A: Datasheet

Algorithm: cognitec_3

Developer: Cognitec Systems GmbH

Submission Date: 2018_10_30

Template size: 2052 bytes

Template time (2.5 percentile): 266 msec

Template time (median): 297 msec

Template time (97.5 percentile): 336 msec

Investigation:

Frontal mugshot ranking 89 (out of 259) -- FNIR(1600000, 0, 1) = 0.0062 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 94 (out of 221) -- FNIR(1600000, 0, 1) = 0.0245 vs. lowest 0.0062 from sensetime_005

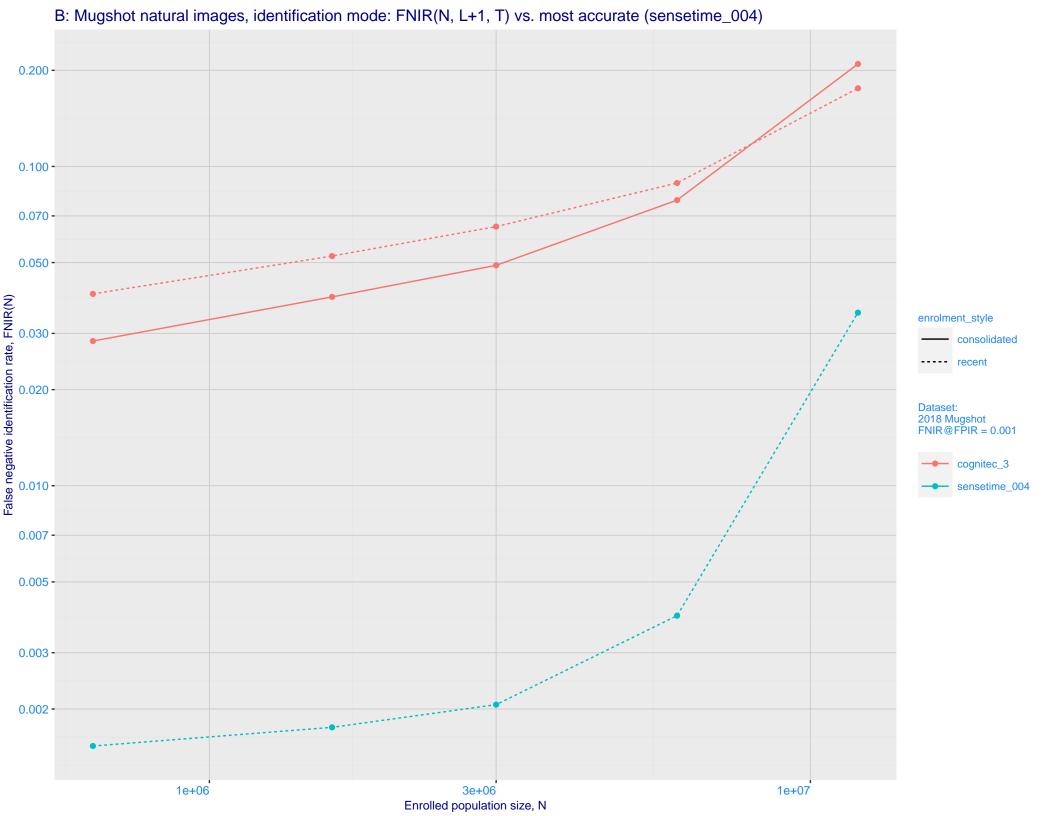
Mugshot profile ranking 118 (out of 190) -- FNIR(1600000, 0, 1) = 0.9300 vs. lowest 0.0591 from sensetime_005

Identification:

Frontal mugshot ranking 82 (out of 259) -- FNIR(1600000, T, L+1) = 0.0524, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 110 (out of 219) -- FNIR(1600000, T, L+1) = 0.1623, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 158 (out of 189) -- FNIR(1600000, T, L+1) = 0.9999, FPIR=0.001000 vs. lowest 0.1733 from sensetime_005



