A: Datasheet

Algorithm: kneron_000

Developer: Kneron

Submission Date: 2020_03_03

Template size: 2048 bytes

Template time (2.5 percentile): 521 msec

Template time (median): 523 msec

Template time (97.5 percentile): 573 msec

Investigation:

Frontal mugshot ranking 92 (out of 265) -- FNIR(1600000, 0, 1) = 0.0059 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 106 (out of 227) -- FNIR(1600000, 0, 1) = 0.0273 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 57 (out of 196) -- FNIR(1600000, 0, 1) = 0.5518 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 80 (out of 148) -- FNIR(1600000, 0, 1) = 0.0284 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 76 (out of 145) -- FNIR(1600000, 0, 1) = 0.1945 vs. lowest 0.0568 from hr_000

Identification:

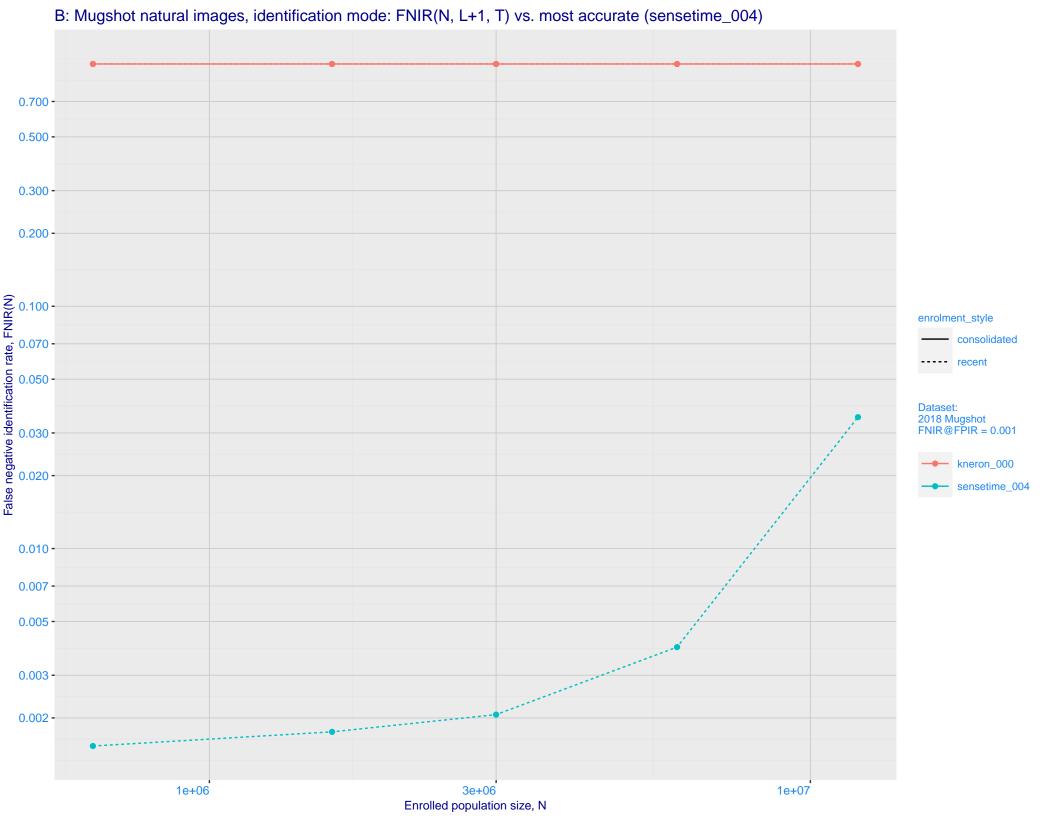
Frontal mugshot ranking 264 (out of 265) -- FNIR(1600000, T, L+1) = 0.9998, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 223 (out of 225) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

