A: Datasheet

Algorithm: dahua_002

Developer: Dahua Technology Co Ltd

Submission Date: 2019_12_02

Template size: 2048 bytes

Template time (2.5 percentile): 682 msec

Template time (median): 686 msec

Template time (97.5 percentile): 750 msec

Investigation:

Frontal mugshot ranking 22 (out of 259) -- FNIR(1600000, 0, 1) = 0.0018 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 20 (out of 221) -- FNIR(1600000, 0, 1) = 0.0115 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 22 (out of 190) -- FNIR(1600000, 0, 1) = 0.3041 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 8 (out of 142) — FNIR(1600000, 0, 1) = 0.0026 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 9 (out of 139) -- FNIR(1600000, 0, 1) = 0.0837 vs. lowest 0.0694 from cib_000

Identification:

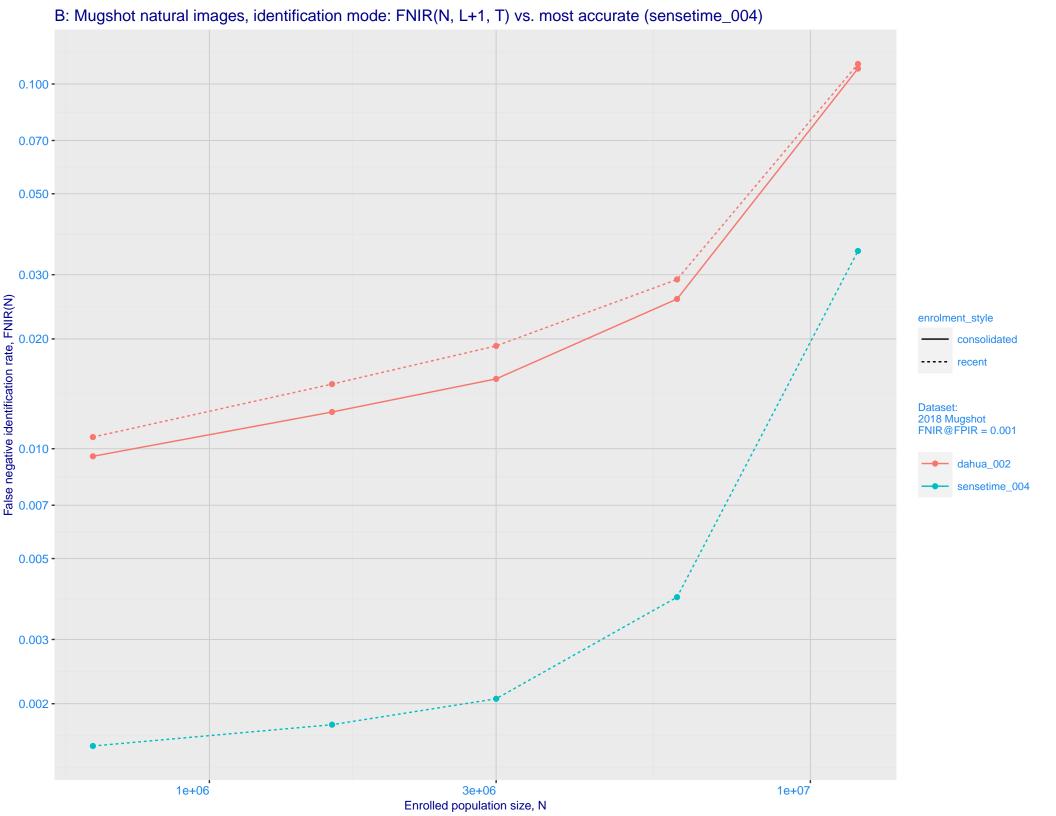
Frontal mugshot ranking 23 (out of 259) -- FNIR(1600000, T, L+1) = 0.0150, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 20 (out of 219) -- FNIR(1600000, T, L+1) = 0.0461, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