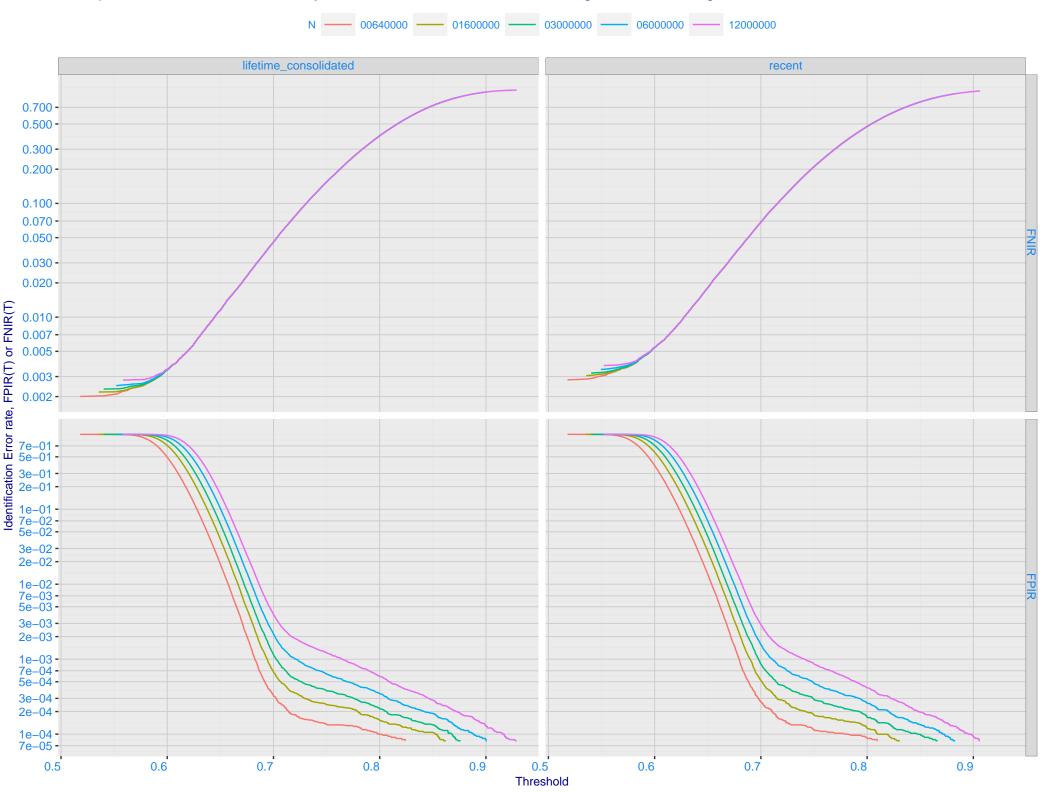
C: Evolution of accuracy for COGNITEC algorithms on three datasets 2018 – present



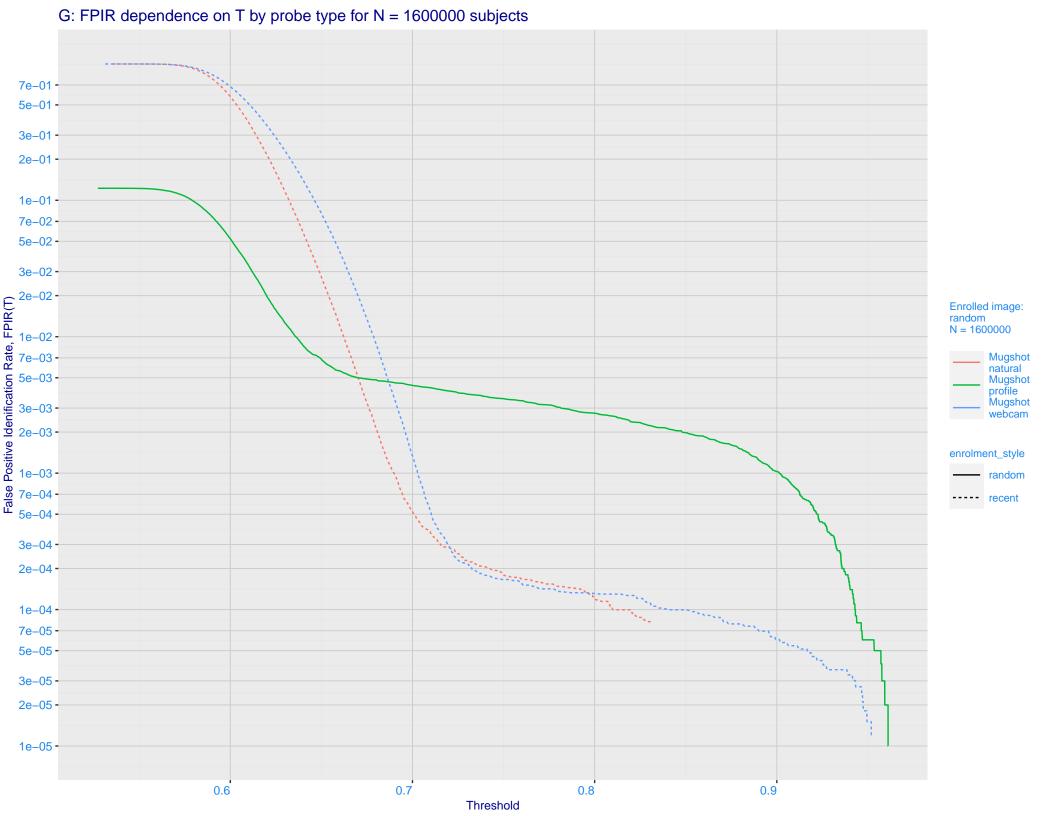
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration** Mugshot **Immigration** visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Calse negative identification rate, FNIR(T) 0.003 - 0.002 - 0.001 - 0.500 - 0.500 - 0.200 - 0. 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 -

