## A: Datasheet

Algorithm: acer\_000

Developer: Acer Incorporated

Submission Date: 2020\_08\_12

Template size: 512 bytes

Template time (2.5 percentile): 198 msec

Template time (median): 199 msec

Template time (97.5 percentile): 215 msec

Investigation:

Frontal mugshot ranking 191 (out of 329) -- FNIR(1600000, 0, 1) = 0.0106 vs. lowest 0.0009 from sensetime\_006

Mugshot webcam ranking 181 (out of 291) -- FNIR(1600000, 0, 1) = 0.0359 vs. lowest 0.0057 from sensetime\_006

Mugshot profile ranking 163 (out of 260) — FNIR(1600000, 0, 1) = 0.8265 vs. lowest 0.0550 from sensetime\_006

Immigration visa-border ranking 141 (out of 218) -- FNIR(1600000, 0, 1) = 0.0255 vs. lowest 0.0009 from sensetime\_006

Immigration visa-kiosk ranking 143 (out of 215) -- FNIR(1600000, 0, 1) = 0.2094 vs. lowest 0.0487 from cubox\_000

Identification:

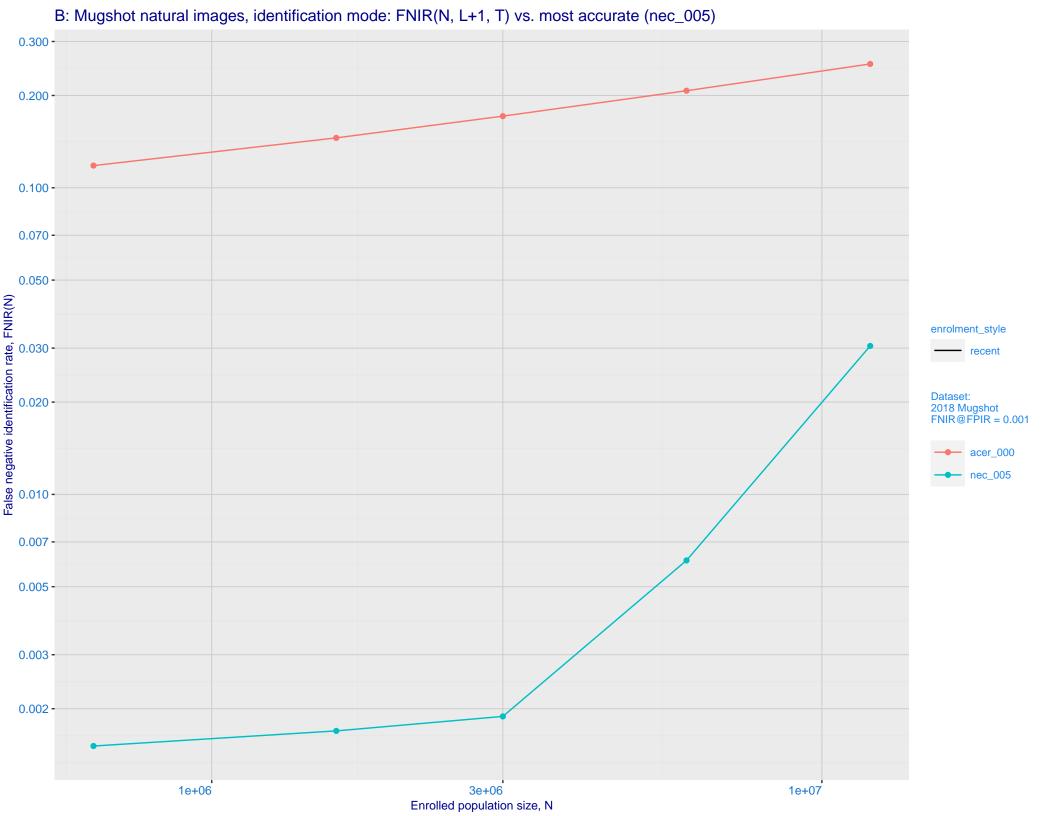
Frontal mugshot ranking 217 (out of 329) -- FNIR(1600000, T, L+1) = 0.1455, FPIR=0.001000 vs. lowest 0.0017 from nec\_005

Mugshot webcam ranking 201 (out of 289) -- FNIR(1600000, T, L+1) = 0.2460, FPIR=0.001000 vs. lowest 0.0120 from nec\_005

