## A: Datasheet

Algorithm: everai\_0

Developer: Paravision (EverAI)

Submission Date: 2018\_06\_21

Template size: 2048 bytes

Template time (2.5 percentile): 430 msec

Template time (median): 431 msec

Template time (97.5 percentile): 459 msec

Investigation:

Frontal mugshot ranking 173 (out of 279) -- FNIR(1600000, 0, 1) = 0.0188 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 139 (out of 241) -- FNIR(1600000, 0, 1) = 0.0379 vs. lowest 0.0062 from sensetime\_005

Mugshot profile ranking 63 (out of 210) -- FNIR(1600000, 0, 1) = 0.5341 vs. lowest 0.0587 from xforwardai\_002

Immigration visa-border ranking 146 (out of 168) -- FNIR(1600000, 0, 1) = 0.4229 vs. lowest 0.0013 from visionlabs\_010

Immigration visa-kiosk ranking 142 (out of 165) -- FNIR(1600000, 0, 1) = 0.5291 vs. lowest 0.0568 from cloudwalk\_hr\_000

Identification:

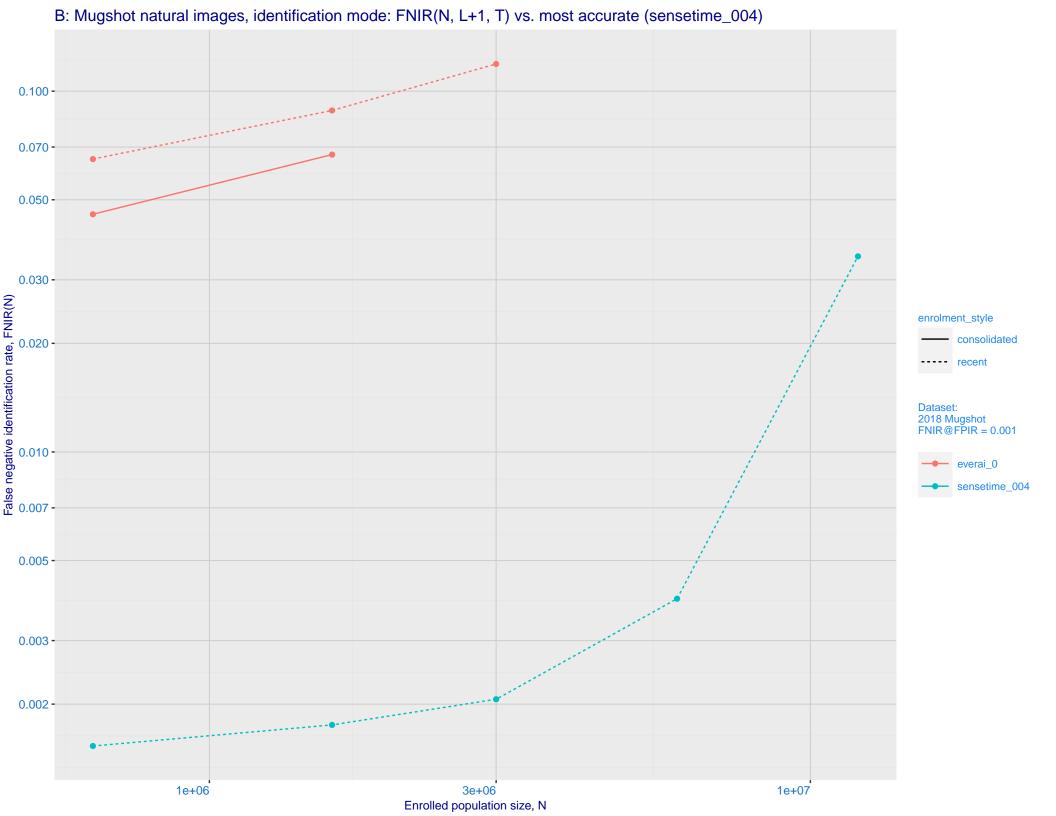
Frontal mugshot ranking 140 (out of 279) -- FNIR(1600000, T, L+1) = 0.0884, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 130 (out of 236) -- FNIR(1600000, T, L+1) = 0.1696, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Mugshot profile ranking 144 (out of 209) -- FNIR(1600000, T, L+1) = 0.9992, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