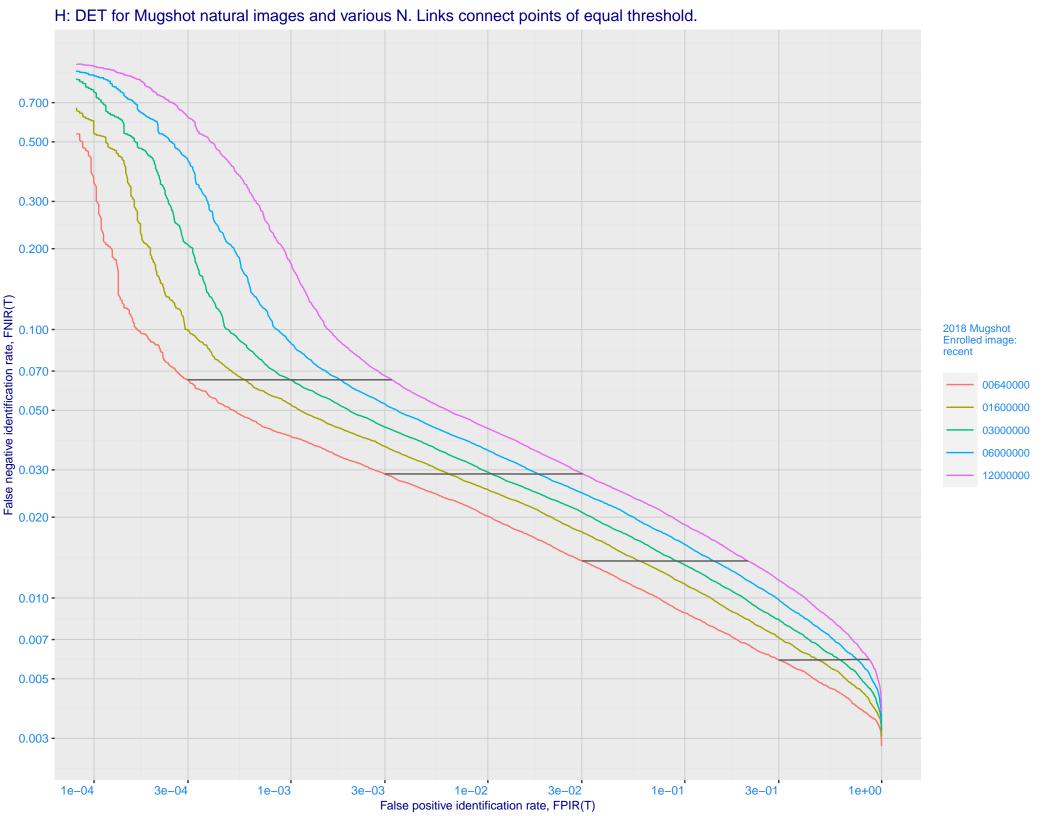
\\\ \e^{-0}\frac{3}{2}e^{-0}\frac{1}{2}e^{-0}\frac{3}{2}e^{-0}\frac{1}{2}e

