## A: Datasheet

Algorithm: rankone\_006

Developer: Rank One Computing

Submission Date: 2019\_06\_03

Investigation:

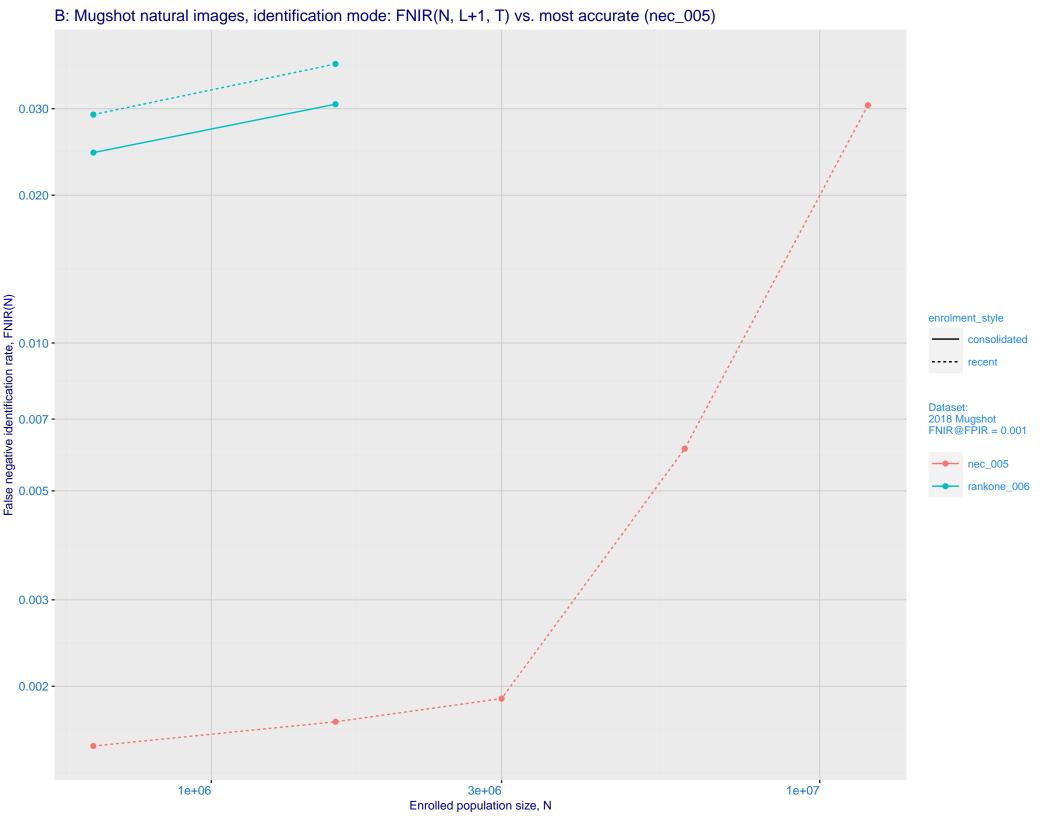
Frontal mugshot ranking 138 (out of 329) -- FNIR(1600000, 0, 1) = 0.0050 vs. lowest 0.0009 from sensetime\_006

