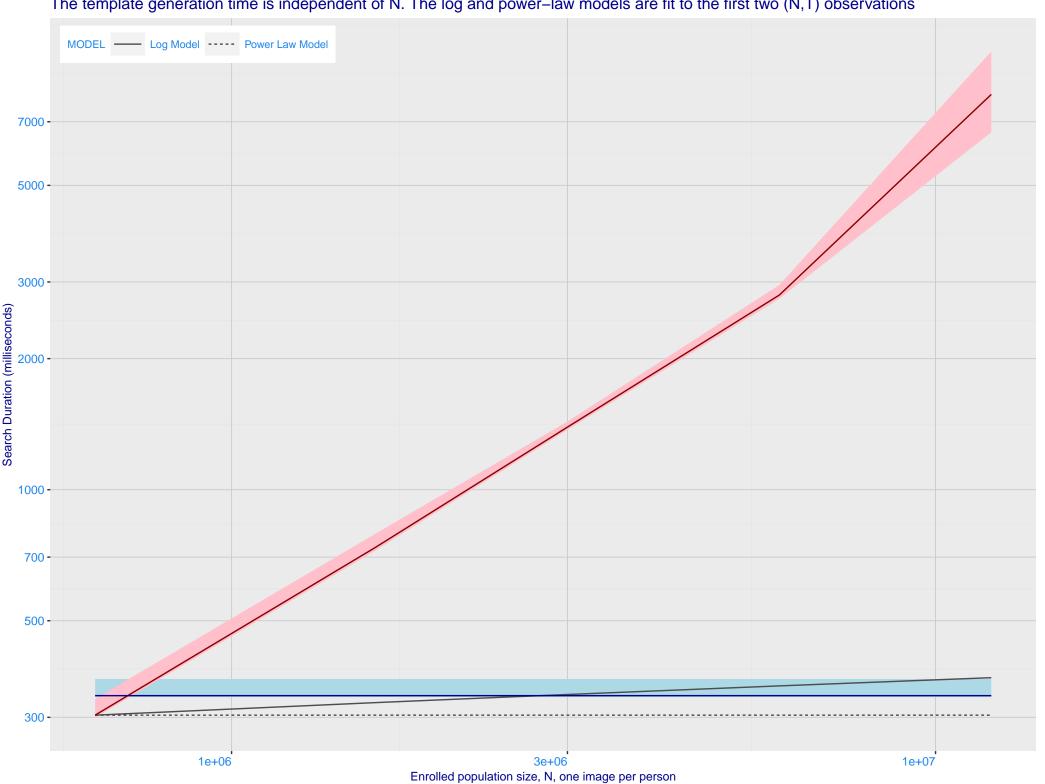




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Palse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.300 - 0.100 - 0.070 - 0. enrolment\_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 lookman\_3 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 lookman\_3 sensetime\_005 0.300 -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 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