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

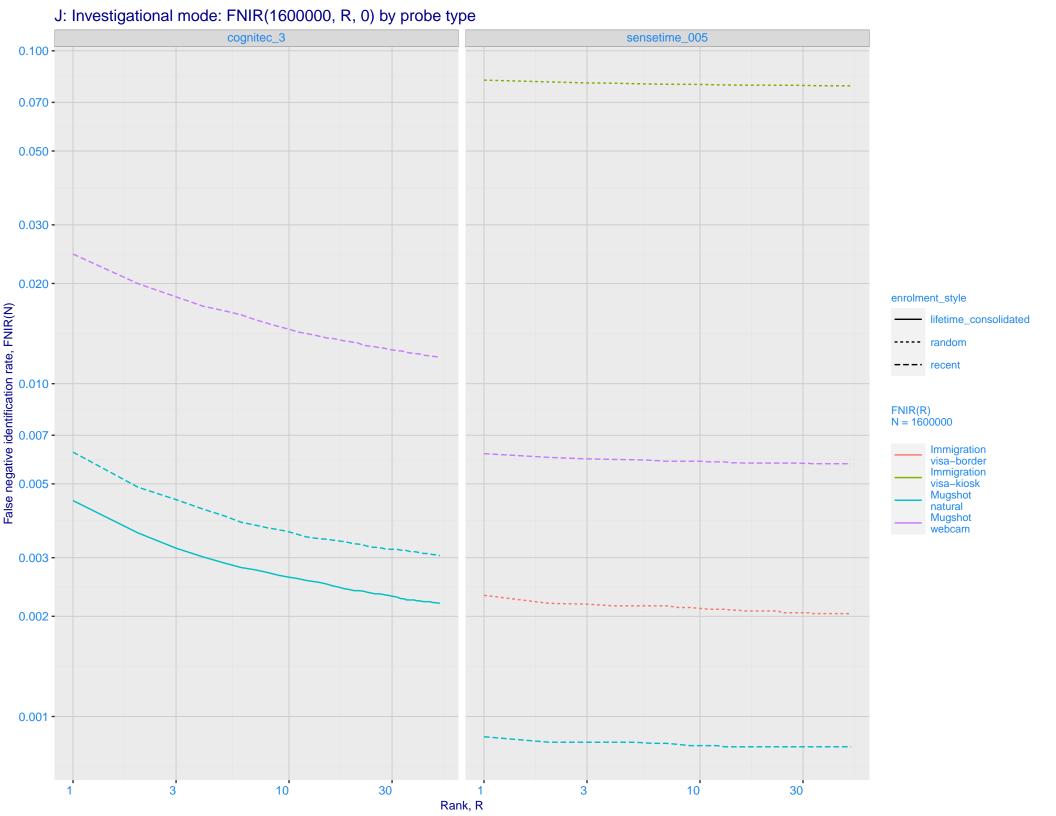


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

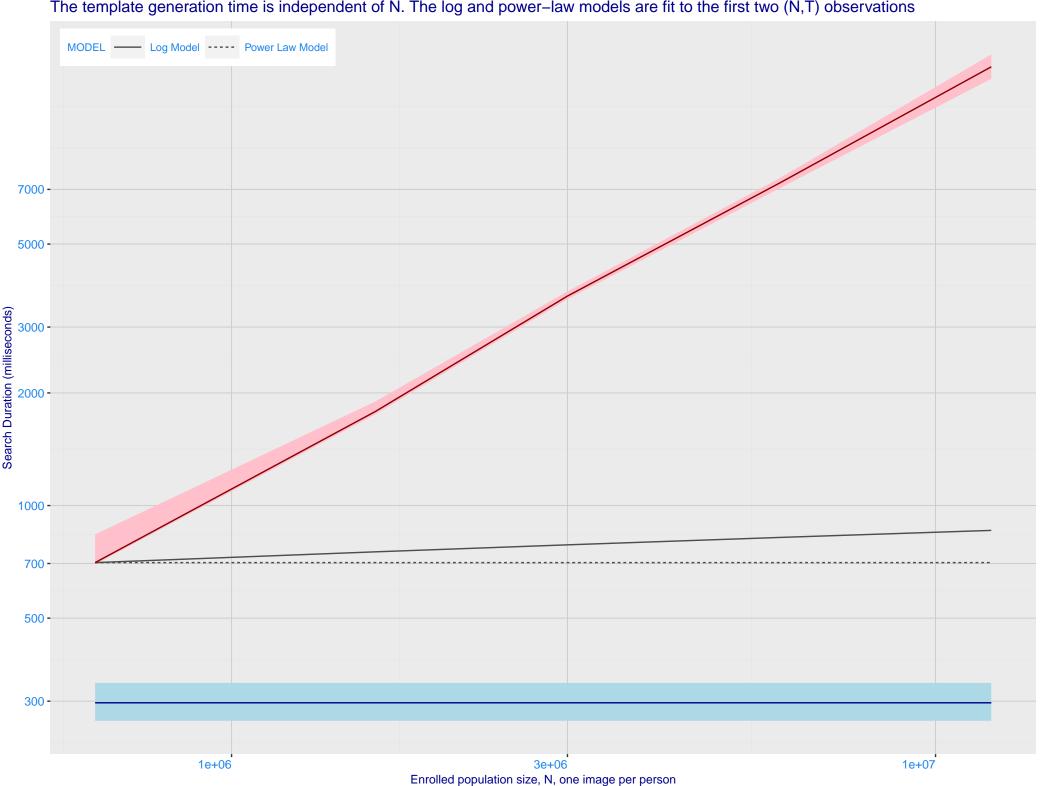


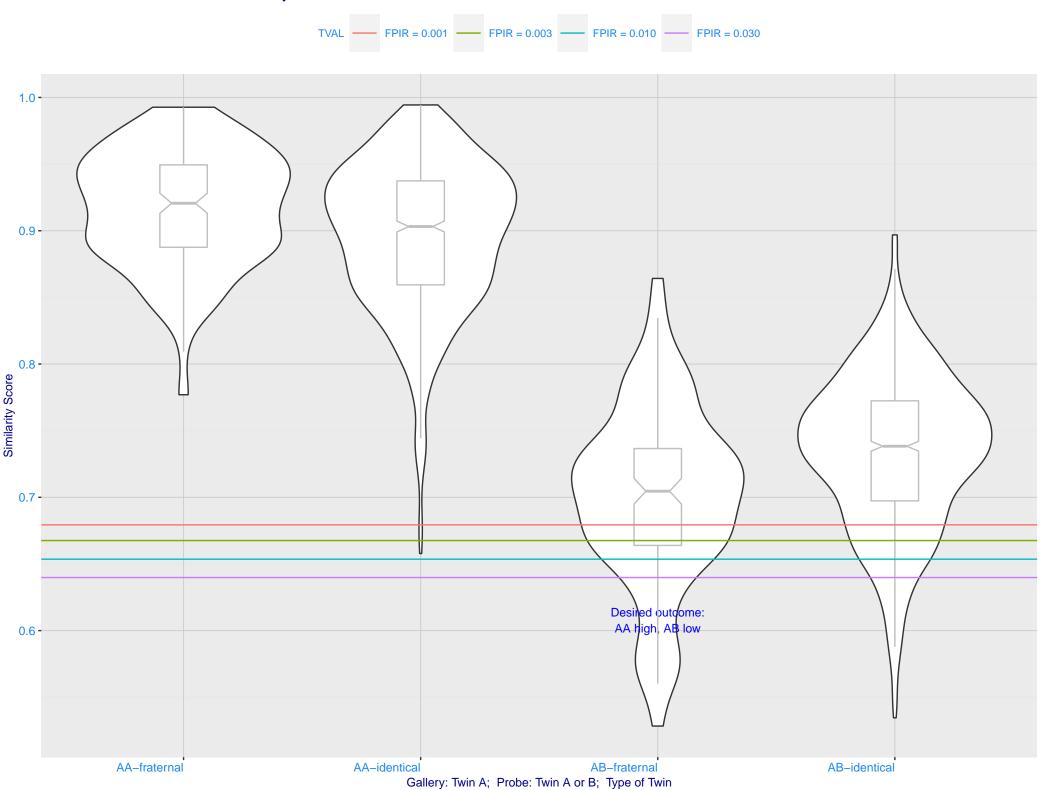


I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Palse negative identification rate, FNIR(N) 0.002 - 0.001 - 0.000 - 0.050 - 0.050 - 0.030 - 0. enrolment_style consolidated ---- random --- recent Mugshot webcam Mugshot natural FNIR@Rank = 1 - cognitec_3 sensetime_005 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



