## A: Datasheet

Algorithm: yisheng\_0

Developer: Zhuhai Yisheng Electronics Technology

Submission Date: 2018\_02\_14

Template size: 2108 bytes

Template time (2.5 percentile): 593 msec

Template time (median): 613 msec

Template time (97.5 percentile): 650 msec

Investigation:

Frontal mugshot ranking 175 (out of 265) -- FNIR(1600000, 0, 1) = 0.0243 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 156 (out of 227) -- FNIR(1600000, 0, 1) = 0.0601 vs. lowest 0.0062 from sensetime\_005

Immigration visa-border ranking 96 (out of 148) -- FNIR(1600000, 0, 1) = 0.0581 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 100 (out of 145) -- FNIR(1600000, 0, 1) = 0.2923 vs. lowest 0.0568 from hr\_000

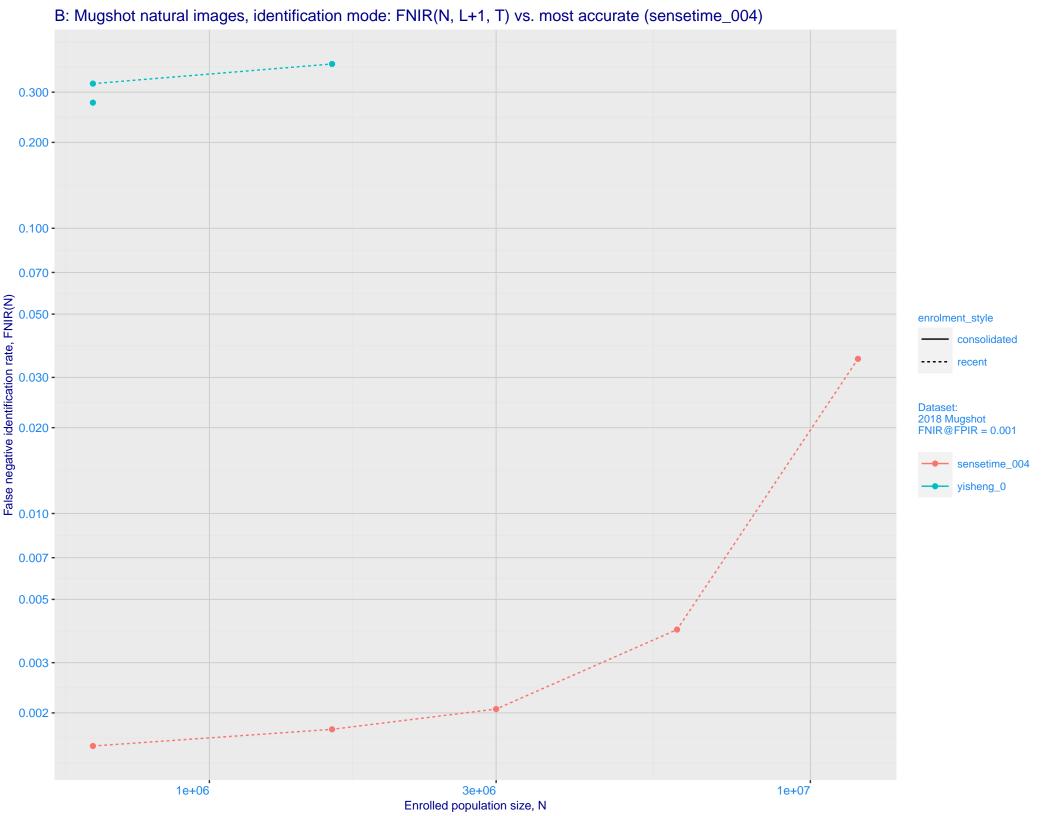
Identification:

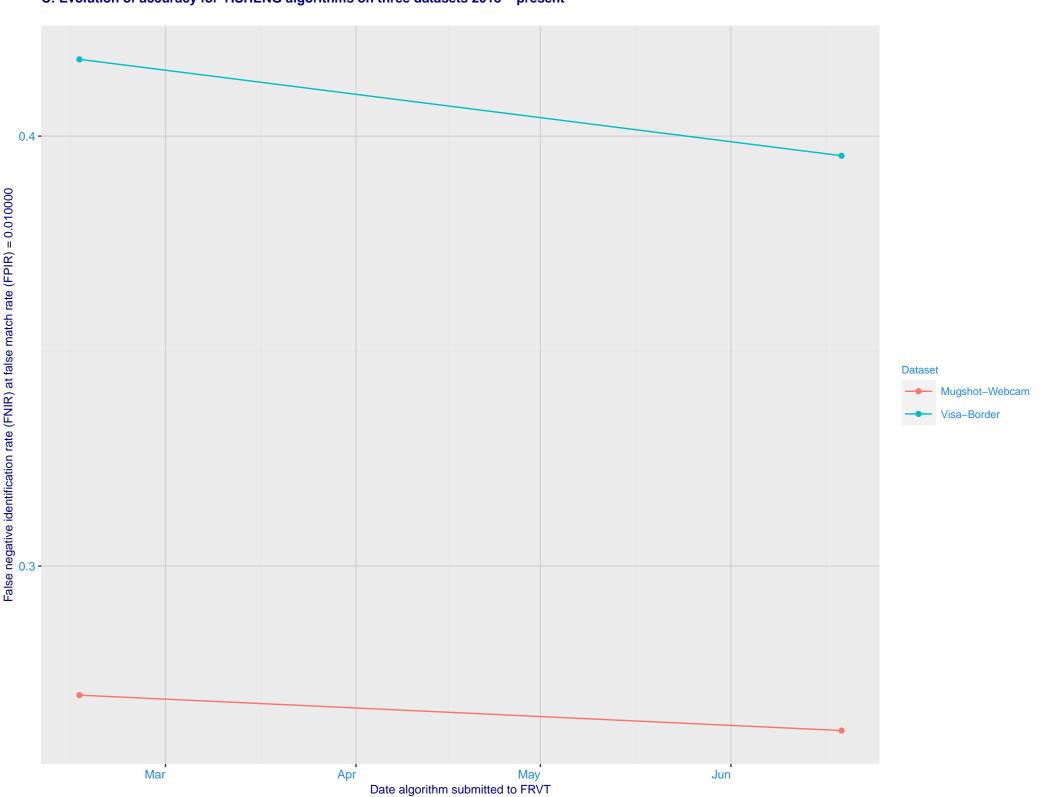
Frontal mugshot ranking 205 (out of 265) -- FNIR(1600000, T, L+1) = 0.3766, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 215 (out of 225) -- FNIR(1600000, T, L+1) = 0.9738, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Immigration visa-border ranking 130 (out of 146) -- FNIR(1600000, T, L+1) = 0.9810, FPIR=0.001000 vs. lowest 0.0049 from hr\_000

Immigration visa-kiosk ranking 128 (out of 141) -- FNIR(1600000, T, L+1) = 0.9983, FPIR=0.001000 vs. lowest 0.0996 from hr\_000