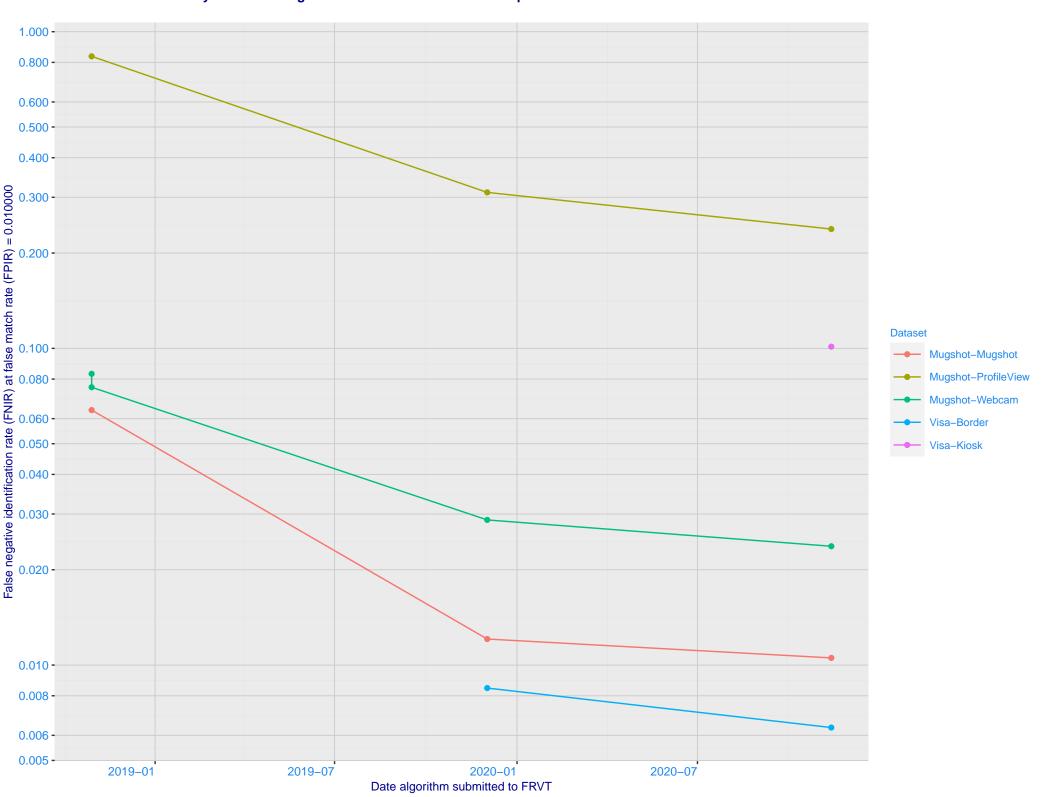
Mugshot profile ranking 11 (out of 189) -- FNIR(1600000, T, L+1) = 0.6382, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 14 (out of 139) -- FNIR(1600000, T, L+1) = 0.0170, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 9 (out of 134) — FNIR(1600000, T, L+1) = 0.1596, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



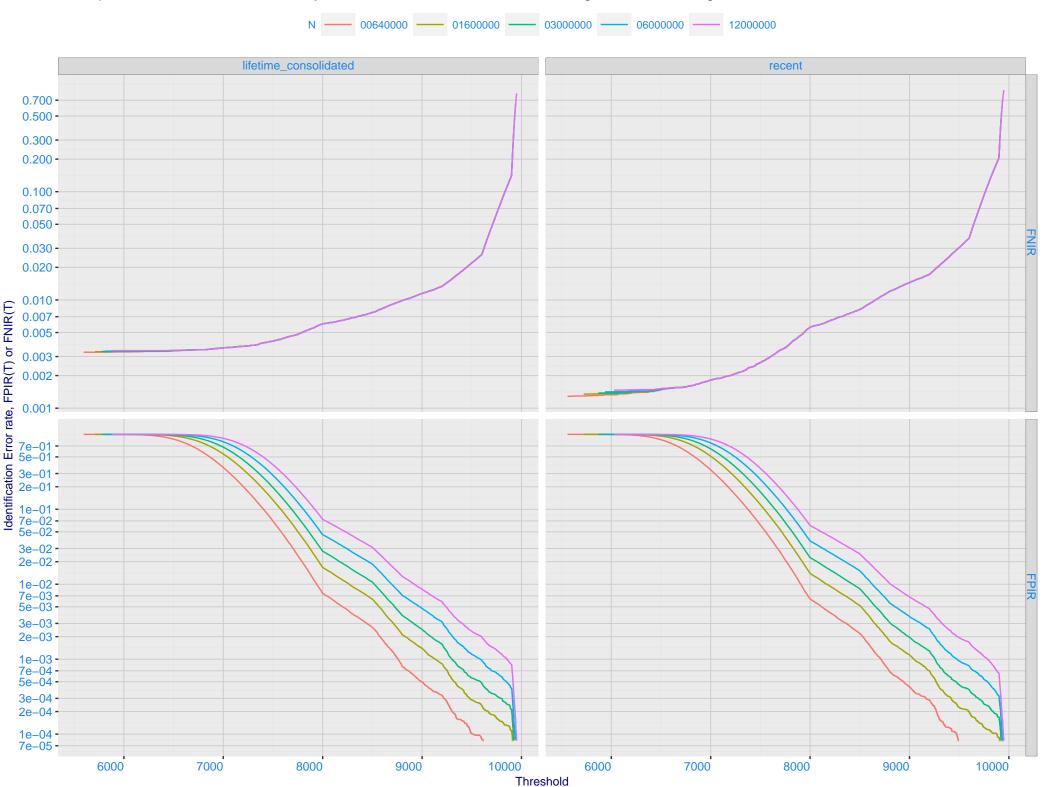
C: Evolution of accuracy for DAHUA algorithms on three datasets 2018 – present



