A: Datasheet

Algorithm: hik_0

Developer: Hikvision Research Institute

Submission Date: 2018_02_12

Template size: 1808 bytes

Template time (2.5 percentile): 829 msec

Template time (median): 881 msec

Template time (97.5 percentile): 929 msec

Investigation:

Frontal mugshot ranking 163 (out of 259) -- FNIR(1600000, 0, 1) = 0.0210 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 108 (out of 221) -- FNIR(1600000, 0, 1) = 0.0330 vs. lowest 0.0062 from sensetime_005

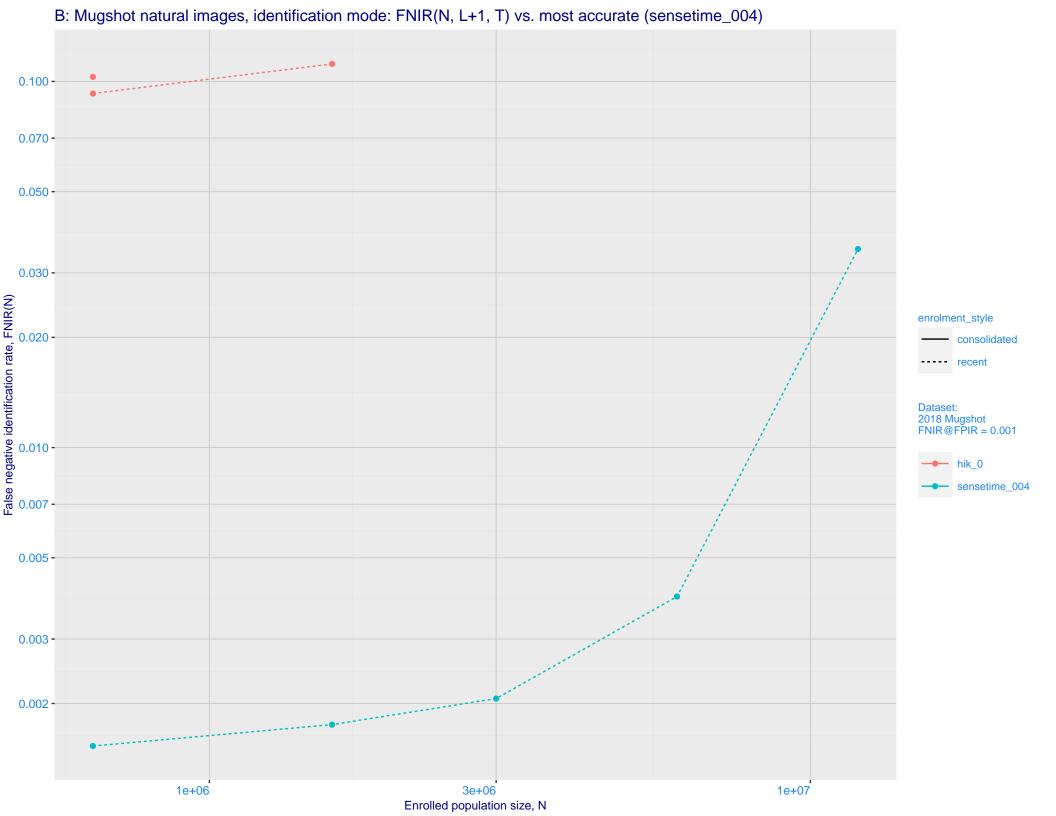
Mugshot profile ranking 141 (out of 190) -- FNIR(1600000, 0, 1) = 0.9571 vs. lowest 0.0591 from sensetime_005

Identification:

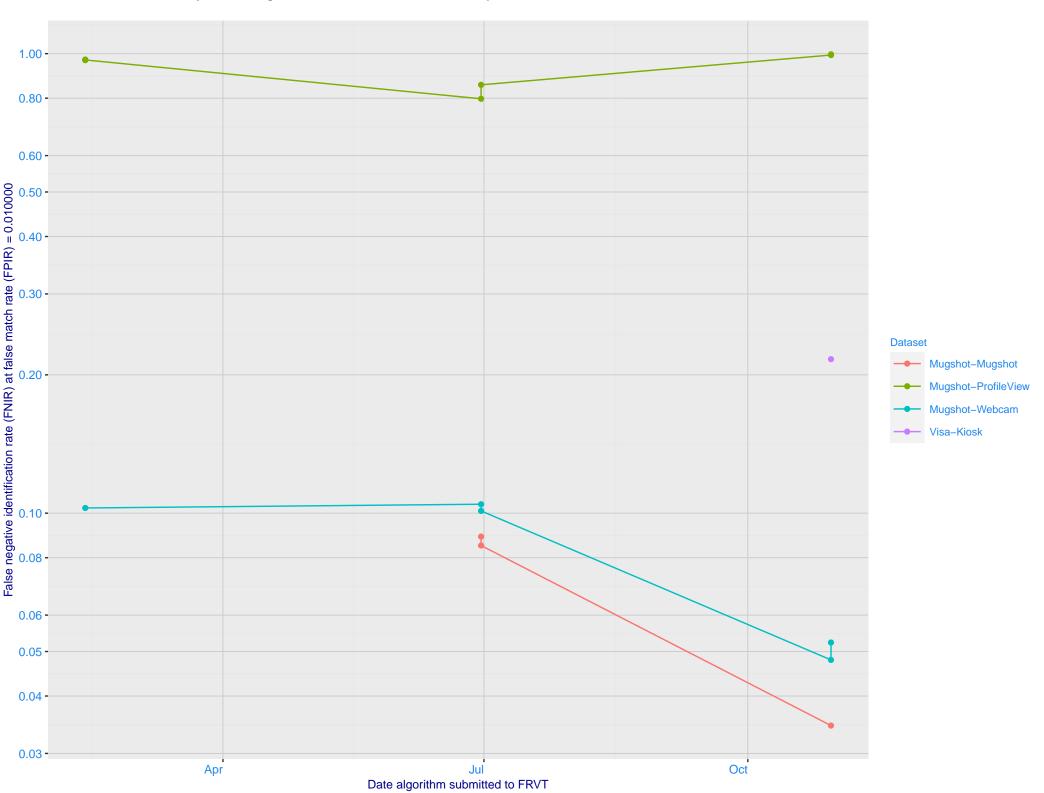
Frontal mugshot ranking 135 (out of 259) -- FNIR(1600000, T, L+1) = 0.1116, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 103 (out of 219) -- FNIR(1600000, T, L+1) = 0.1548, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 58 (out of 189) -- FNIR(1600000, T, L+1) = 0.9815, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005



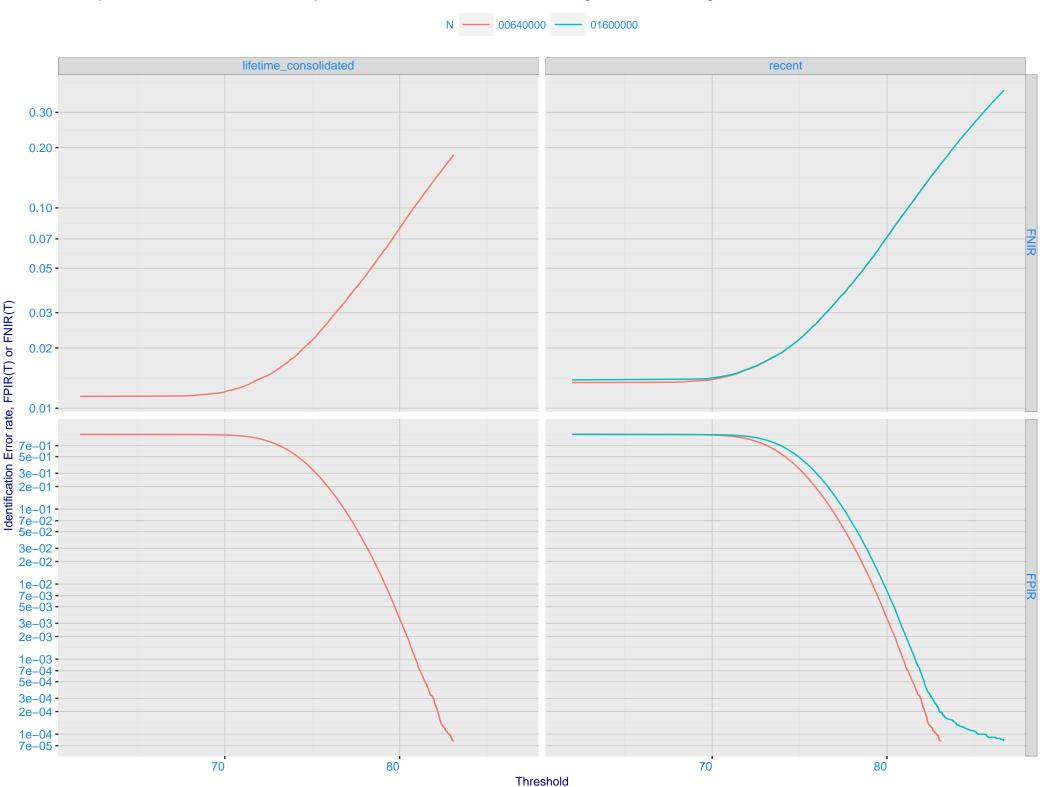
C: Evolution of accuracy for HIK algorithms on three datasets 2018 - present



