## A: Datasheet

Algorithm: gorilla\_1

Developer: Gorilla Technology

Submission Date: 2018\_06\_19

Template size: 2156 bytes

Template time (2.5 percentile): 141 msec

Template time (median): 167 msec

Template time (97.5 percentile): 207 msec

Investigation:

Frontal mugshot ranking 201 (out of 259) -- FNIR(1600000, 0, 1) = 0.0603 vs. lowest 0.0009 from sensetime\_005

Mugshot webcam ranking 171 (out of 221) -- FNIR(1600000, 0, 1) = 0.0950 vs. lowest 0.0062 from sensetime\_005

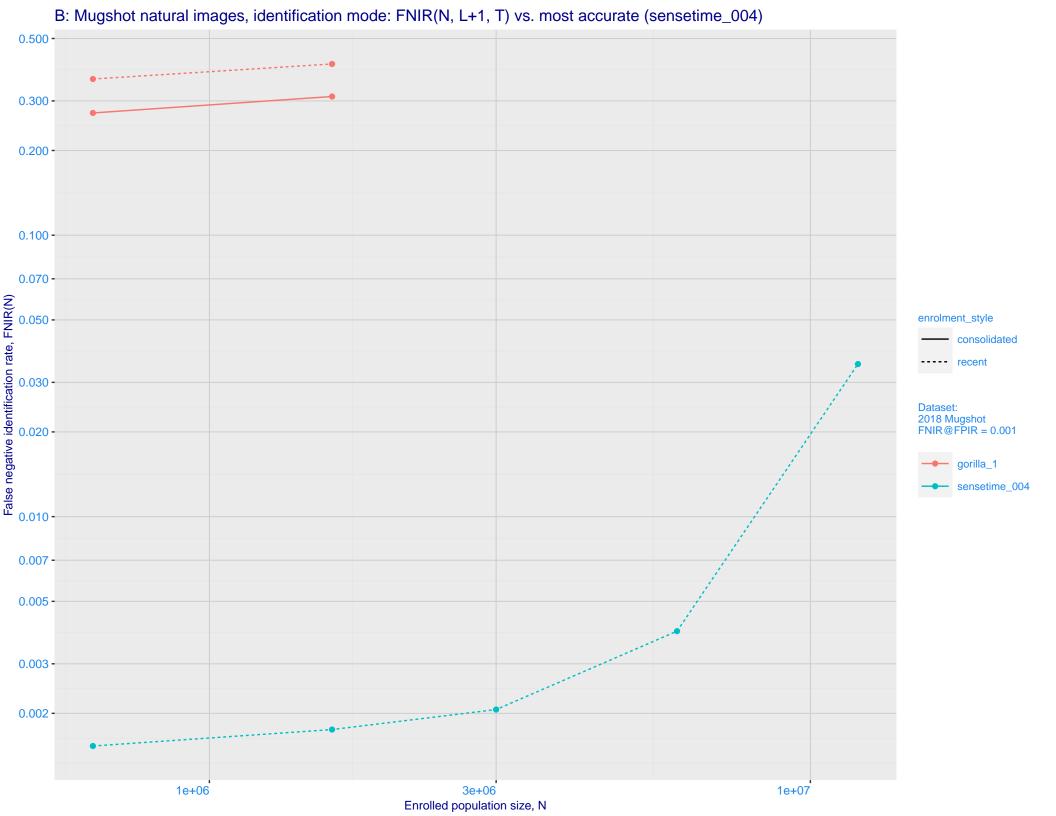
Mugshot profile ranking 124 (out of 190) -- FNIR(1600000, 0, 1) = 0.9364 vs. lowest 0.0591 from sensetime\_005

Identification:

