## A: Datasheet

Algorithm: newland\_2

Developer: Newland Computer Co Ltd

Submission Date: 2018\_10\_30

Template size: 2048 bytes

Template time (2.5 percentile): 823 msec

Template time (median): 855 msec

Template time (97.5 percentile): 952 msec

Investigation:

Frontal mugshot ranking 208 (out of 259) -- FNIR(1600000, 0, 1) = 0.0786 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 176 (out of 221) -- FNIR(1600000, 0, 1) = 0.1169 vs. lowest 0.0062 from sensetime\_005

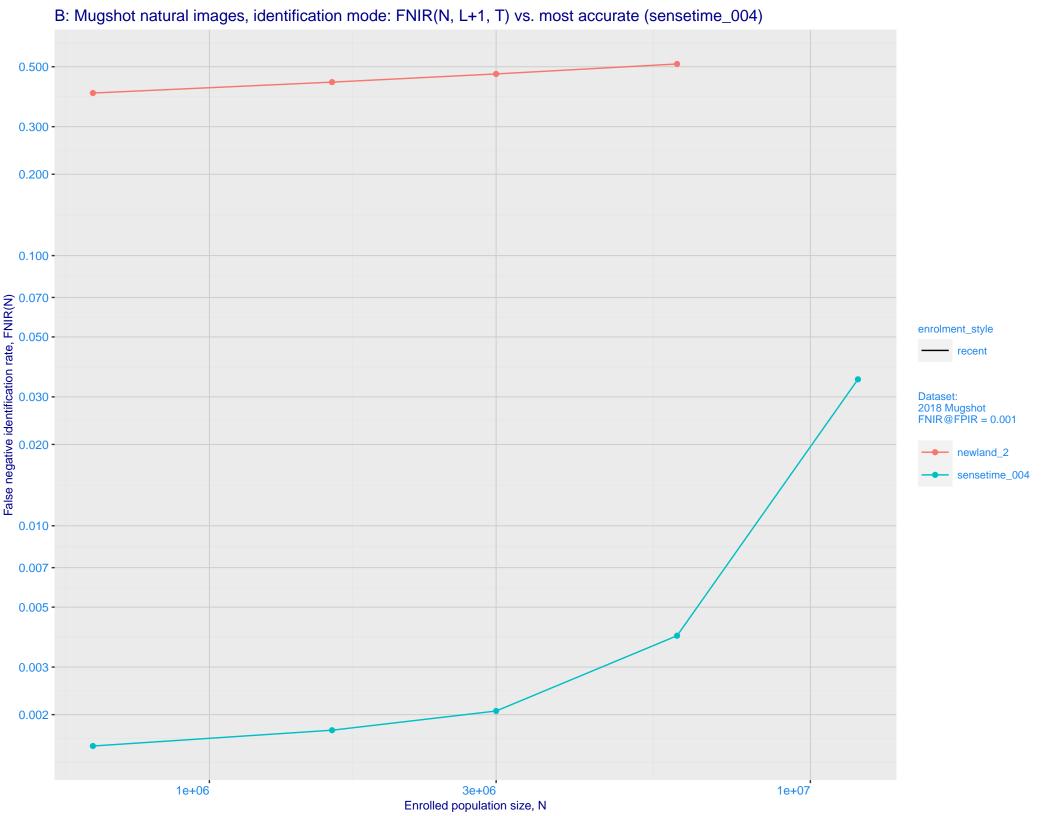
Mugshot profile ranking 123 (out of 190) -- FNIR(1600000, 0, 1) = 0.9360 vs. lowest 0.0591 from sensetime\_005

