A: Datasheet

Algorithm: deepglint_001

Developer: Deepglint

Submission Date: 2019_11_15

Template size: 4096 bytes

Template time (2.5 percentile): 675 msec

Template time (median): 676 msec

Template time (97.5 percentile): 736 msec

Investigation:

Frontal mugshot ranking 10 (out of 259) -- FNIR(1600000, 0, 1) = 0.0014 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 4 (out of 221) -- FNIR(1600000, 0, 1) = 0.0070 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 15 (out of 190) -- FNIR(1600000, 0, 1) = 0.1995 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 7 (out of 142) — FNIR(1600000, 0, 1) = 0.0024 vs. lowest 0.0014 from visionlabs_009

Immigration visa-kiosk ranking 4 (out of 139) — FNIR(1600000, 0, 1) = 0.0728 vs. lowest 0.0694 from cib_000

Identification:

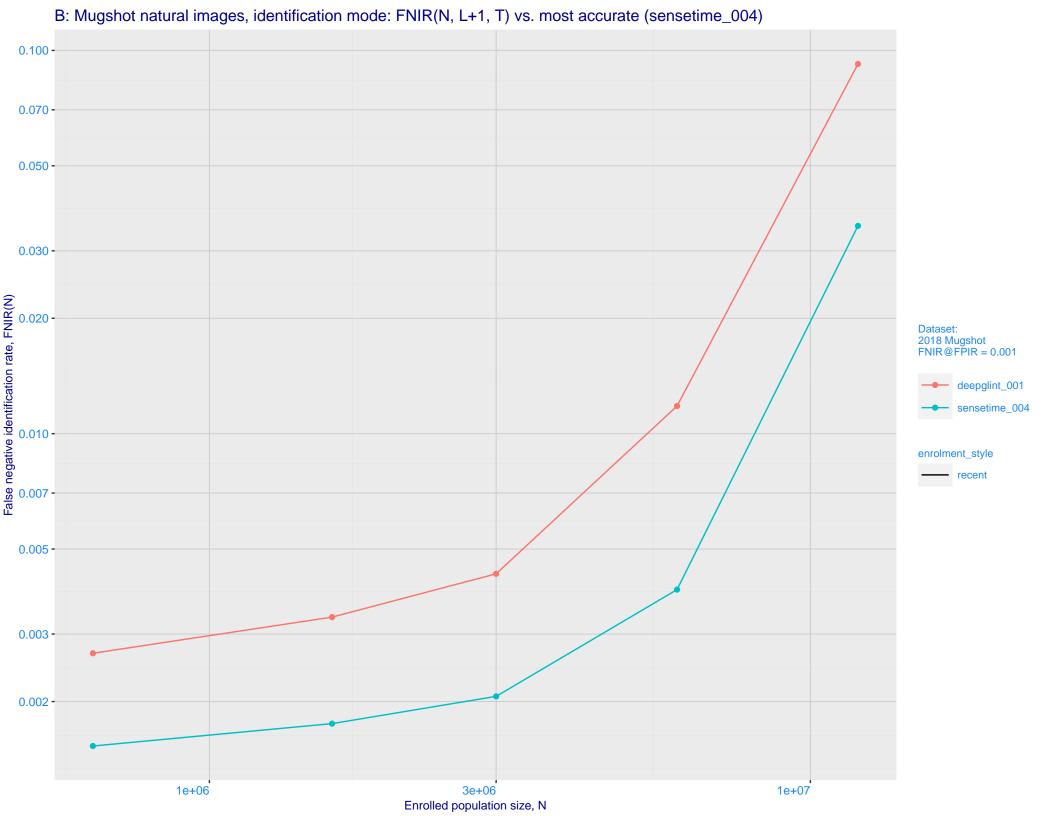
Frontal mugshot ranking 6 (out of 259) -- FNIR(1600000, T, L+1) = 0.0033, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 3 (out of 219) -- FNIR(1600000, T, L+1) = 0.0138, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