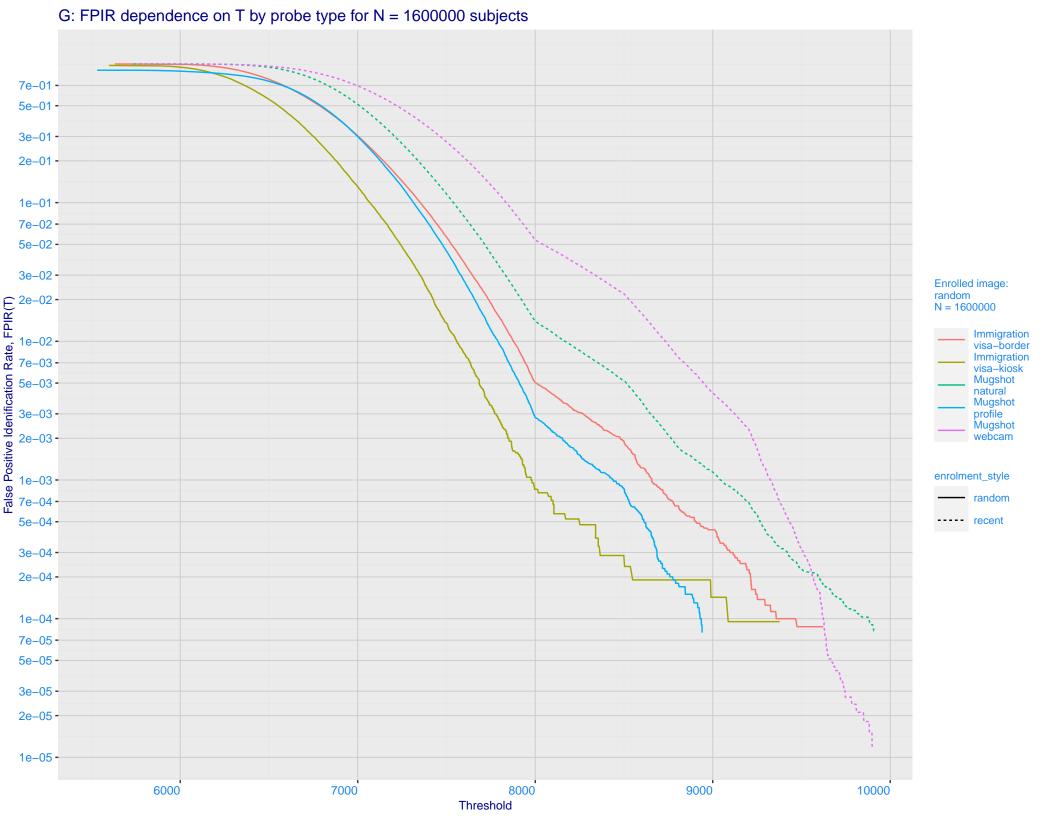
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.700 - 0.500 - 0.200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