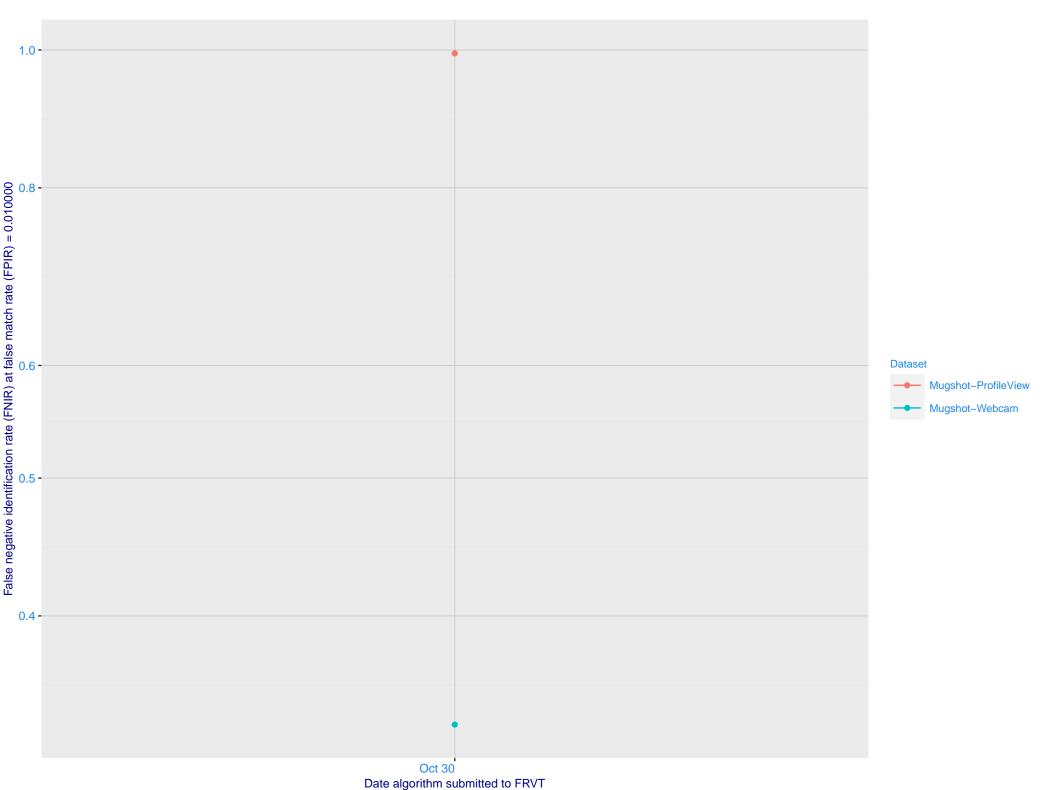
Identification:

Frontal mugshot ranking 207 (out of 259) -- FNIR(1600000, T, L+1) = 0.4385, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 174 (out of 219) -- FNIR(1600000, T, L+1) = 