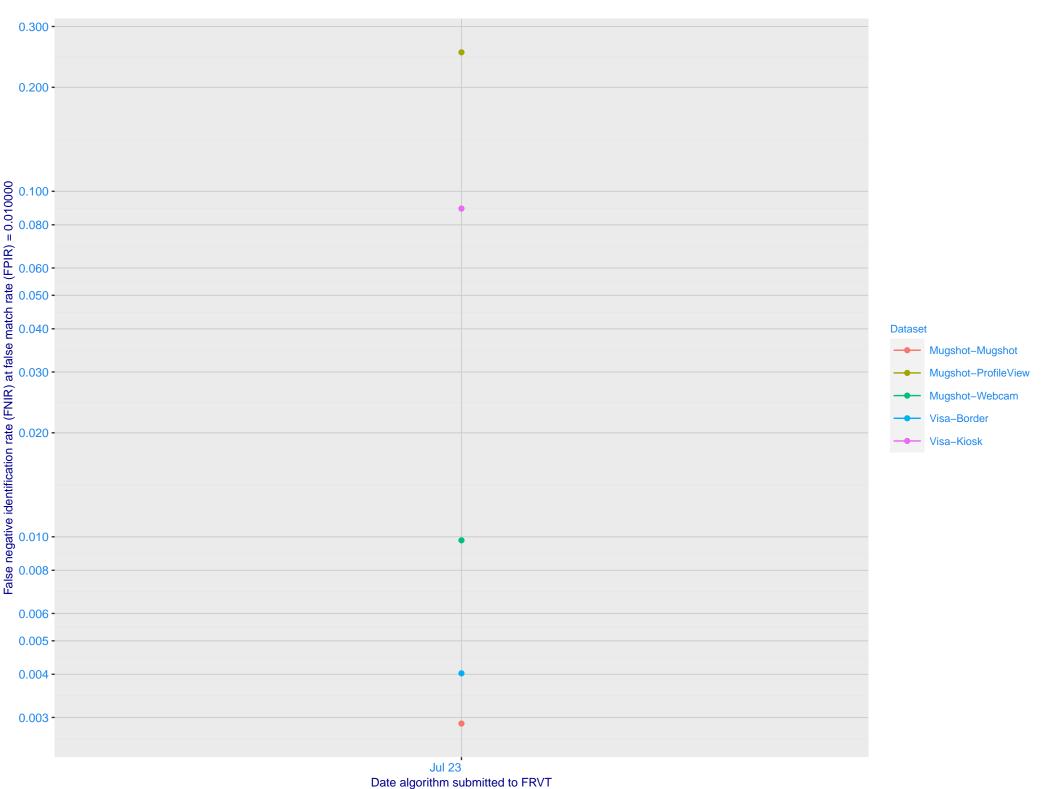
Mugshot profile ranking 142 (out of 189) -- FNIR(1600000, T, L+1) = 0.9995, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005

Immigration visa-border ranking 2 (out of 139) -- FNIR(1600000, T, L+1) = 0.0064, FPIR=0.001000 vs. lowest 0.0059 from sensetime_004

Immigration visa-kiosk ranking 10 (out of 134) -- FNIR(1600000, T, L+1) = 0.1646, FPIR=0.001000 vs. lowest 0.1048 from sensetime_005



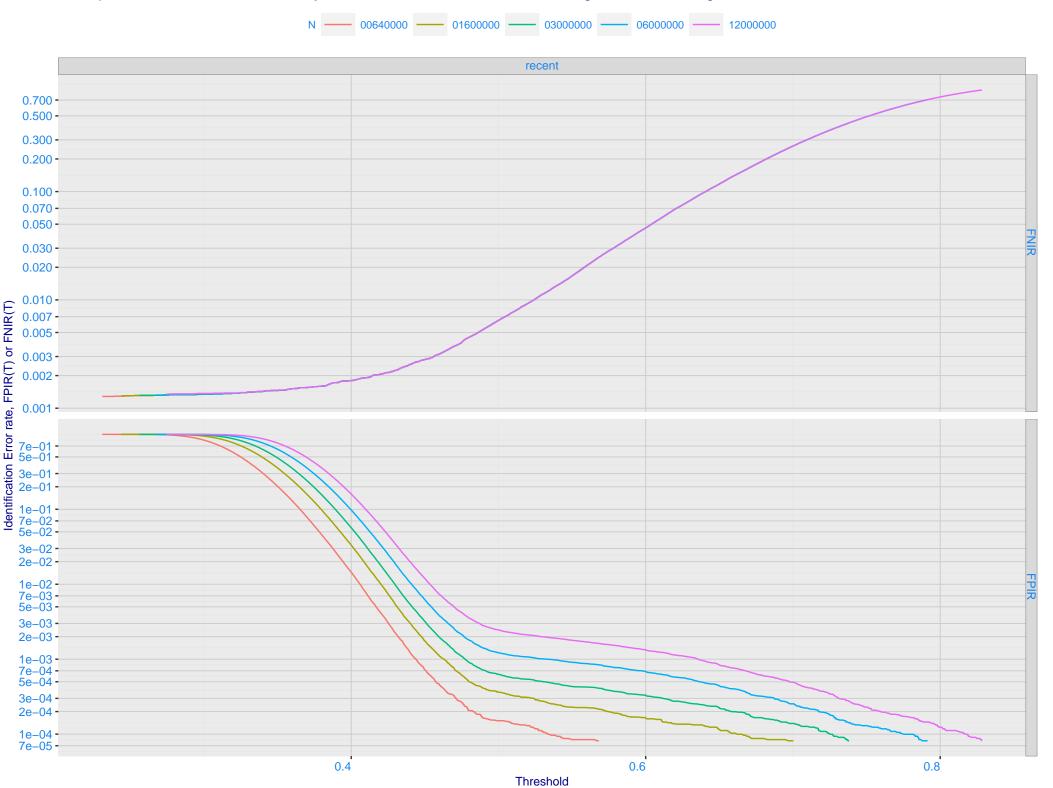
C: Evolution of accuracy for DEEPGLINT algorithms on three datasets 2018 – present