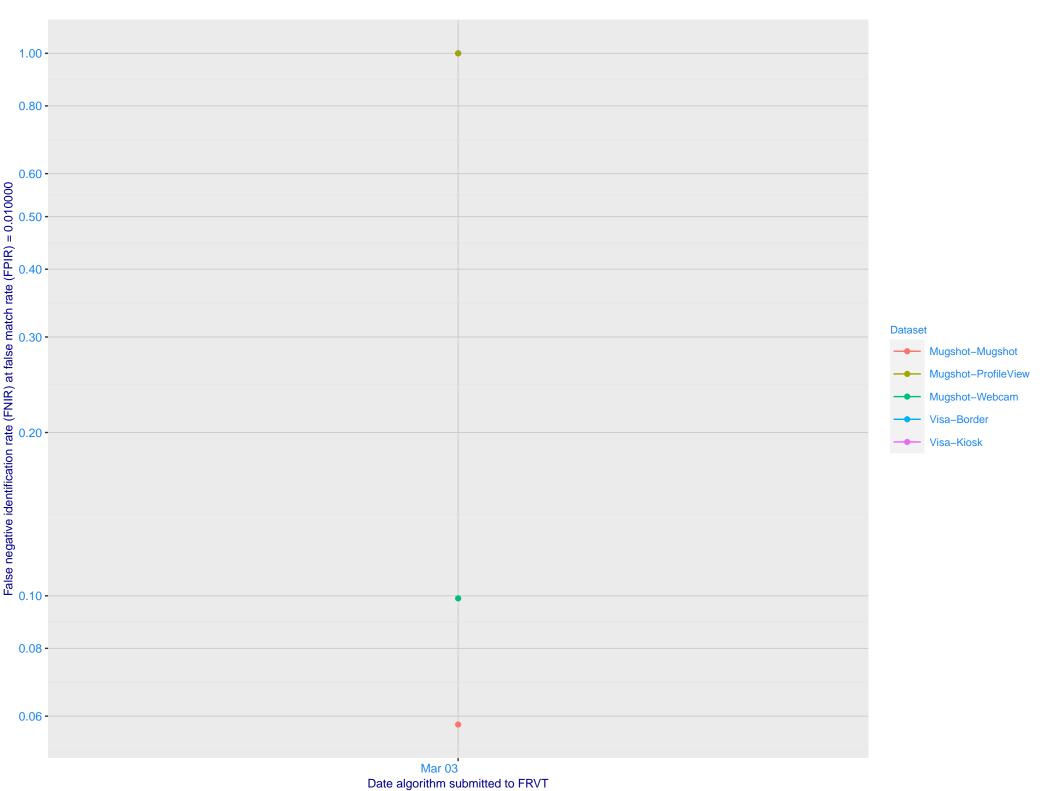
Mugshot profile ranking 188 (out of 195) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 141 (out of 146) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa-kiosk ranking 136 (out of 141) -- FNIR(1600000, T, L+1) = 1.0000, FPIR=0.001000 vs. lowest 0.0996 from hr_000



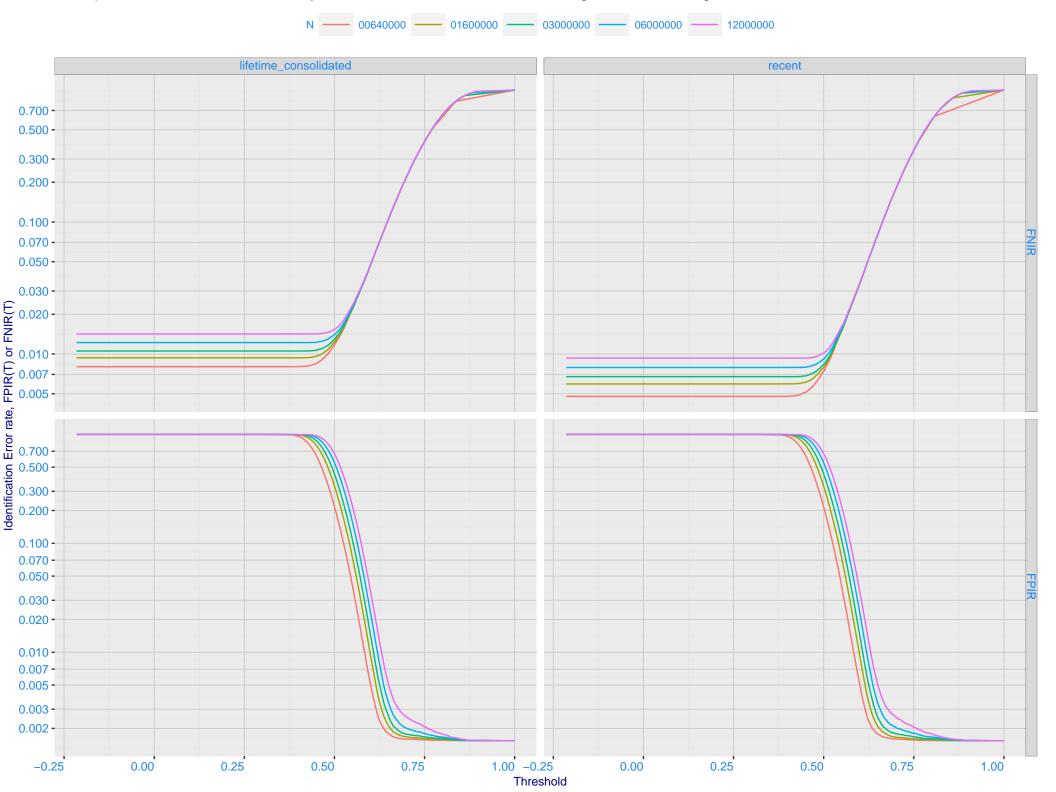
C: Evolution of accuracy for KNERON algorithms on three datasets 2018 – present