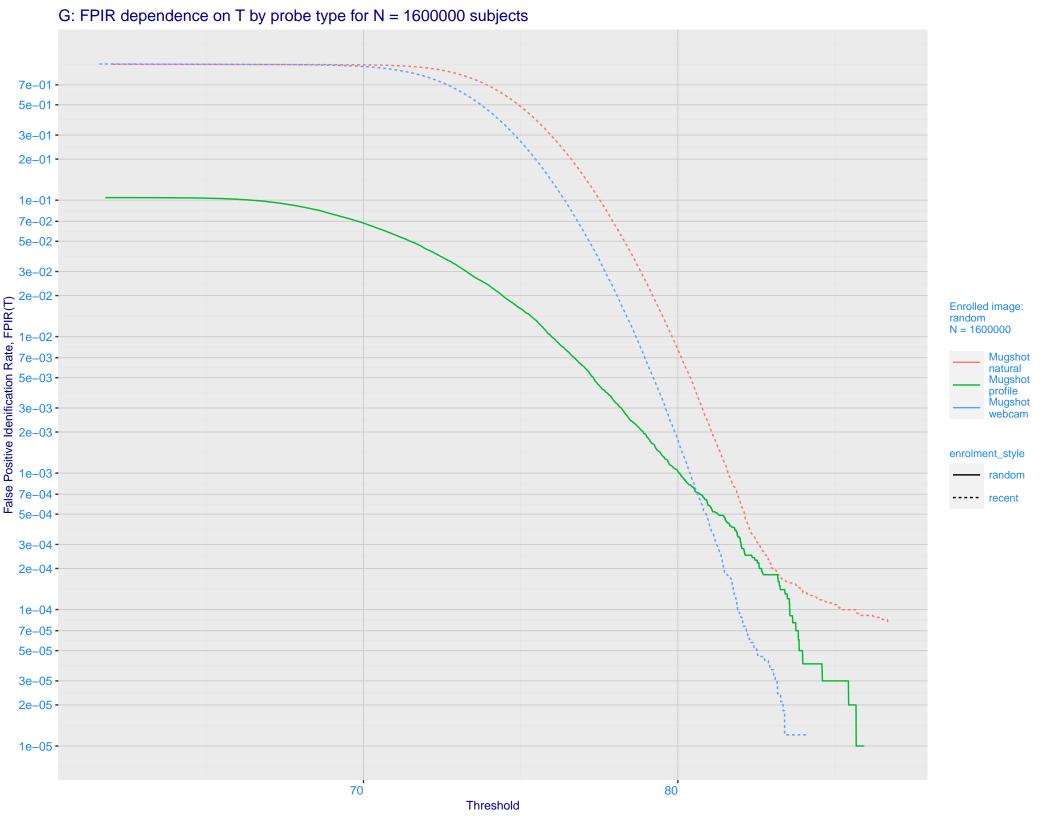
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200 - 0.100 - 0 enrolment_style random-ONE-MATE recent-ONE-MATE 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

