## A: Datasheet

Algorithm: visionlabs\_3

Developer: VisionLabs

Submission Date: 2018\_02\_16

Template size: 256 bytes

Template time (2.5 percentile): 219 msec

Template time (median): 232 msec

Template time (97.5 percentile): 245 msec

Investigation:

Frontal mugshot ranking 111 (out of 279) — FNIR(1600000, 0, 1) = 0.0068 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 122 (out of 241) -- FNIR(1600000, 0, 1) = 0.0300 vs. lowest 0.0062 from sensetime\_005

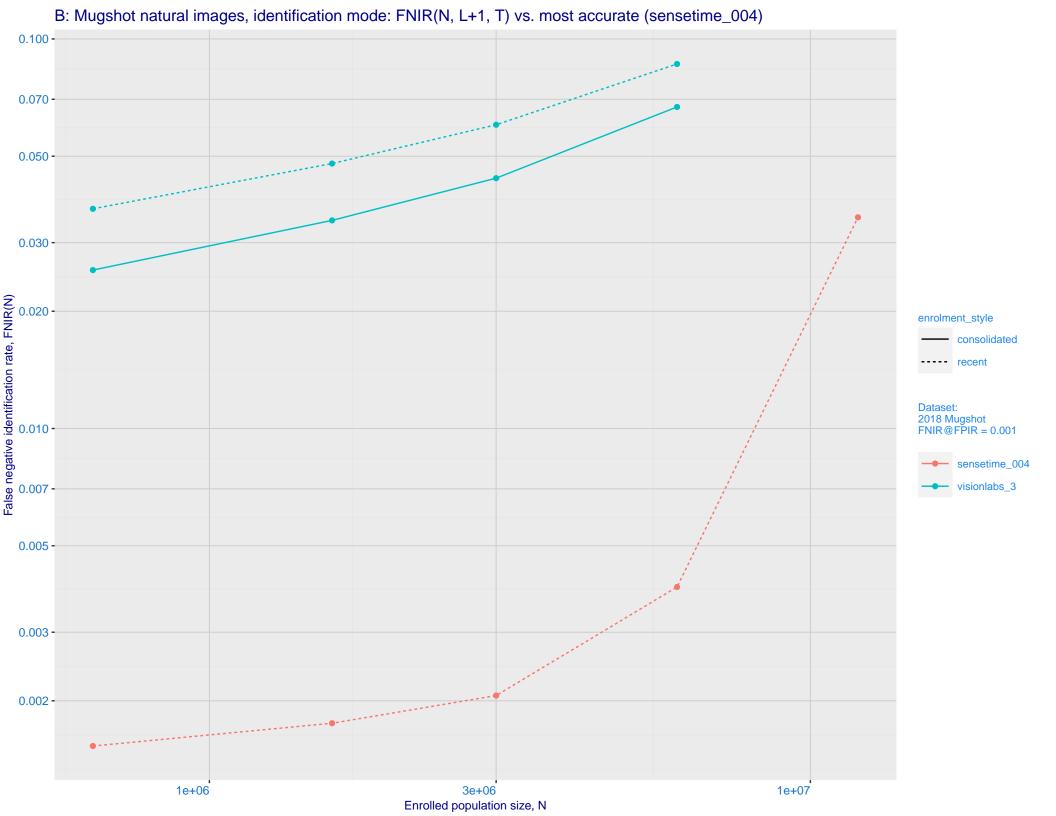
Mugshot profile ranking 79 (out of 210) -- FNIR(1600000, 0, 1) = 0.6400 vs. lowest 0.0587 from xforwardai\_002