0.4657, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

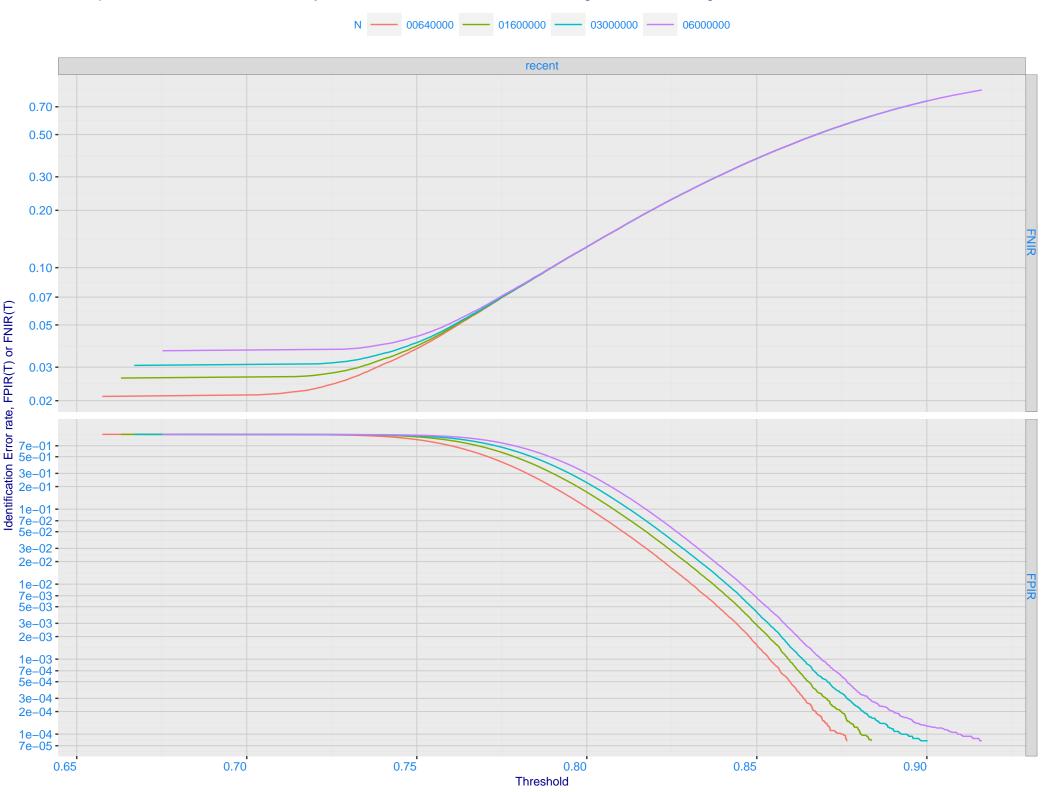
Mugshot profile ranking 128 (out of 189) -- FNIR(1600000, T, L+1) = 0.9991, FPIR=0.001000 vs. lowest 0.1733 from sensetime\_005