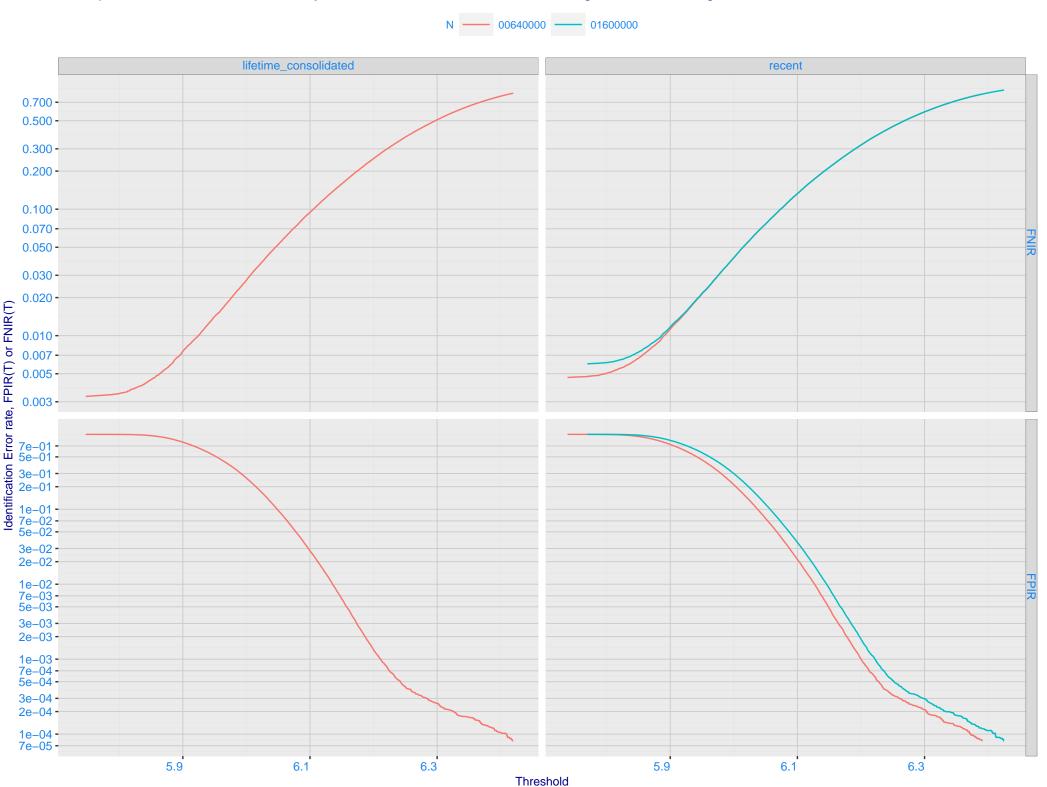




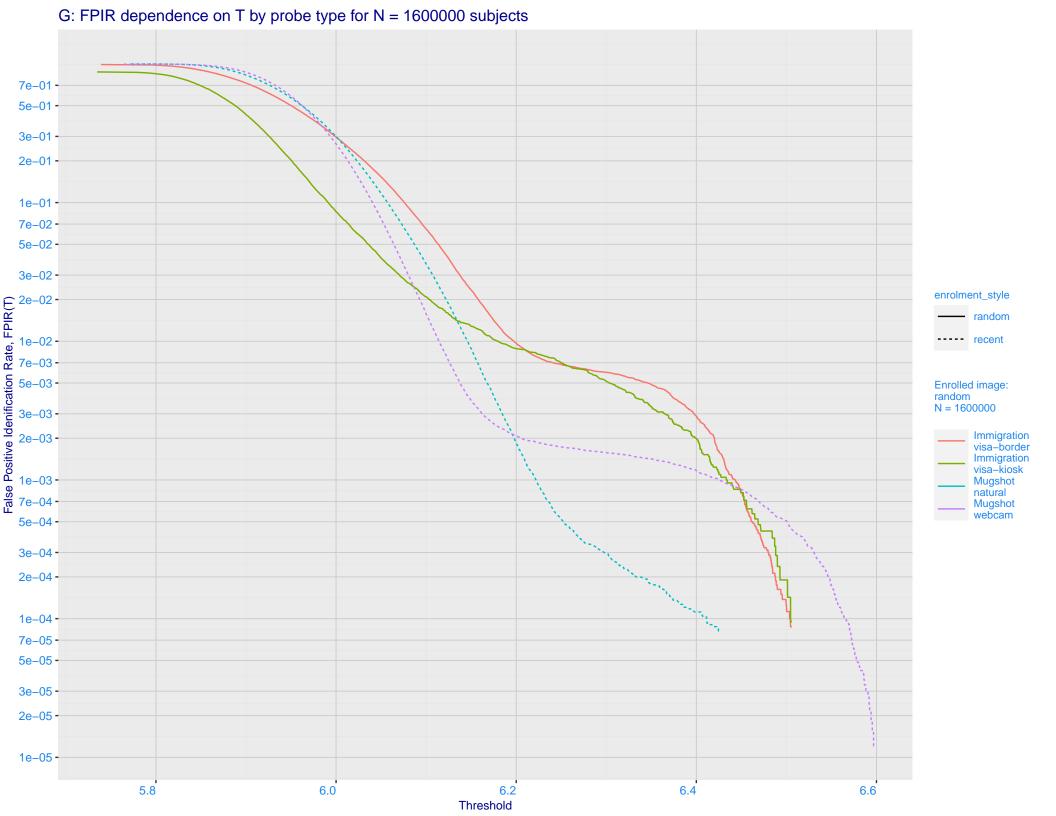
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style random-ONE-MATE recent-ONE-MATE 0.100 -0.070 -0.050 visheng 0 0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 - $1e^{-0.4}e^{-0.3}e^{-0.4}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.3}e^{-0.1}e^{-0.3}e^{-0.1}e^{-0.3}e^{-0.4}e^{-0.3}e^{$ 