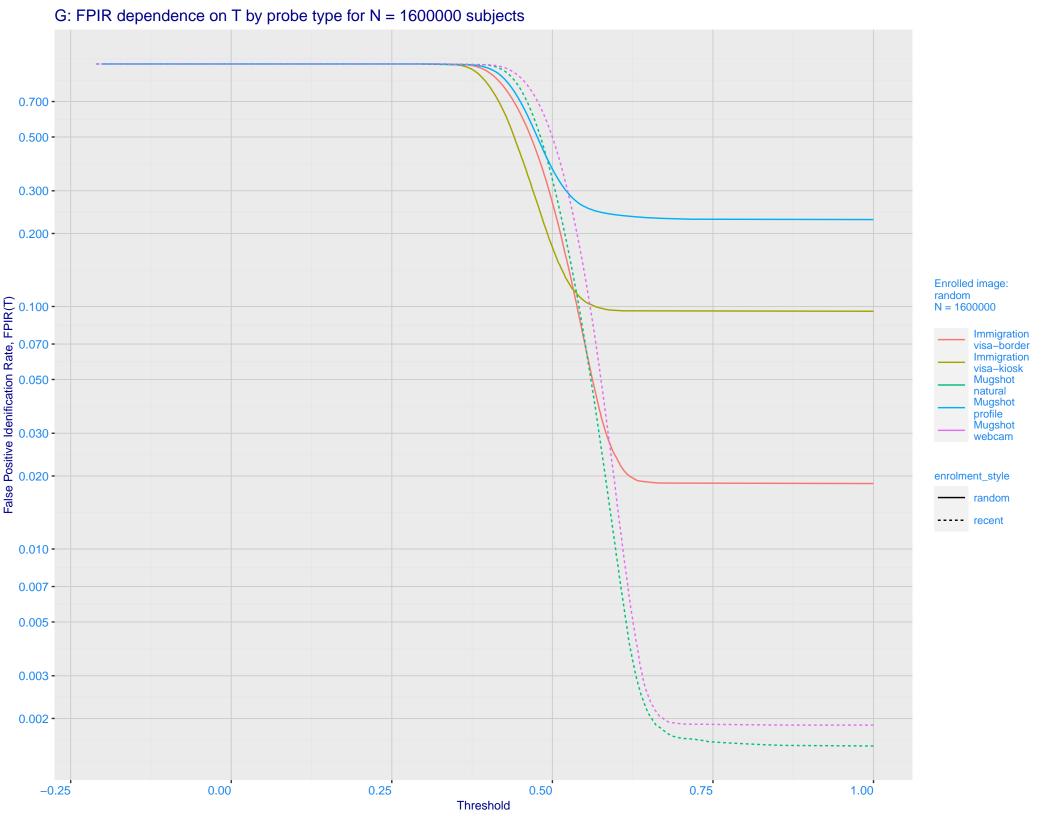
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.005 - 0.002 - 0.001 - 0.001 - 0.700 - 0.500 - 0.200 enrolment_style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

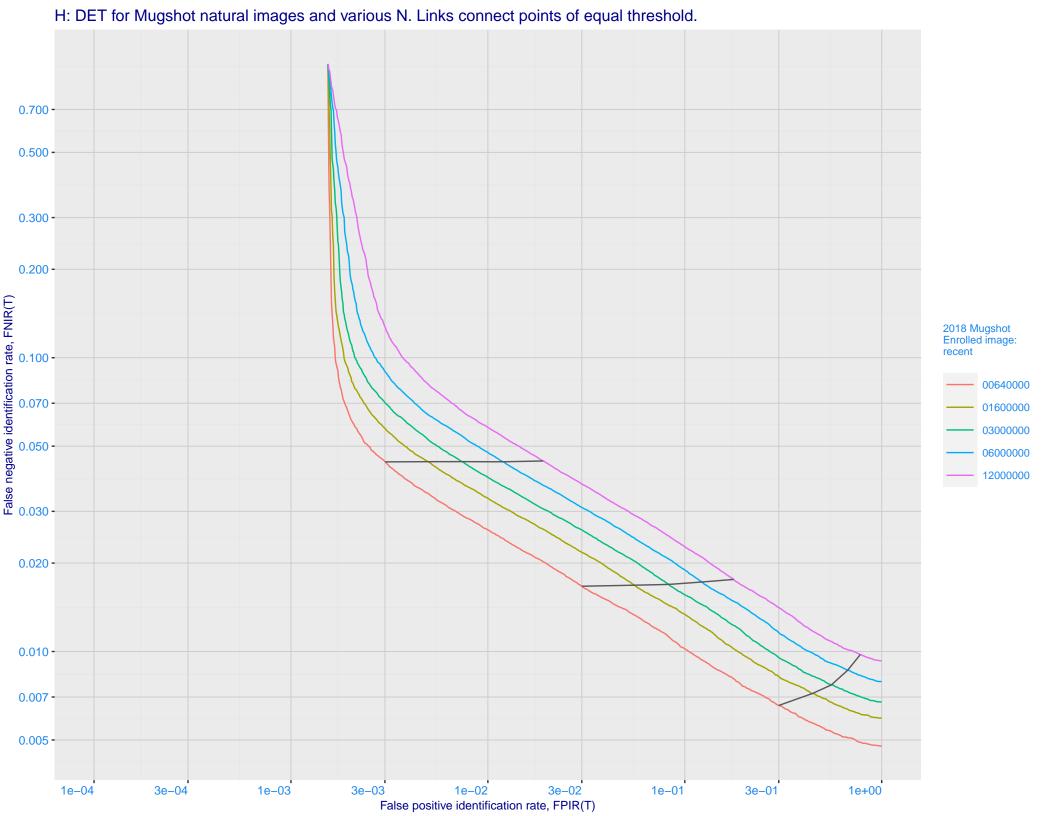
False positive identification rate, FPIR(T)