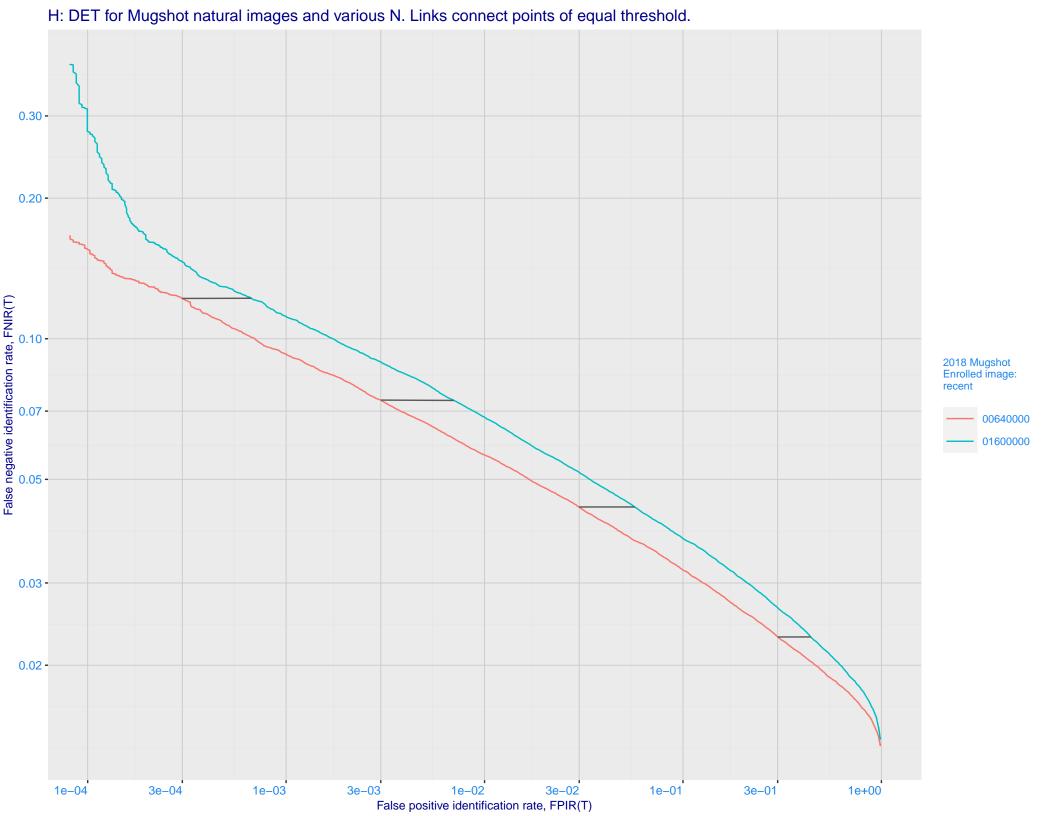
False positive identification rate, FPIR(T)