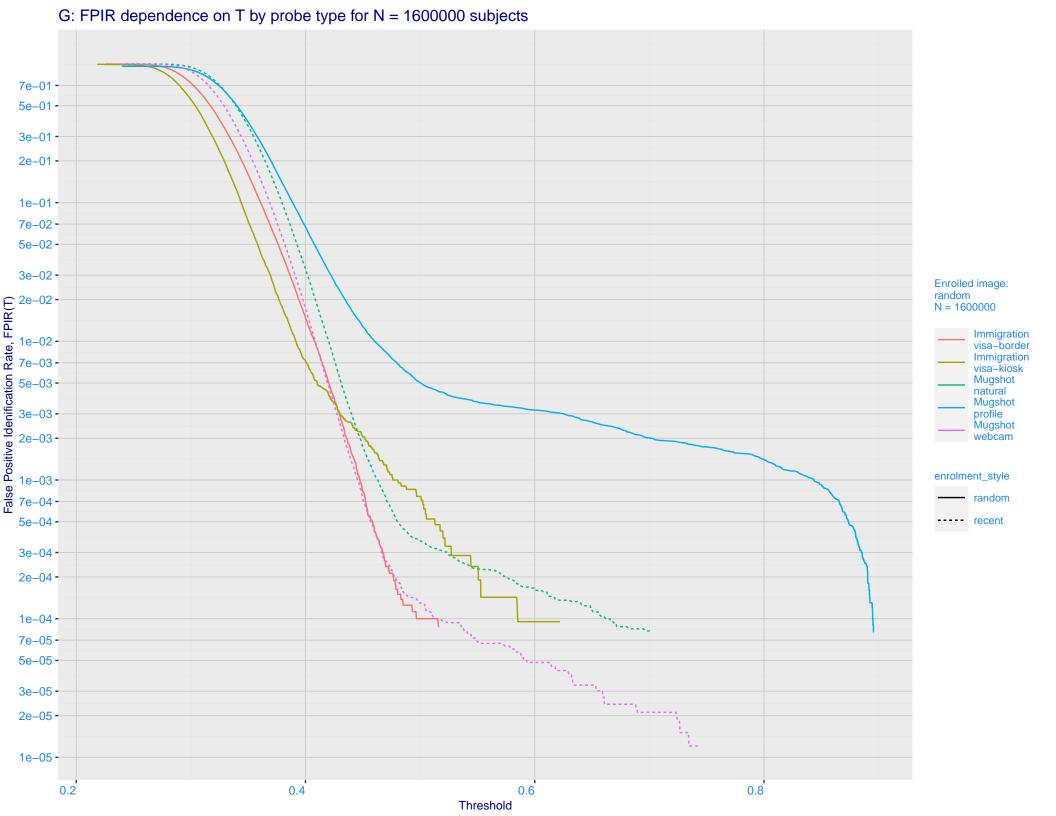
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