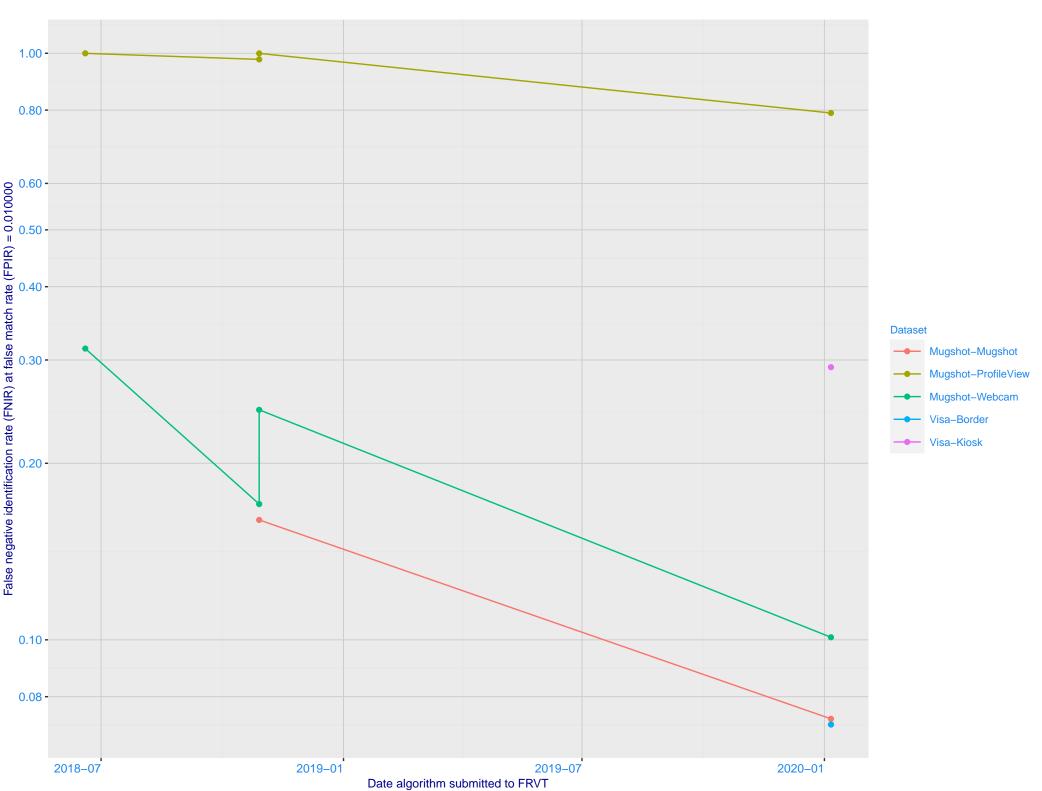
Frontal mugshot ranking 205 (out of 259) -- FNIR(1600000, T, L+1) = 0.4059, FPIR=0.001000 vs. lowest 0.0018 from sensetime\_004

Mugshot webcam ranking 172 (out of 219) -- FNIR(1600000, T, L+1) = 0.4527, FPIR=0.001000 vs. lowest 0.0122 from sensetime\_003

Mugshot profile ranking 170 (out of 189) -- FNIR(1600000, T, L+1) = 0.9999, FPIR=0.001000 vs. lowest 0.1733 from sensetime\_005



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



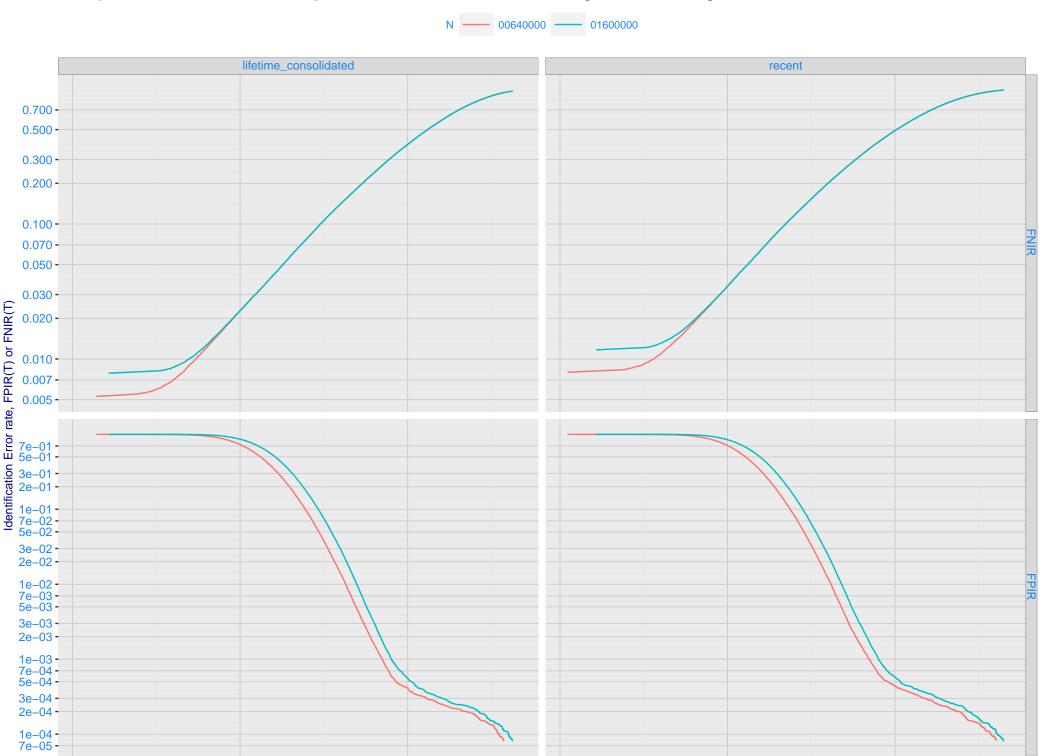
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.500 - 0.300 - 0.200 enrolment\_style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