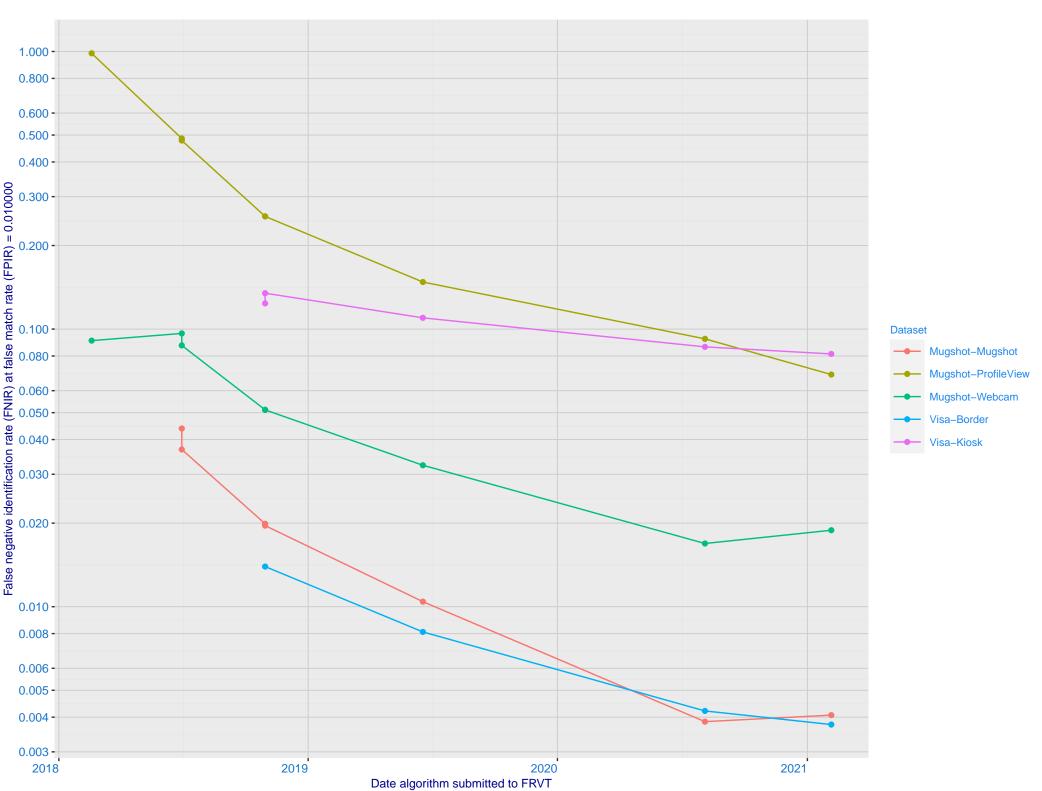
Identification:

Frontal mugshot ranking 90 (out of 279) -- FNIR(1600000, T, L+1) = 0.0479, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 106 (out of 236) -- FNIR(1600000, T, L+1) = 0.1371, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Mugshot profile ranking 142 (out of 209) -- FNIR(1600000, T, L+1) = 0.9991, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000