Immigration visa-border ranking 122 (out of 167) -- FNIR(1600000, T, L+1) = 0.4699, FPIR=0.001000 vs. lowest 0.0047 from idemia\_008

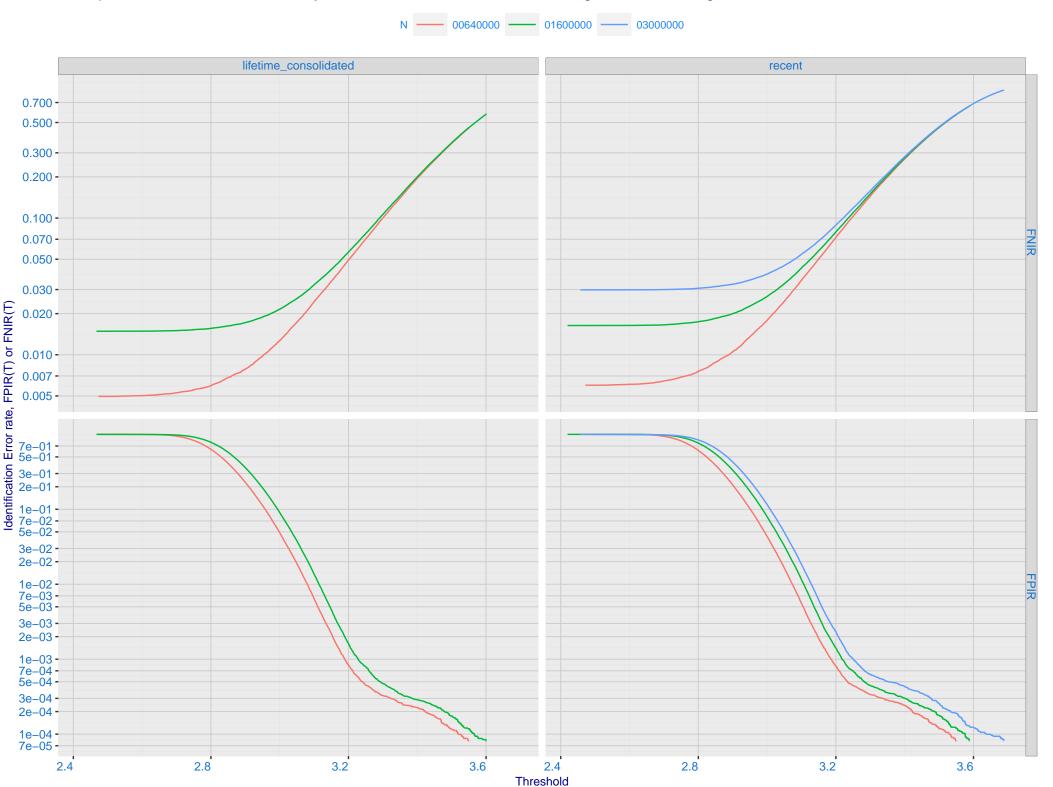
Immigration visa-kiosk ranking 120 (out of 162) — FNIR(1600000, T, L+1) = 0.9265, FPIR=0.001000 vs. lowest 0.0996 from cloudwalk\_hr\_000