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 -Selectivity, SEL(T) 3e-01 -3e-01 -2e-01 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam 1e-01 -7e-02 -5e-02 -3e-02 -2e-02 -1e-02 -7e-03 -5e-03 -3e-03 -2e-03 -1e-03 -0.010 0.003 0.030 0.100 0.300 False Positive Idenification Rate, FPIR(T)

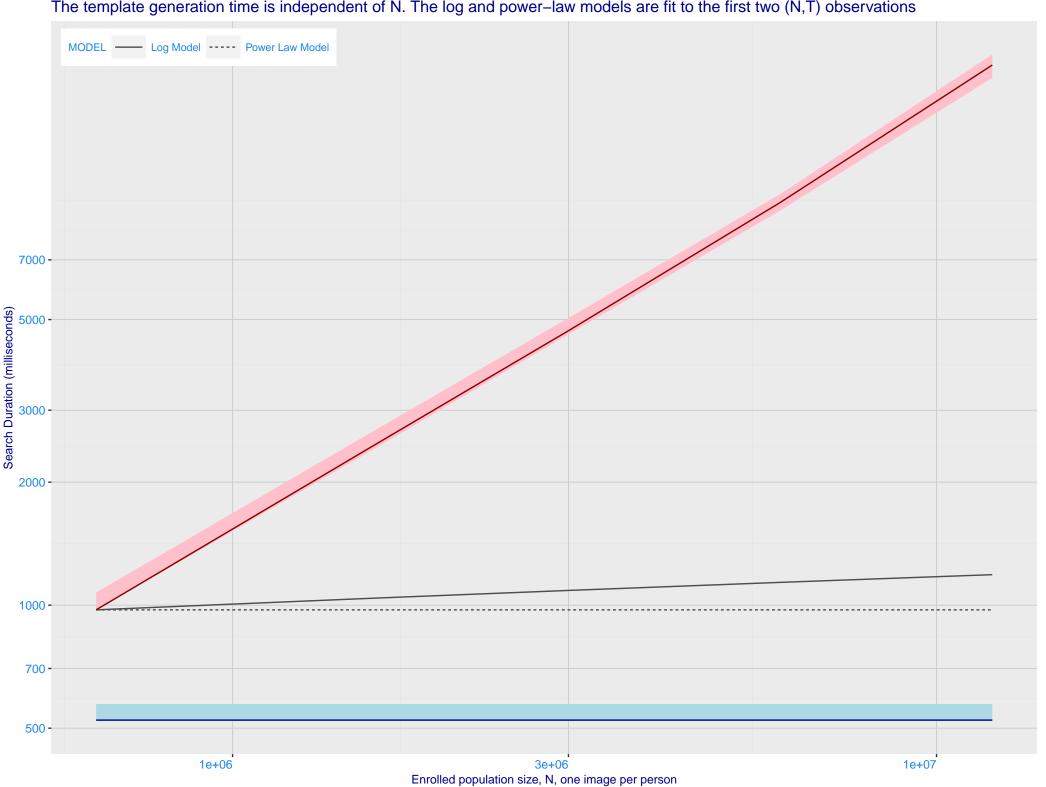




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration Immigration visa-border visa-kiosk 0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -Ealse negative identification rate, FNIR(N) 0.003 - 0.001 - 0.001 - 0.200 - 0.100 - 0.050 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 hneron_000 sensetime_005 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

J: Investigational mode: FNIR(1600000, R, 0) by probe type kneron_000 sensetime_005 0.200 -0.100 -0.070 -0.050 enrolment_style Ealse negative identification rate, FNIR(N) 0.000 - 0. lifetime_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.003 -0.002 -0.001 -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