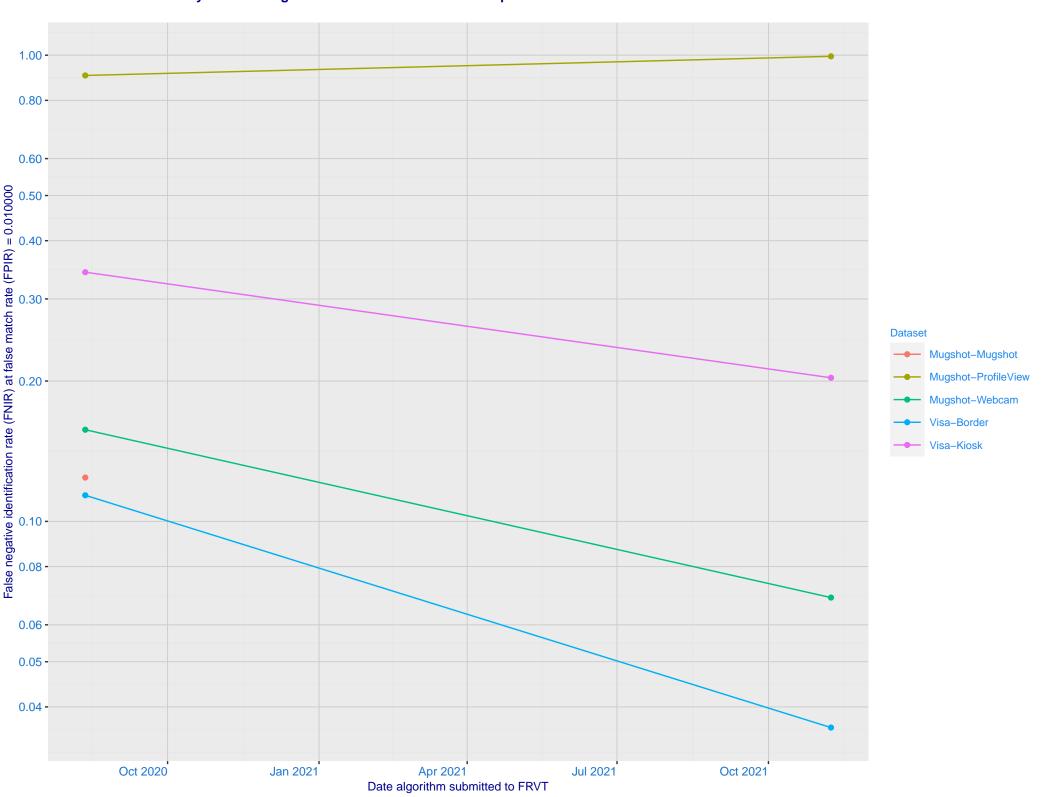
Mugshot profile ranking 88 (out of 259) -- FNIR(1600000, T, L+1) = 0.9809, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

Immigration visa-border ranking 149 (out of 217) -- FNIR(1600000, T, L+1) = 0.2006, FPIR=0.001000 vs. lowest 0.0032 from paravision\_009

Immigration visa-kiosk ranking 109 (out of 212) -- FNIR(1600000, T, L+1) = 0.4936, FPIR=0.001000 vs. lowest 0.0728 from paravision\_009