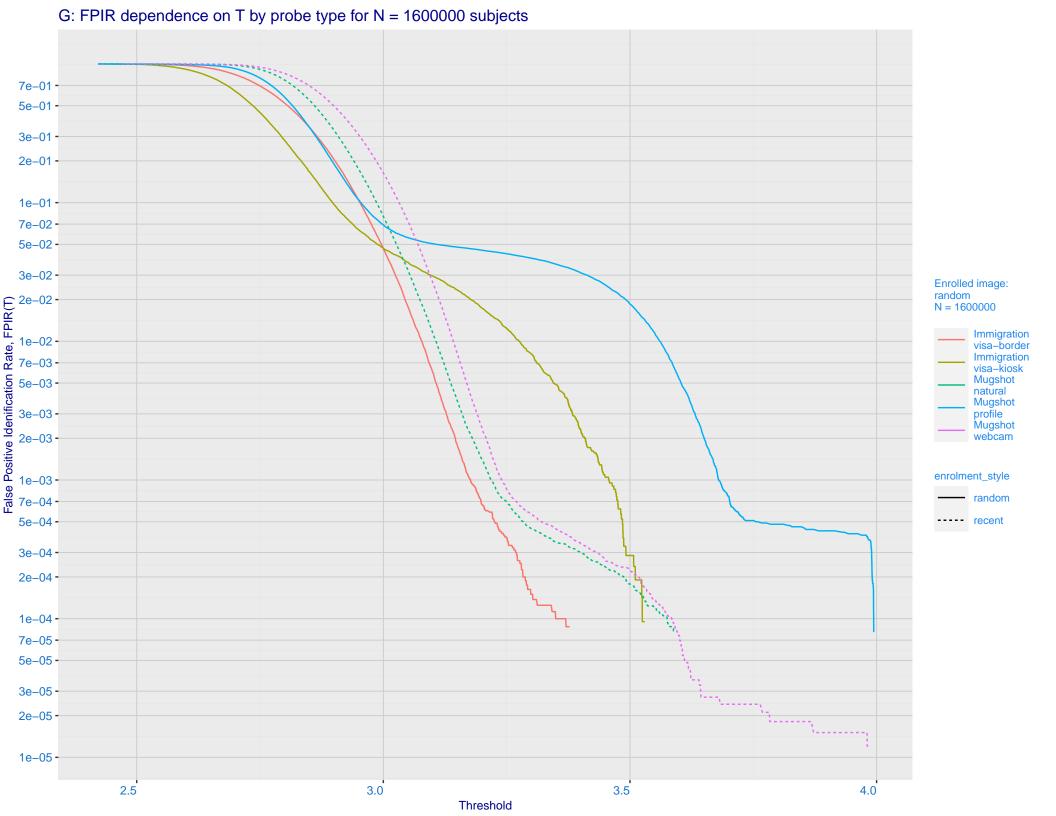
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment\_style consolidated-ONE-MATE 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 -

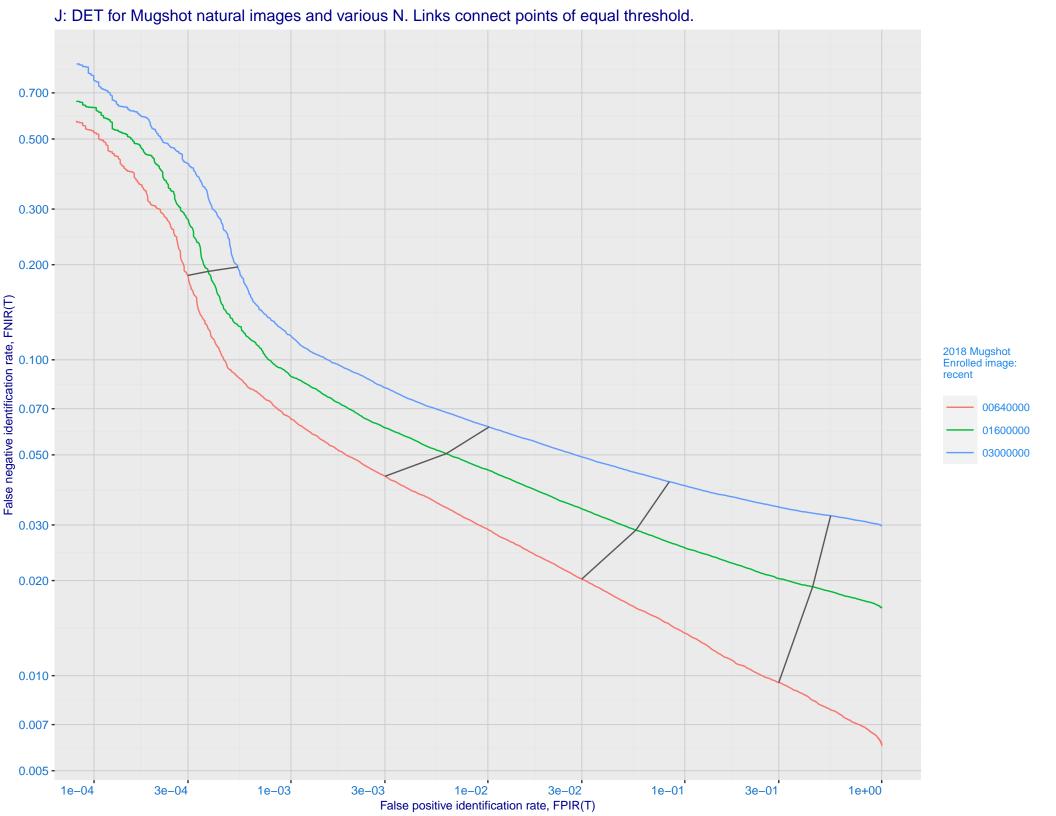
False positive identification rate, FPIR(T)