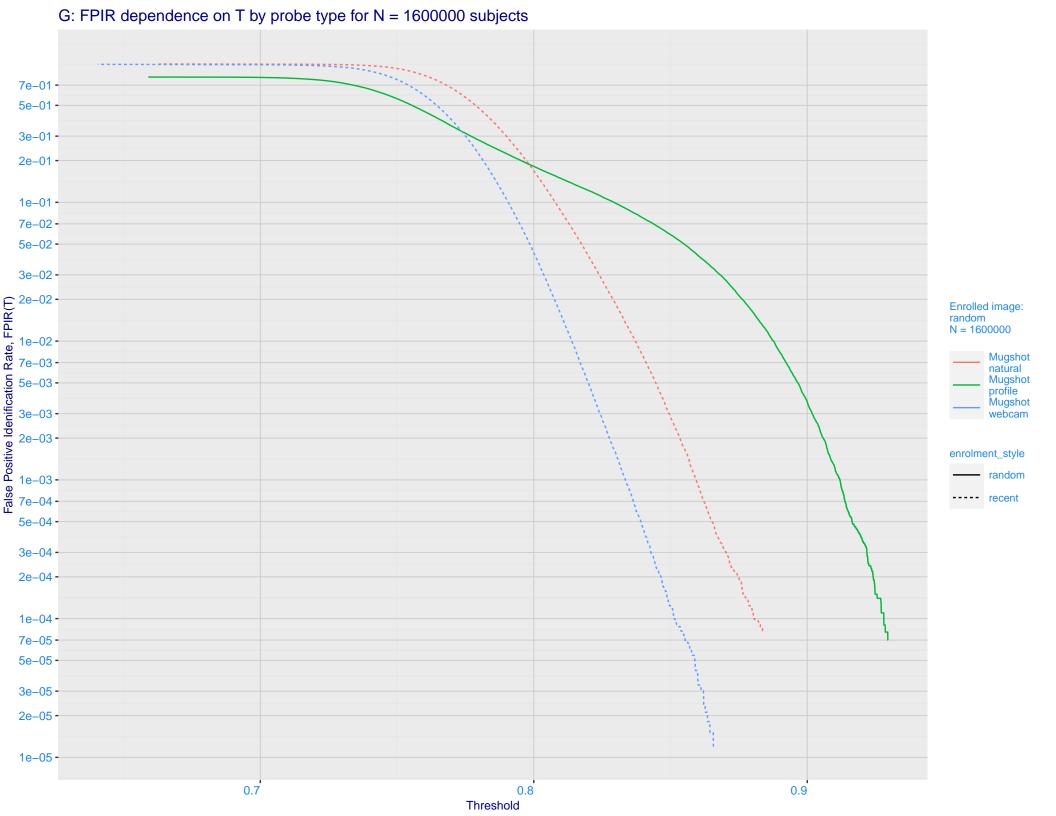


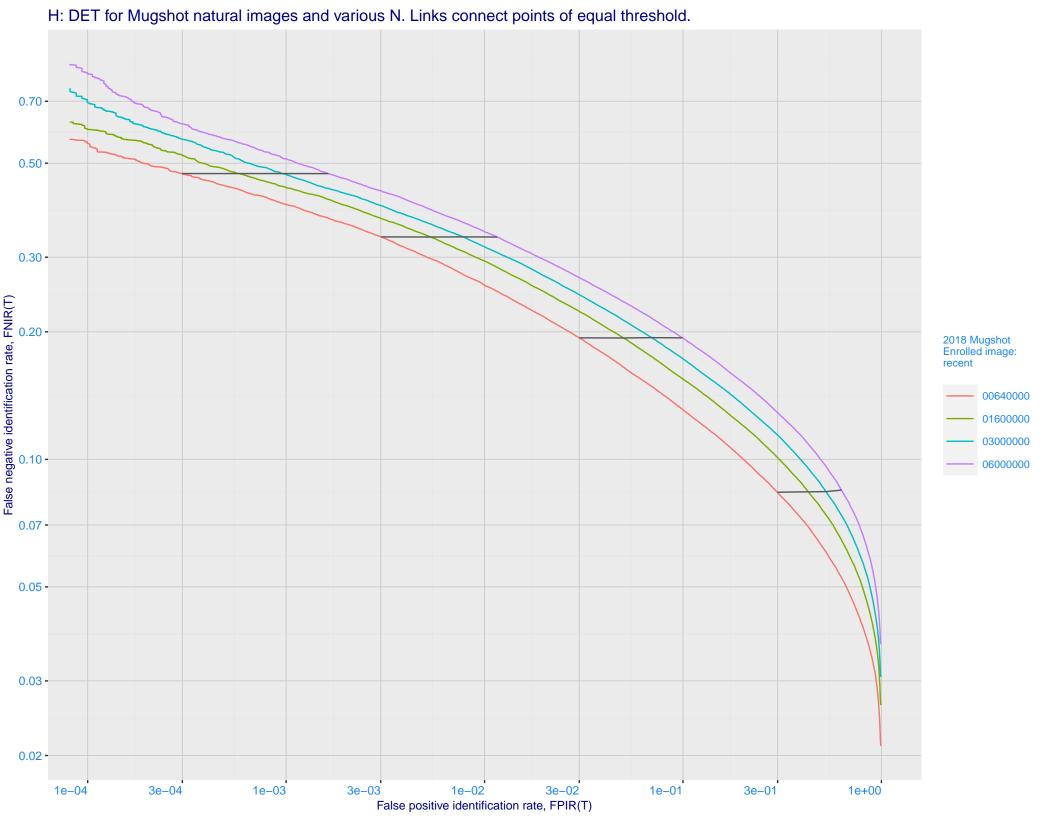
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.0001 - 0.500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