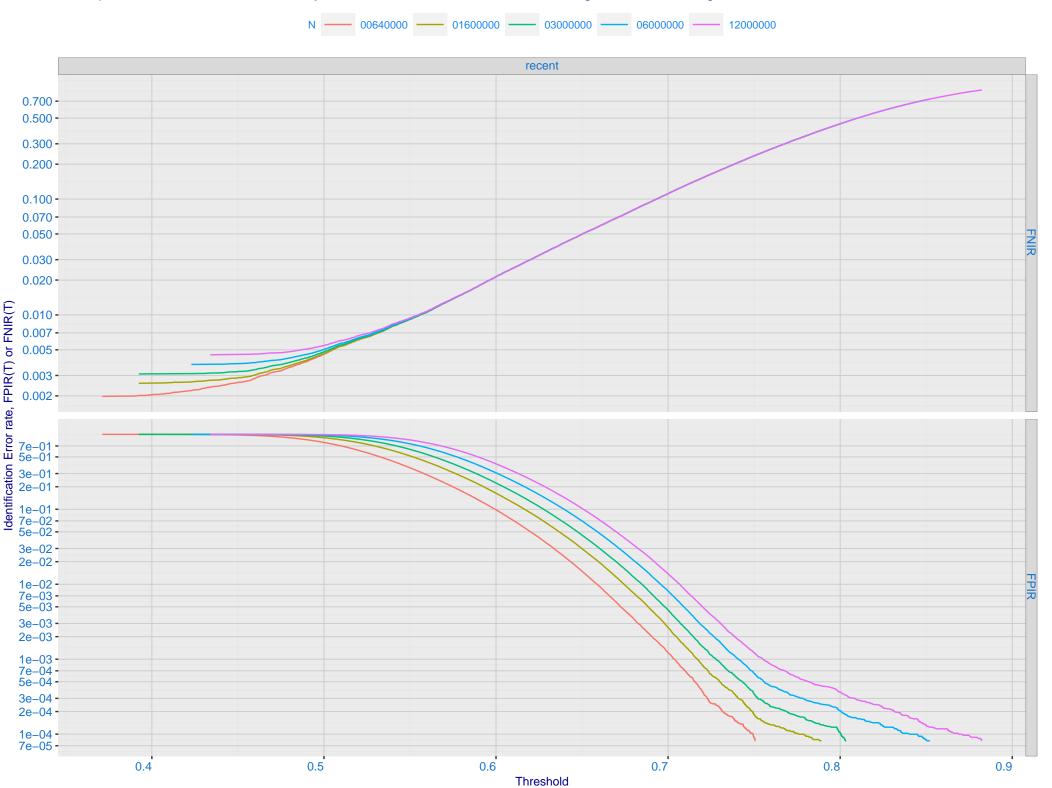
C: Evolution of accuracy for ACER algorithms on three datasets 2018 – present



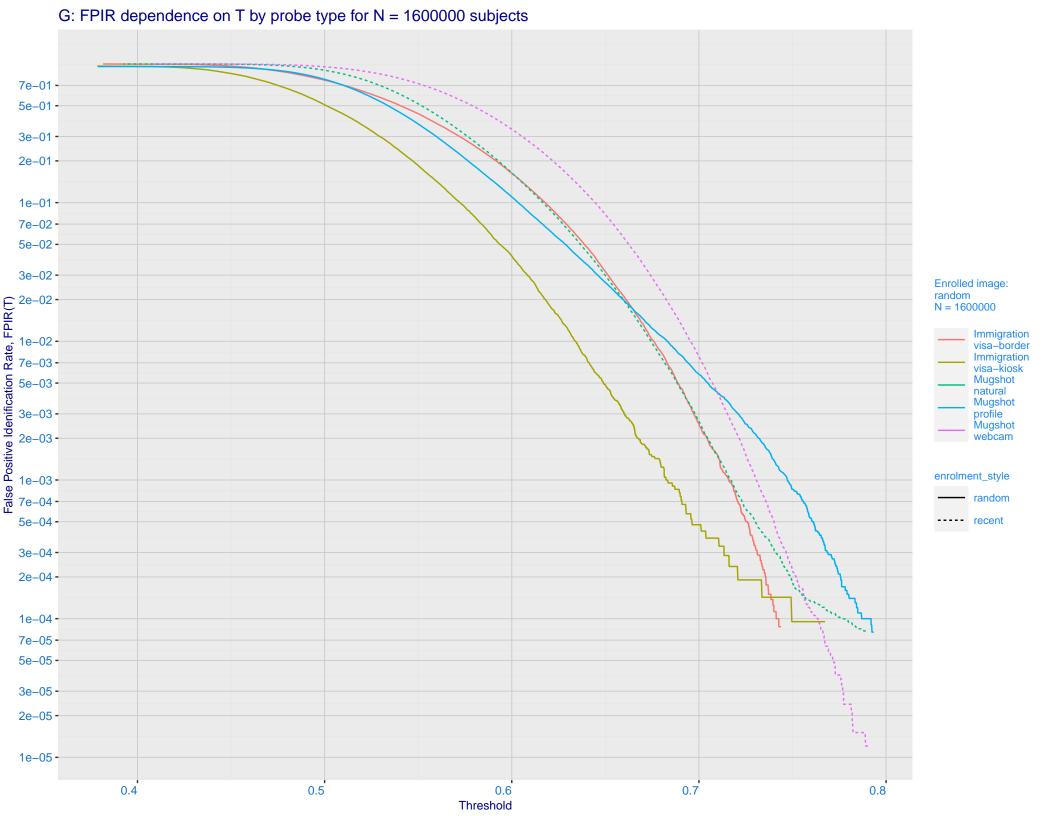
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -Ealse negative identification rate, FNIR(T) 0.003 - 0.002 - 0.001 - 0.500 - 0.500 - 0.200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