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

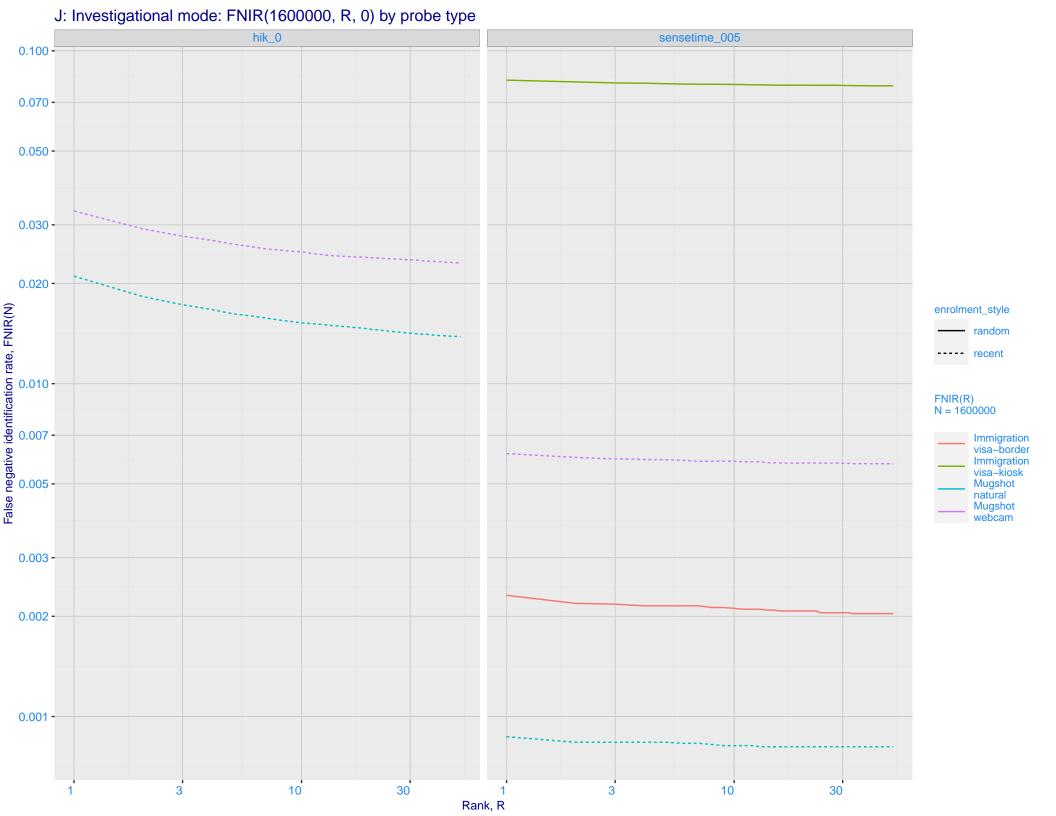


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

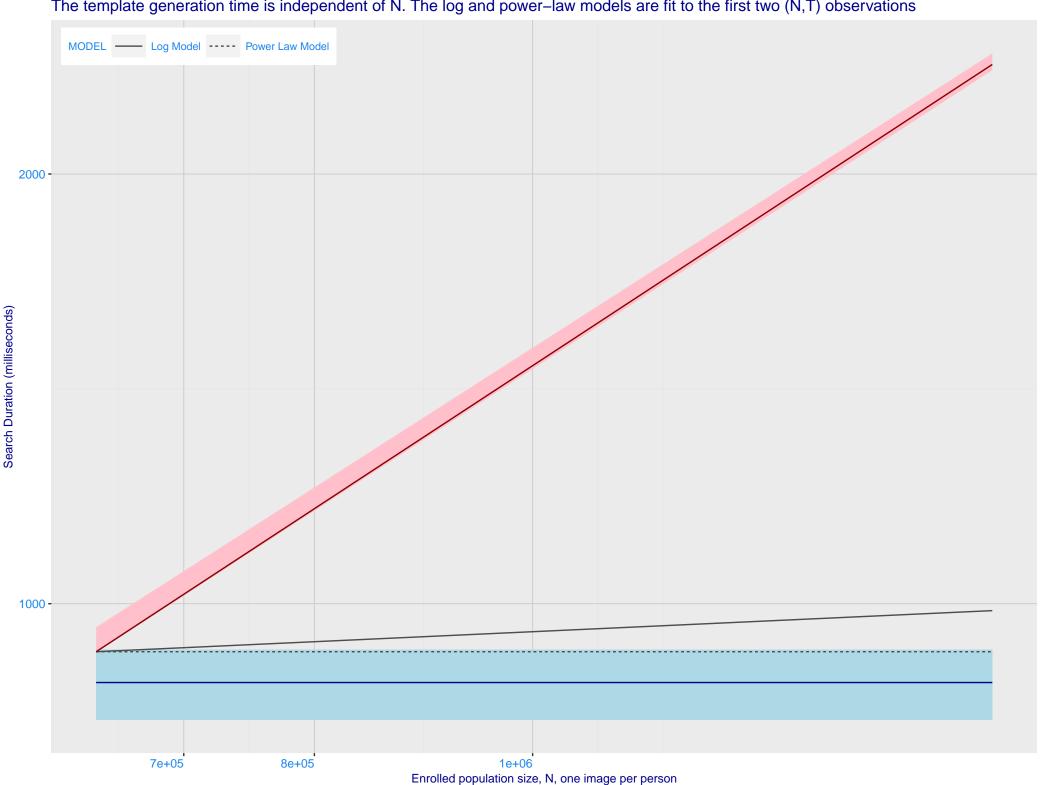




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 -- hik_0 sensetime_005 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