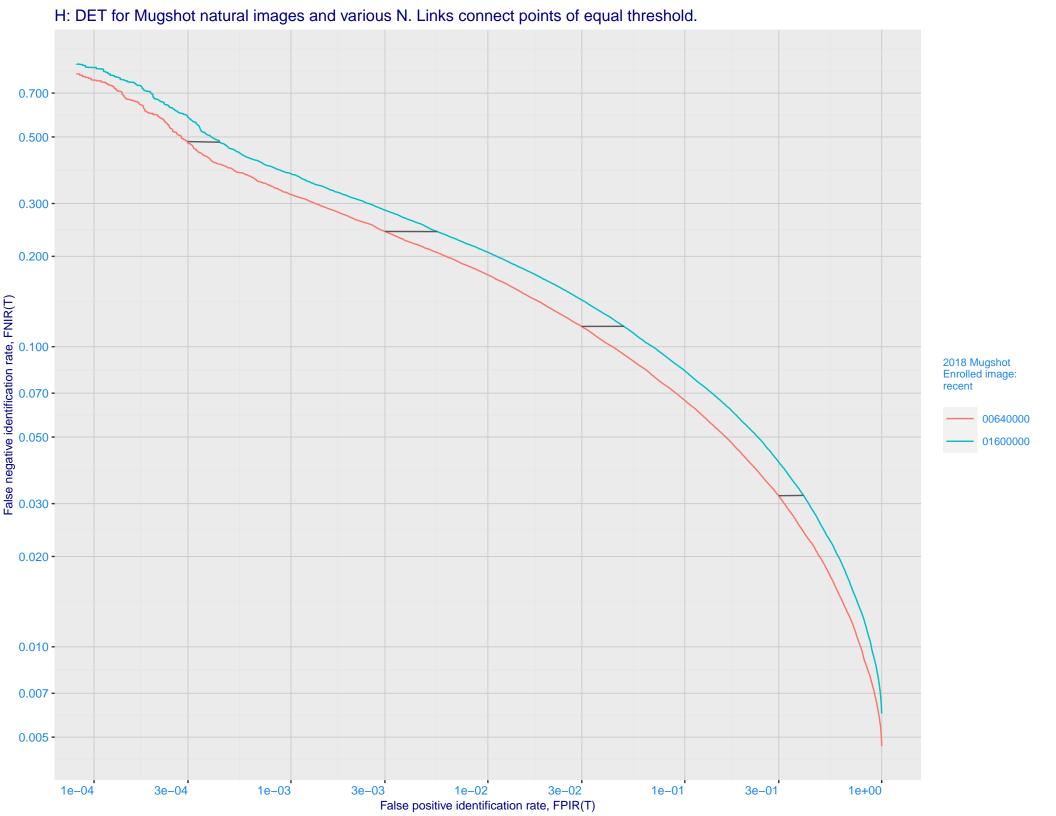
False positive identification rate, FPIR(T)