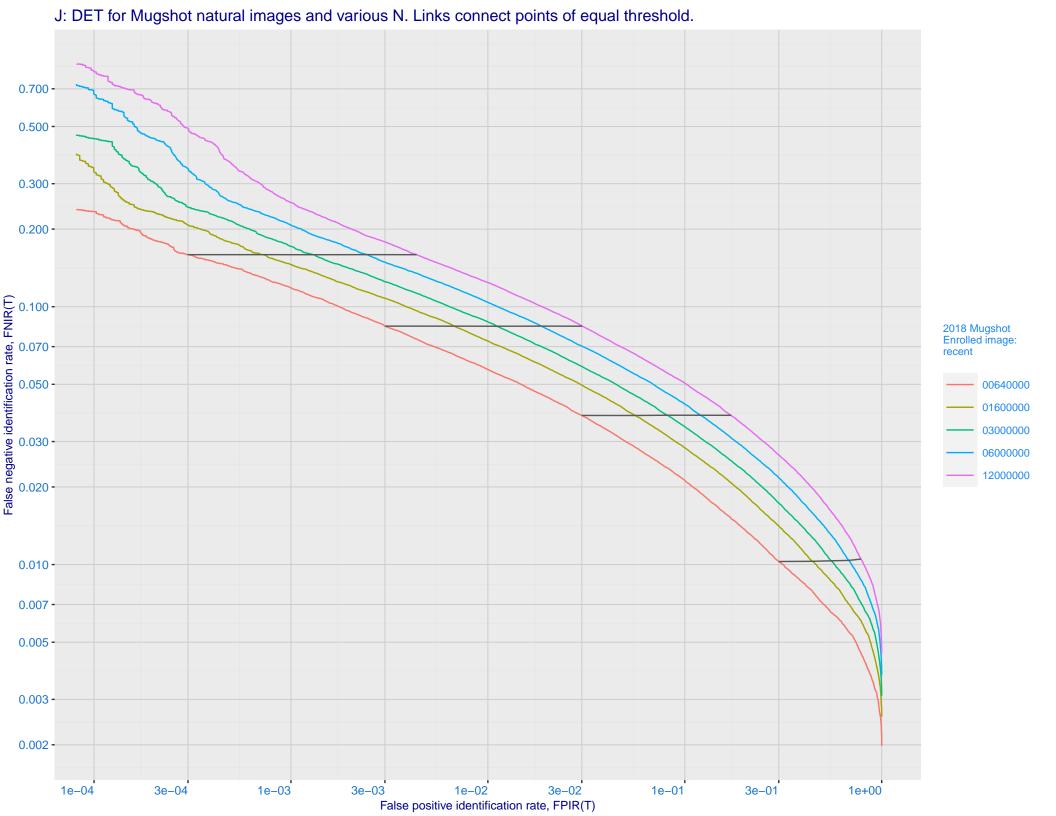
False positive identification rate, FPIR(T)