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

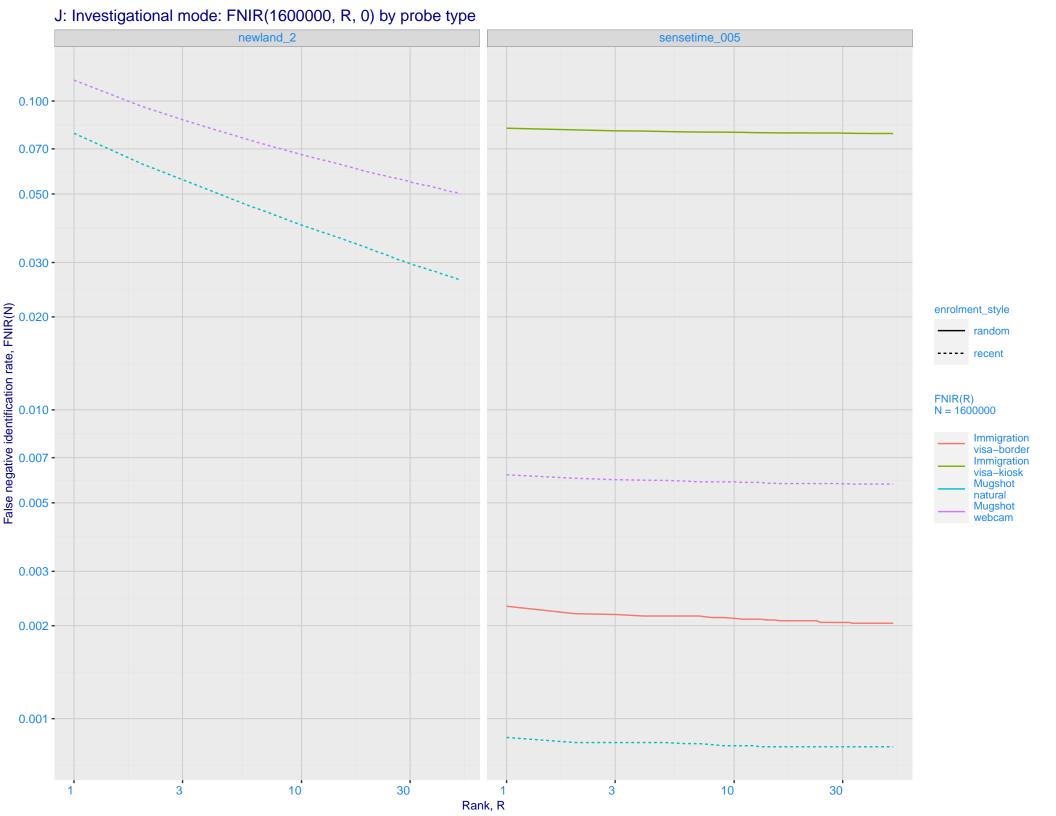


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

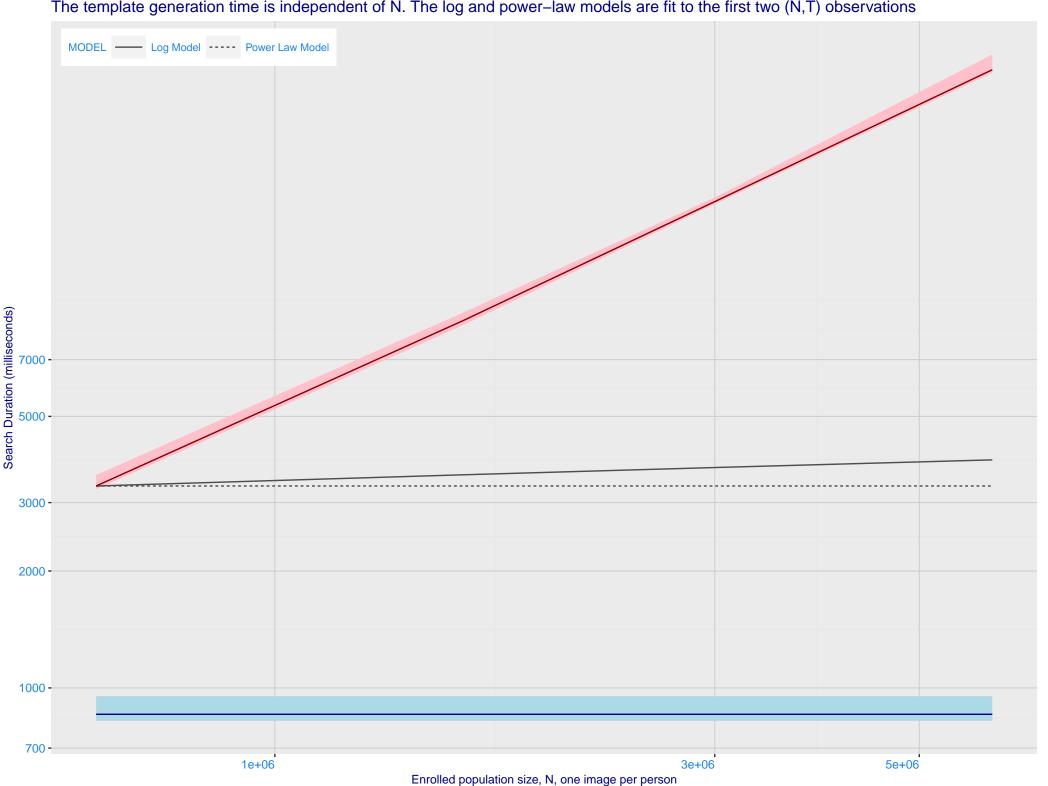




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 - 0.000 - 0.050 FNIR@Rank = 1 newland\_2 sensetime\_005 Mugshot webcam Mugshot natural enrolment\_style random ---- recent 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