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

0.8

0.4

0.6



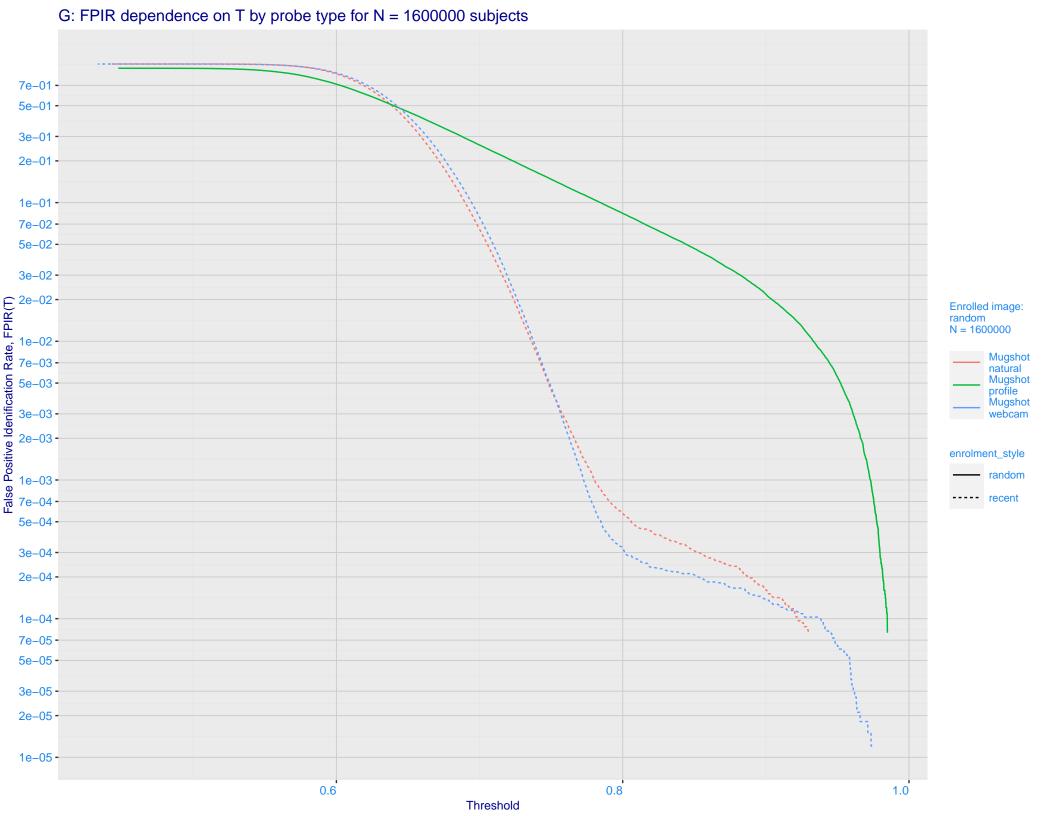
0.4

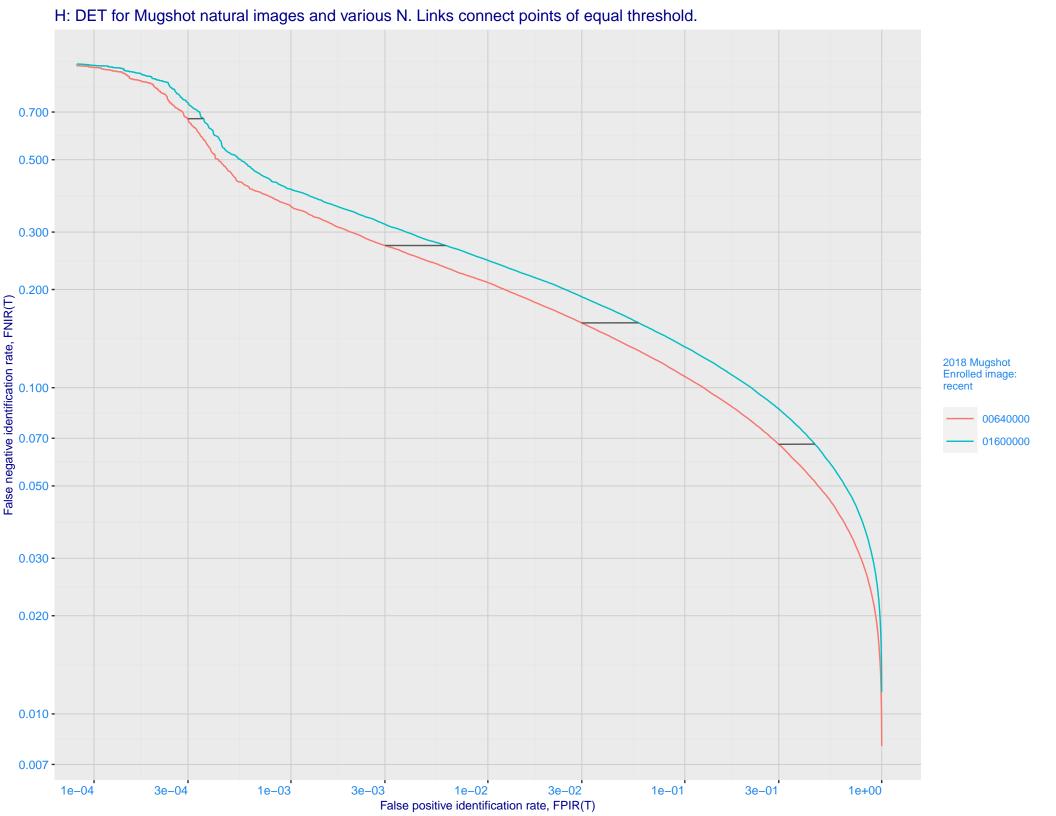
Threshold

0.6

0.8

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 -3e-02 1e-05 3e-05 1e-04 3e-04 1e-03 3e-03 1e-02 1e-01 3e-01 False Positive Idenification Rate, FPIR(T)

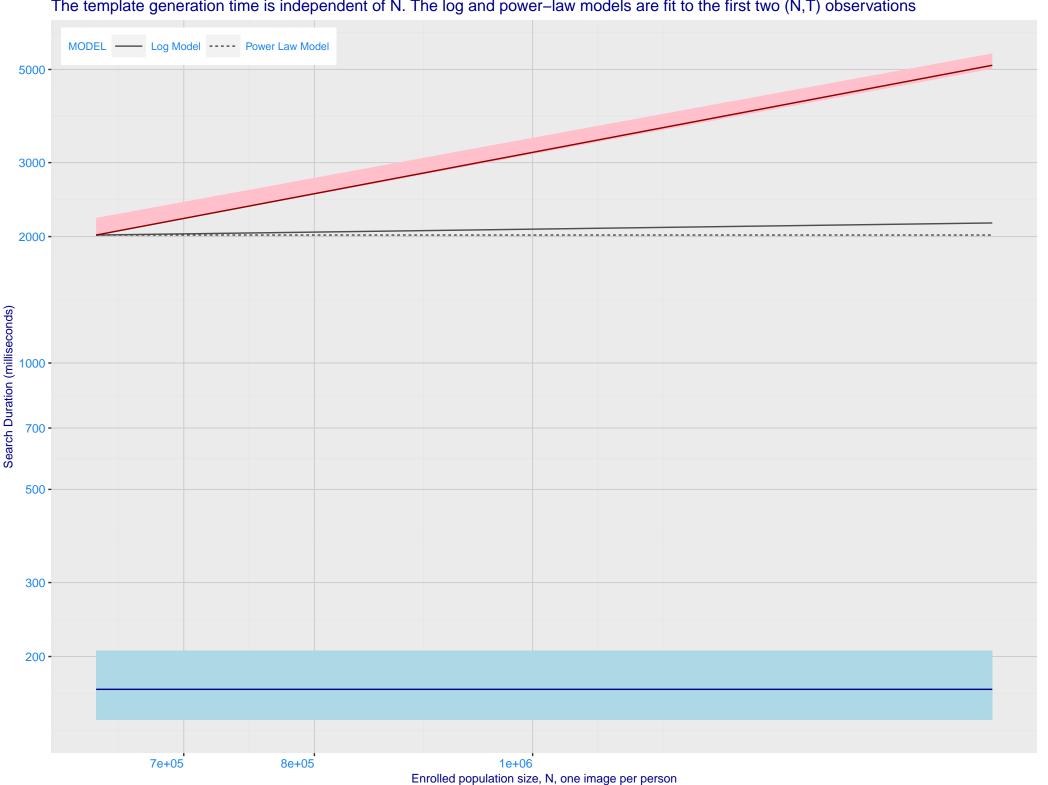




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime\_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.030 - 0. FNIR@Rank = 1 gorilla\_1 sensetime\_005 Mugshot webcam Mugshot 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 gorilla\_1 sensetime\_005 0.100 -0.070 -0.050 -0.030 -0.020 - 0.000 - 0.000 - 0.000 - 0.0005 enrolment\_style lifetime\_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.003 -0.002 -0.001 -3 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