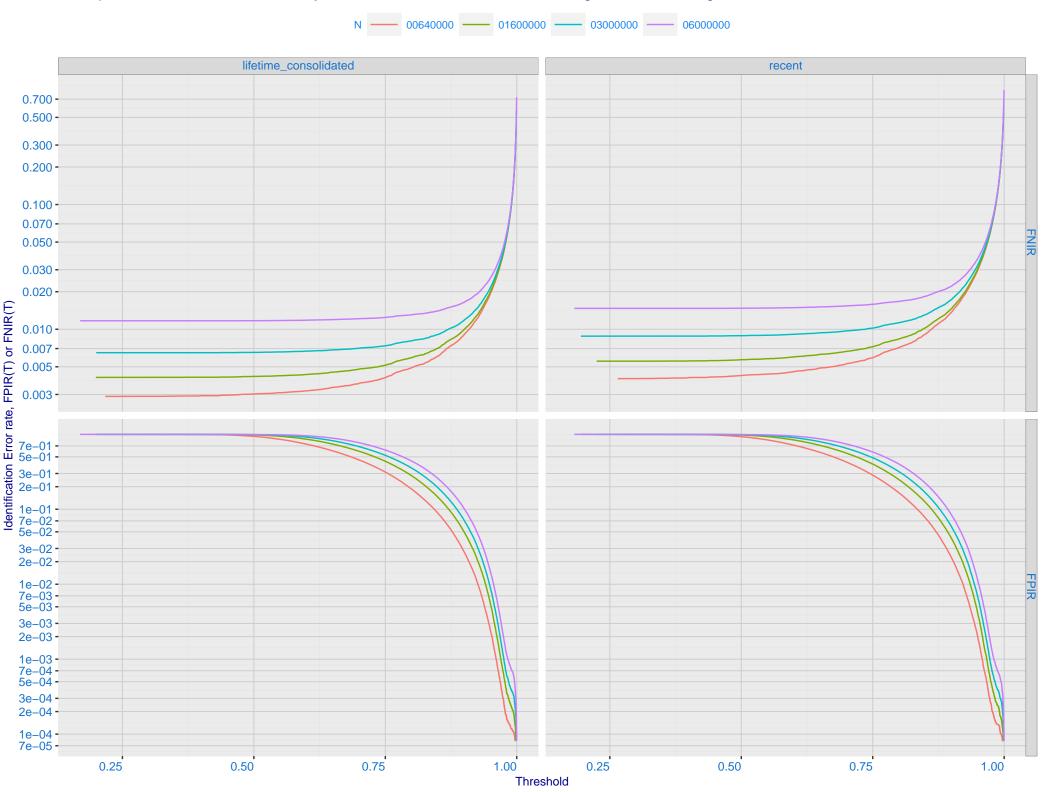




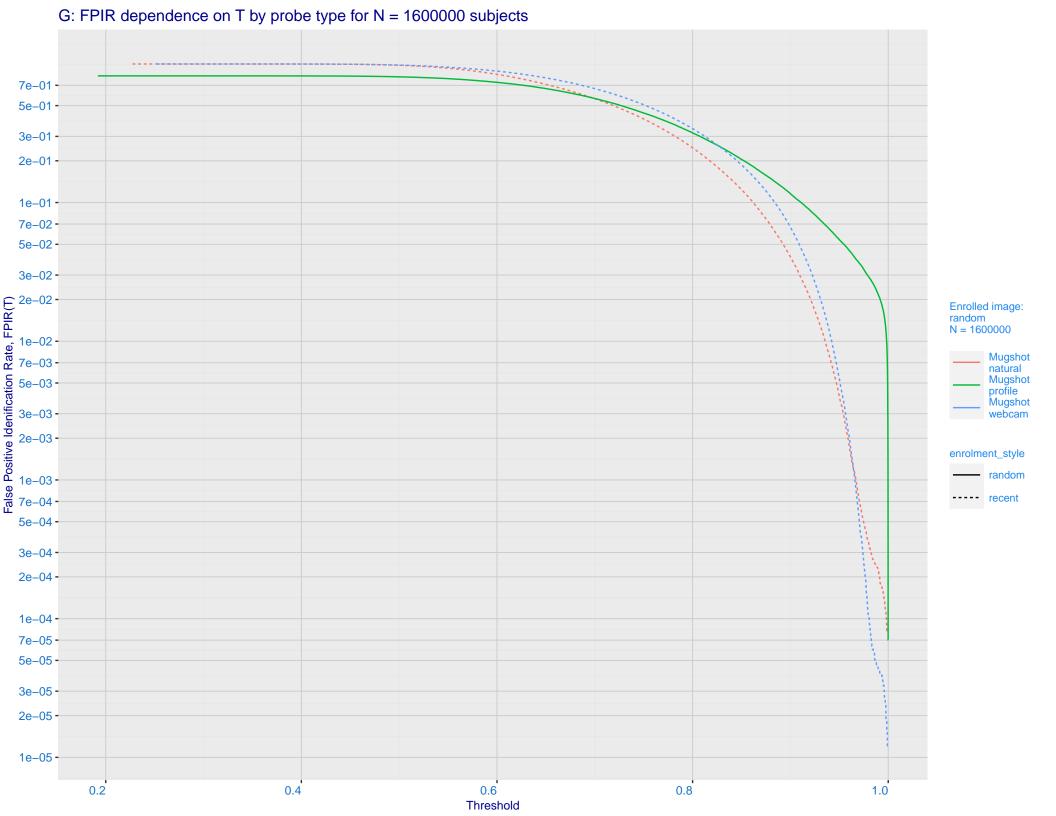
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.000 - 0.500 - 0.500 - 0.200 - 0.100 - 0. enrolment\_style consolidated-ONE-MATE 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 -

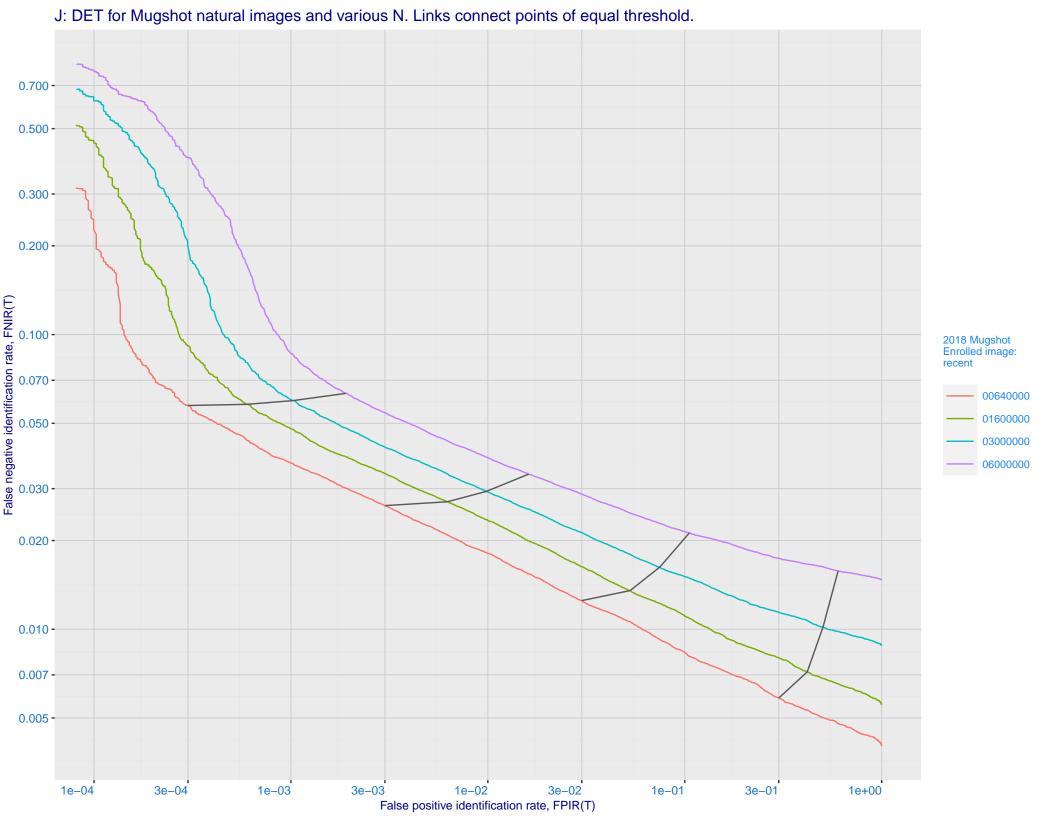
False positive identification rate, FPIR(T)