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

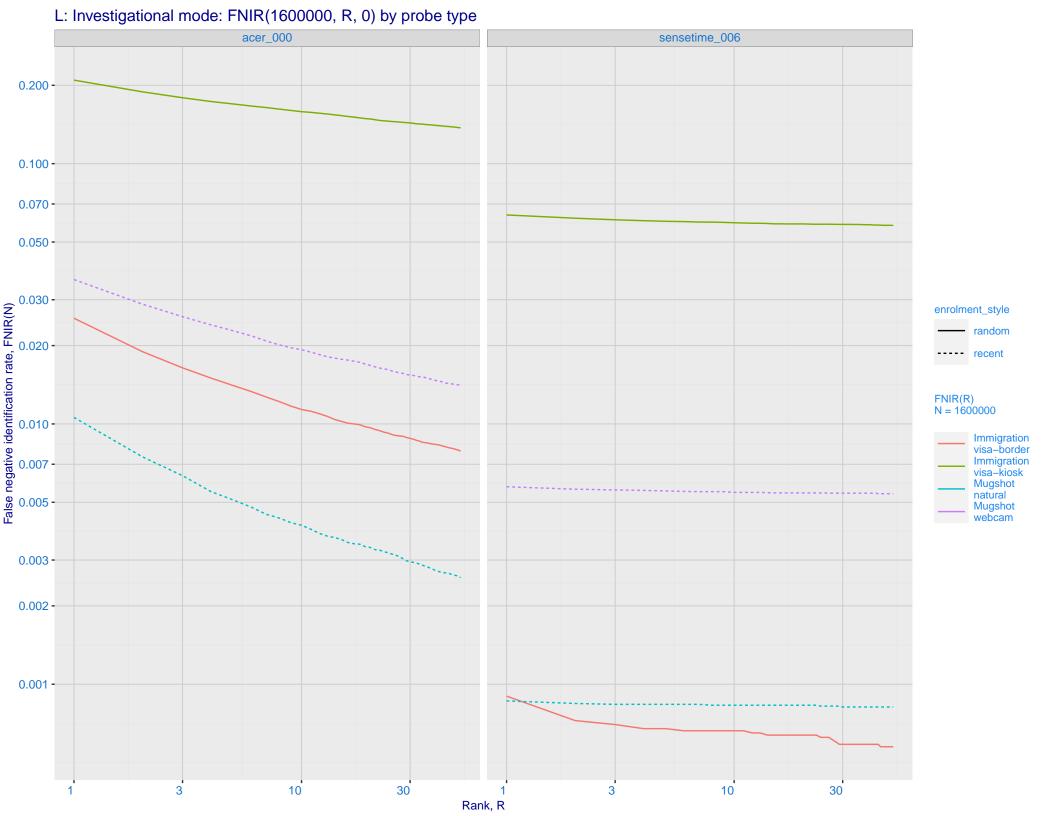


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -5e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

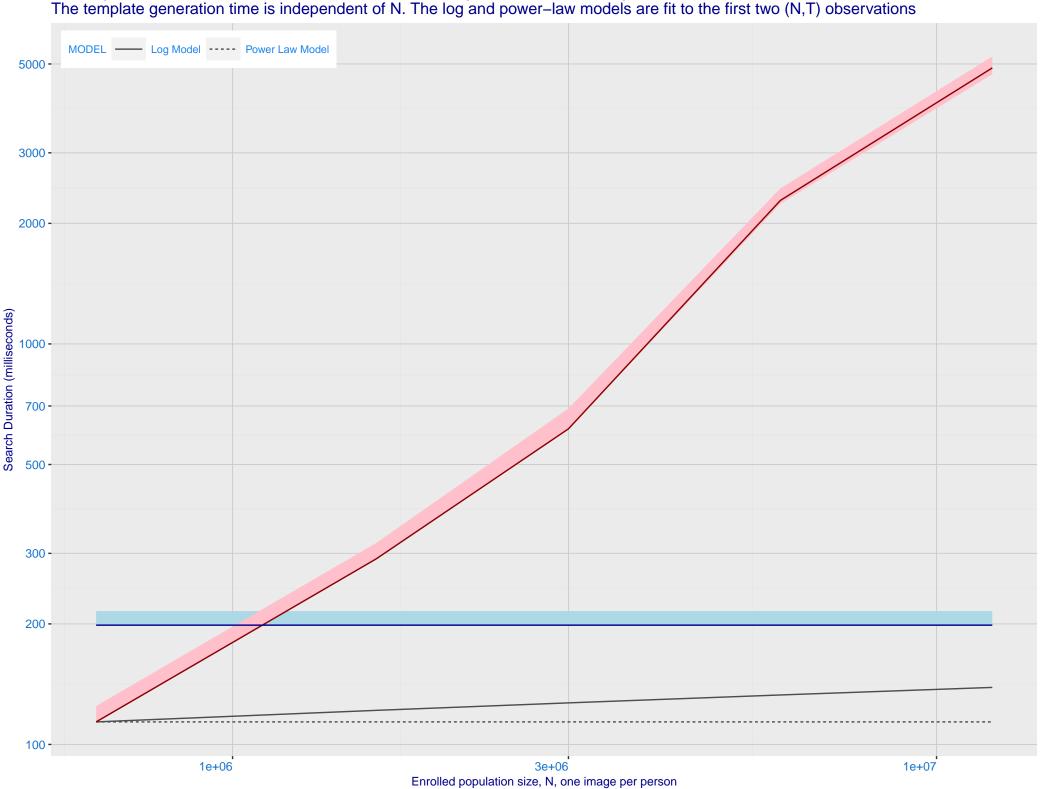




K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_006) Immigration **Immigration** visa-border visa-kiosk 0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.001 - 0.100 - 0.100 - 0.070 - 0. enrolment\_style - random ---- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 -- acer\_000 sensetime\_006 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



M: 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



Q: Identification FNIR(N, T, L+1) and Investigational FNIR(N, 0, R) under ageing