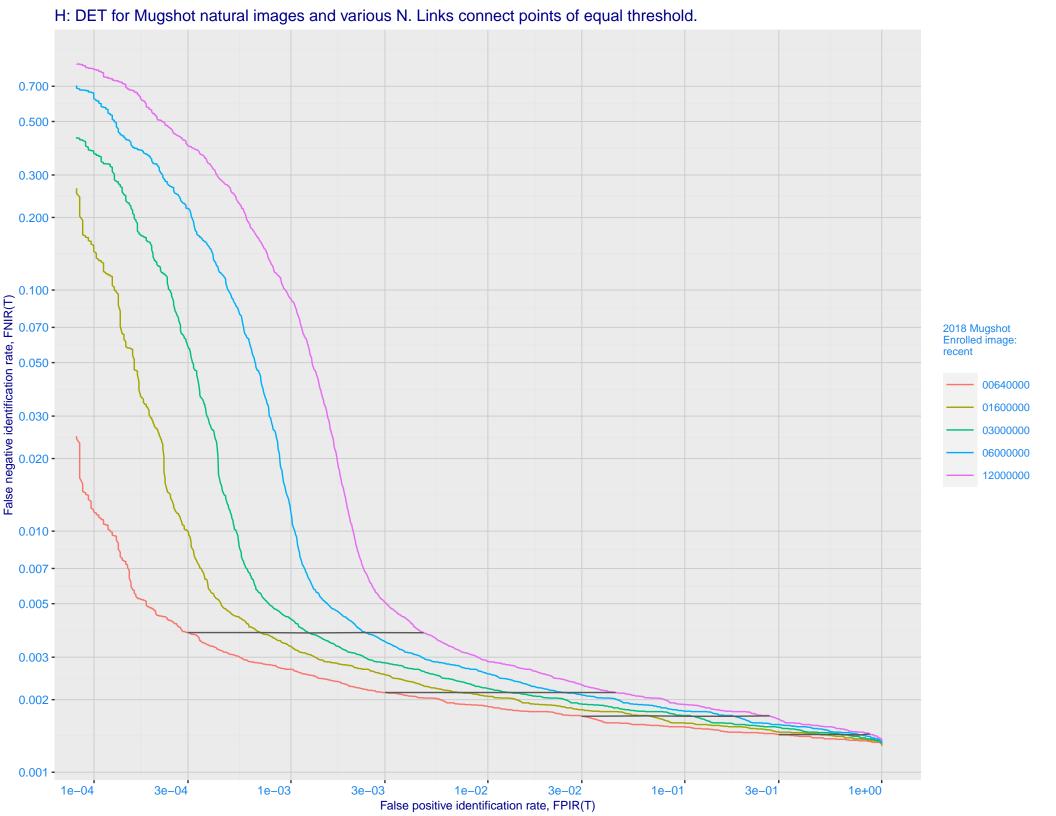
False positive identification rate, FPIR(T)