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

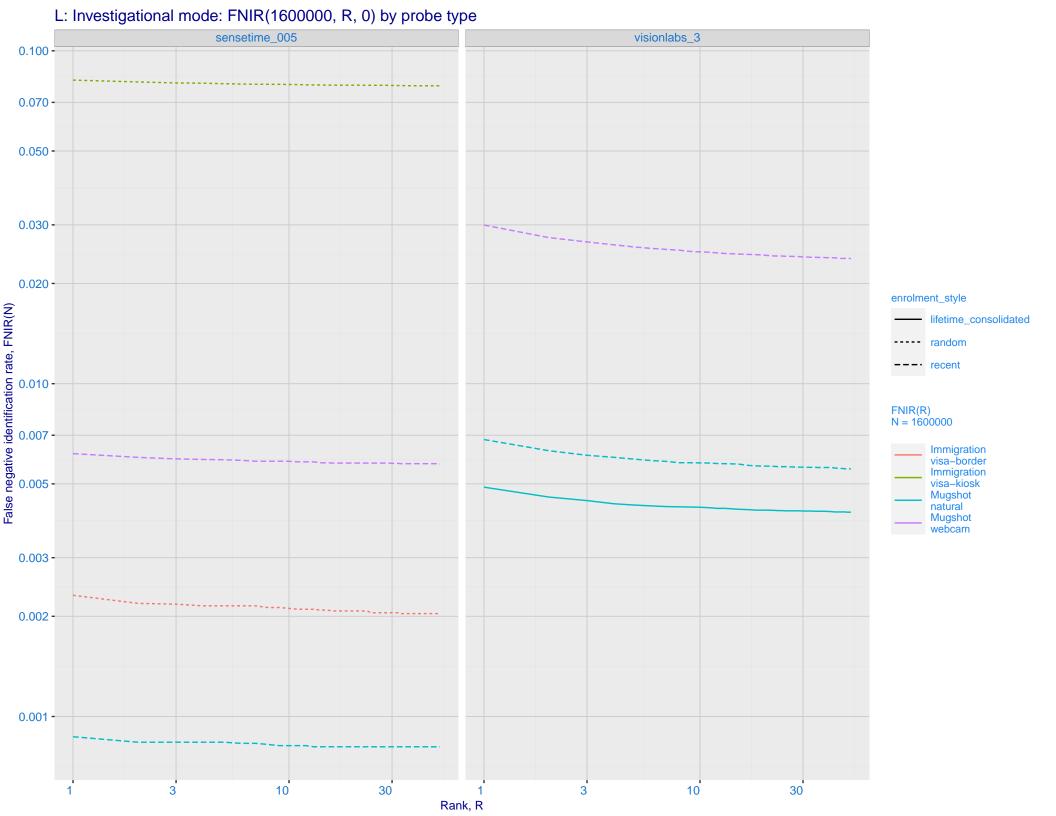


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 - 7e-02 **Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 1e-02 -7e-03 -5e-03 -3e-03 -2e-03 -1e-03 -7e-04 -5e-04 -3e-04 -2e-04 -1e-04 -7e-05 -5e-05 -3e-05 -2e-05 -1e-05 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 0.100 -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. enrolment\_style consolidated ---- random --- recent Mugshot Mugshot webcam natural FNIR@Rank = 1 sensetime\_005 visionlabs\_3 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 300 -MODEL — Log Model ---- Power Law Model 200 -100 -70 -50 -Search Duration (milliseconds) 30 -20 -10 -1e+06 3e+06 5e+06 Enrolled population size, N, one image per person

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