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

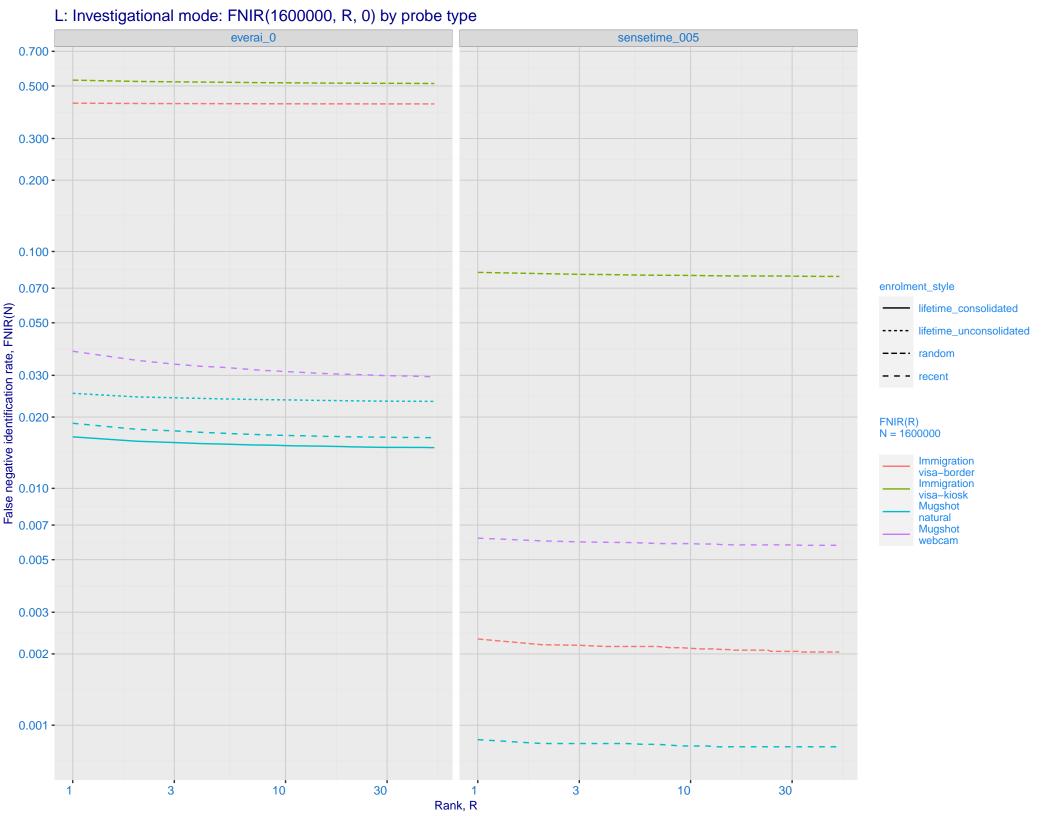


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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





K: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.700 -0.500 -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 - 0.700 - 0.500 - 0.200 - 0. FNIR@Rank = 1 everai\_0 sensetime\_005 Mugshot webcam Mugshot enrolment\_style natural consolidated ---- random -- recent - - unconsolidated 0.100 -0.070 -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 Log Model ---- Power Law Model 300 -200 -100 -70 -50 -30 -10 -1e+06 2e+06 3e+06

Enrolled population size, N, one image per person

Search Duration (milliseconds)

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