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

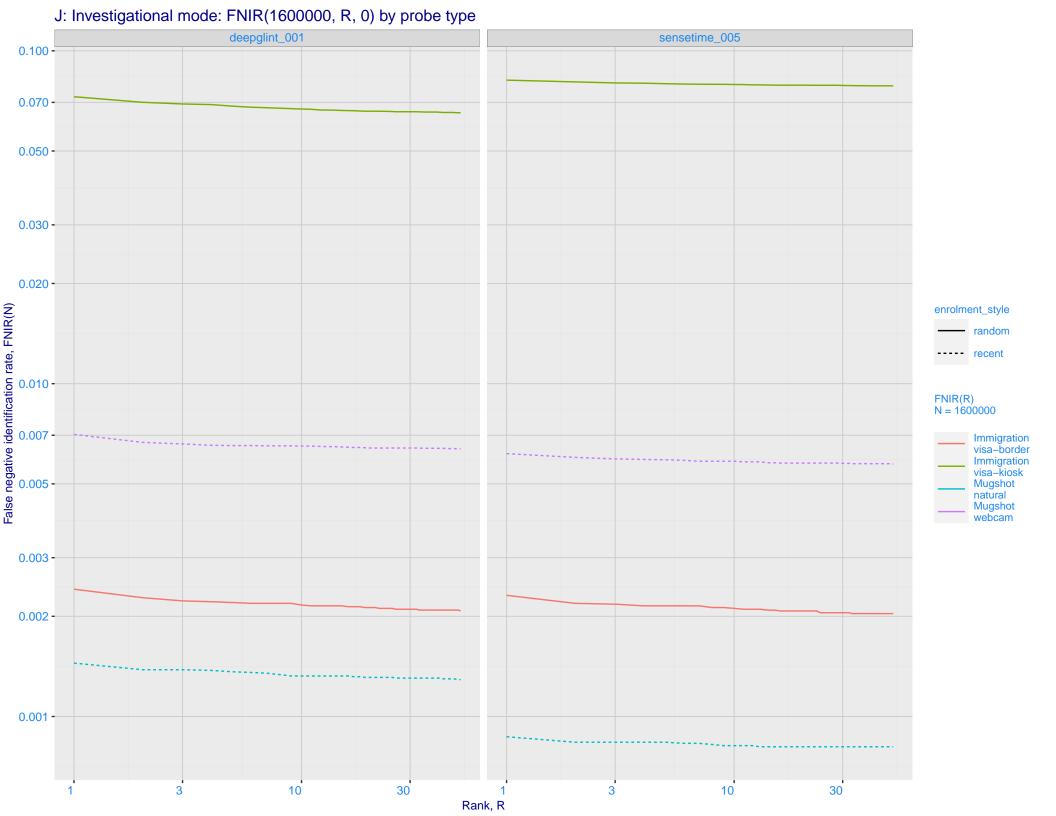


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00-3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

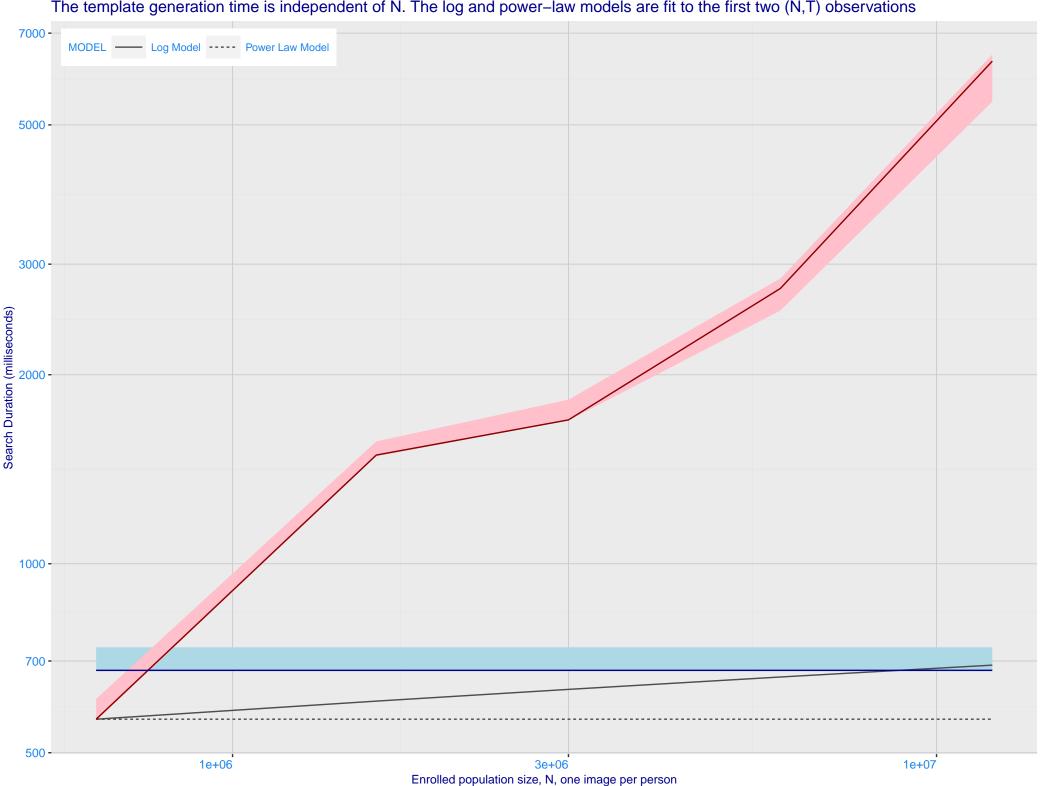




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.030 - 0. FNIR@Rank = 1 deepglint_001 sensetime_005 Mugshot Mugshot webcam natural enrolment_style 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



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