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

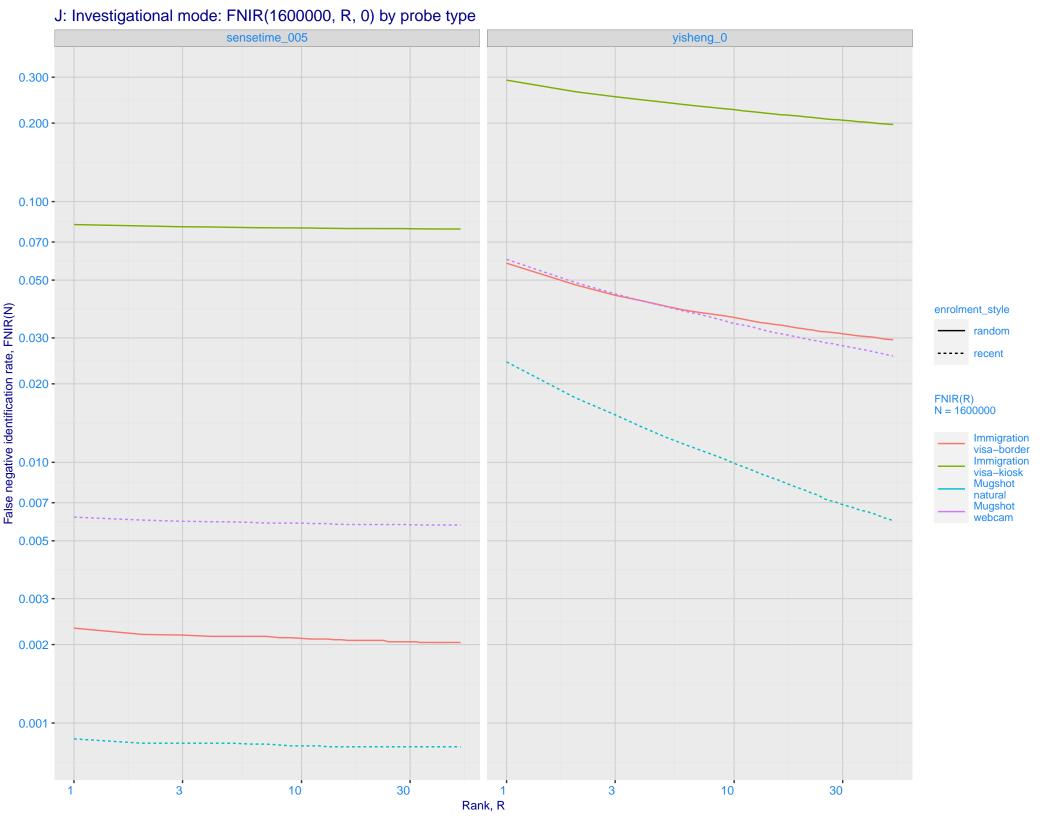


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -(E) 7e-02 - 7e **Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 7e-03 -5e-03 -3e-03 -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)

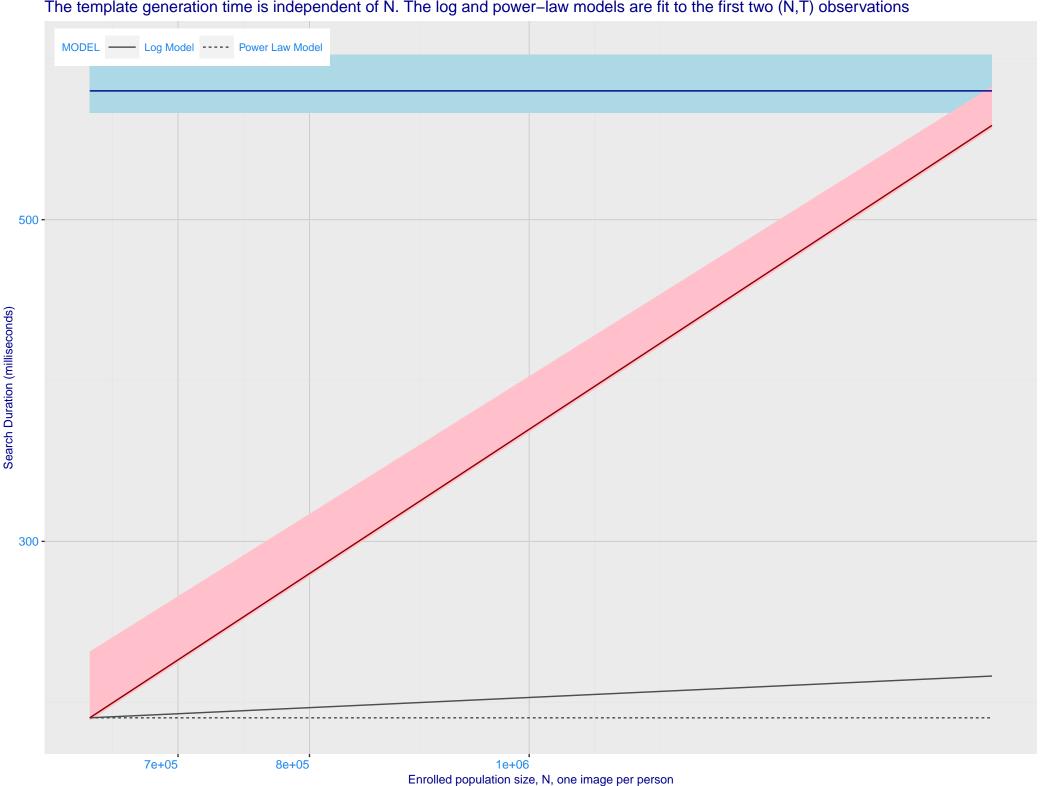




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.300 - 0.100 - 0.070 - 0. enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 sensetime\_005 yisheng\_0 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