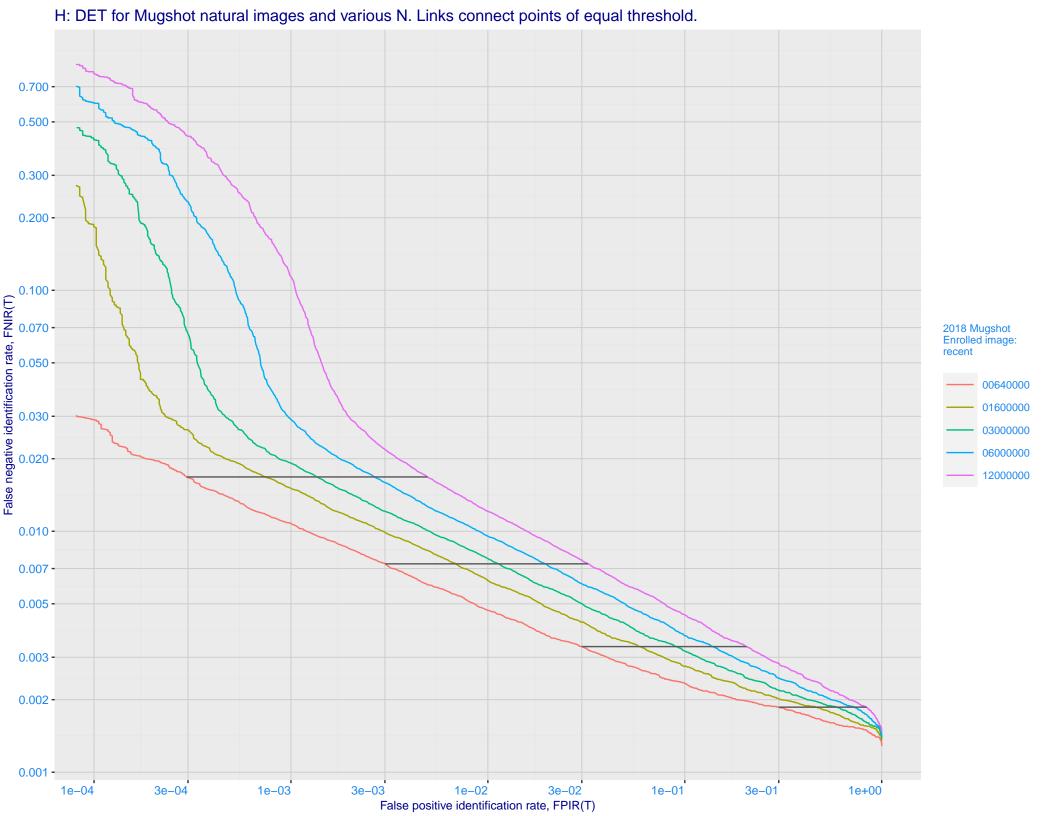
\\\ \e^{-0}\frac{3}{2}e^{-0}\frac{1}{2}e^{-0}\frac{3}{2}e^{-0}\frac{1}{2}e

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)

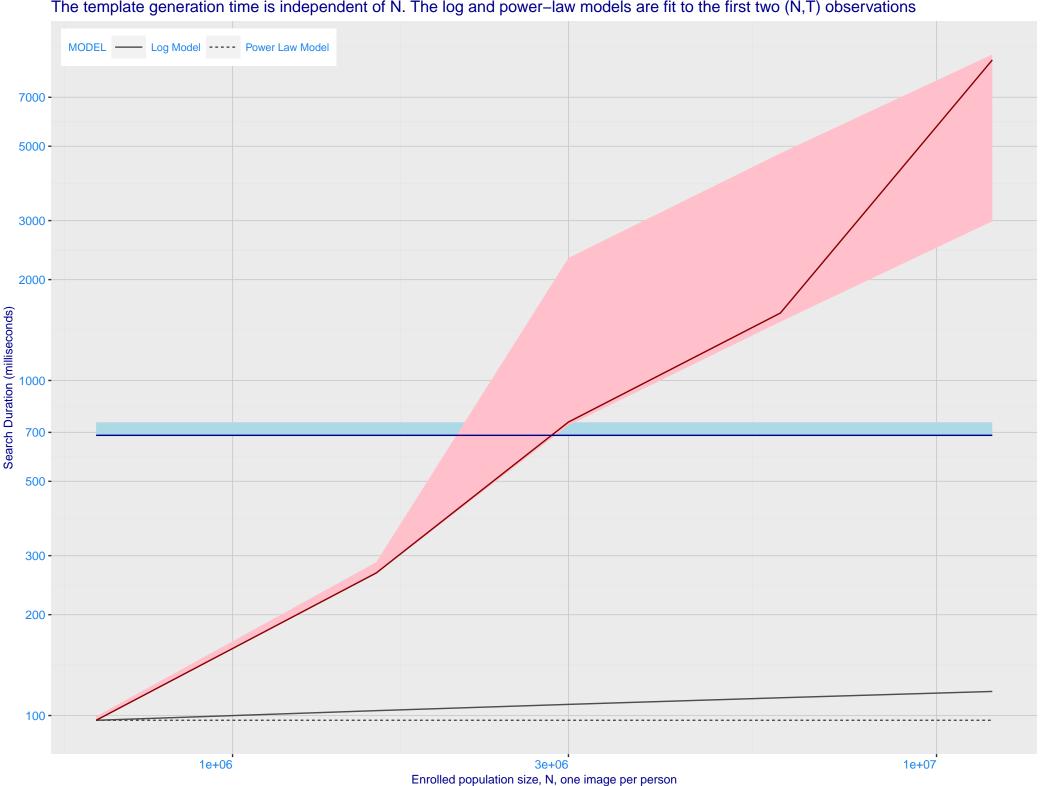




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. FNIR@Rank = 1 -- dahua_002 sensetime_005 Mugshot Mugshot webcam natural enrolment_style consolidated ---- random --- recent 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 dahua_002 sensetime_005 0.100 -0.070 -0.050 -0.030 -0.020 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 0.003 -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