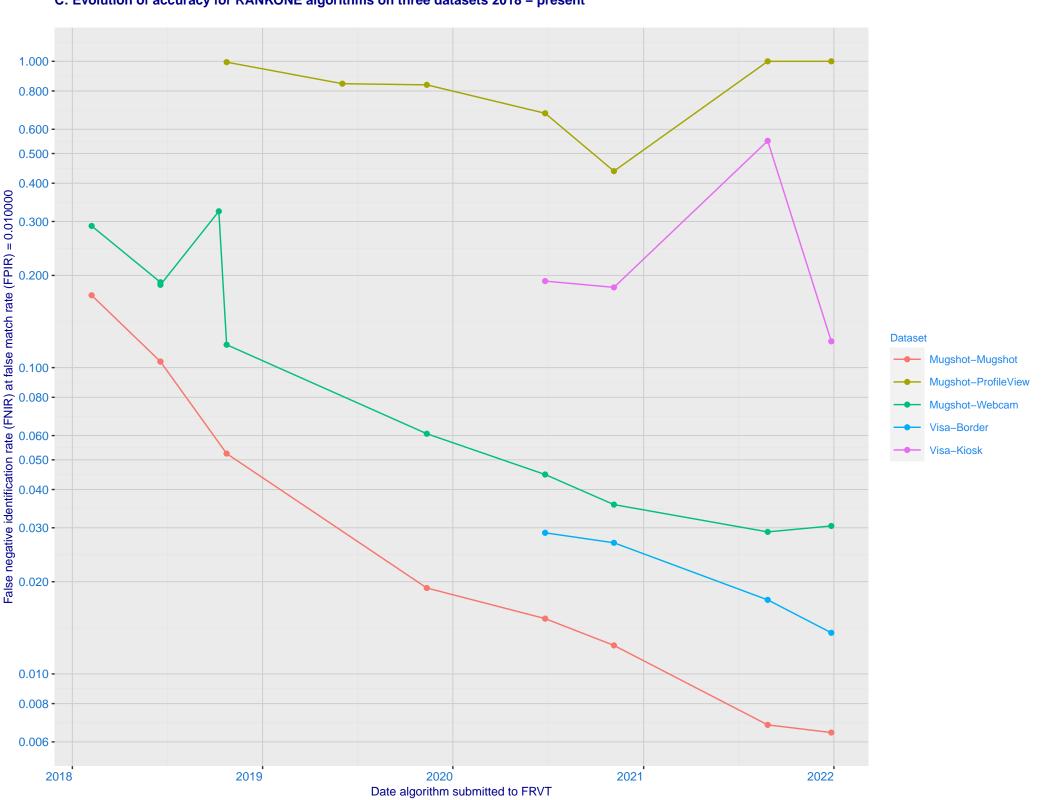
Mugshot profile ranking 155 (out of 260) -- FNIR(1600000, 0, 1) = 0.7972 vs. lowest 0.0550 from sensetime\_006

Identification:

Frontal mugshot ranking 108 (out of 329) -- FNIR(1600000, T, L+1) = 0.0370, FPIR=0.001000 vs. lowest 0.0017 from nec\_005

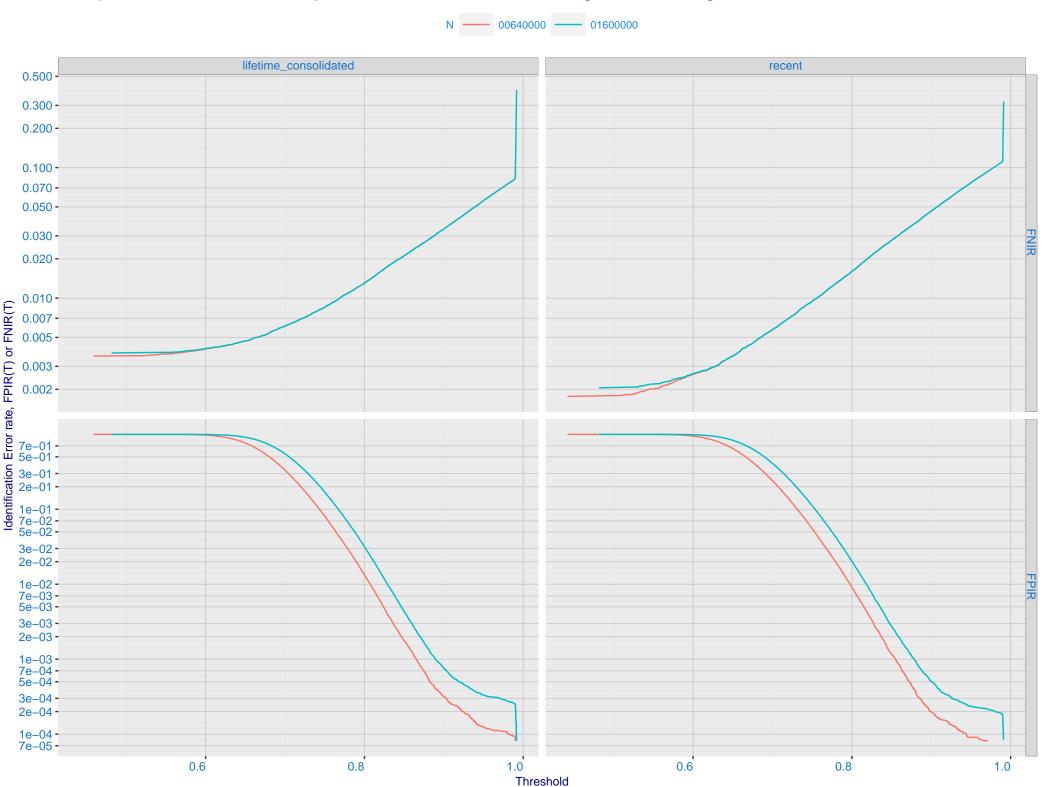
Mugshot profile ranking 79 (out of 259) -- FNIR(1600000, T, L+1) = 0.9771, FPIR=0.001000 vs. lowest 0.1331 from cloudwalk\_hr\_000



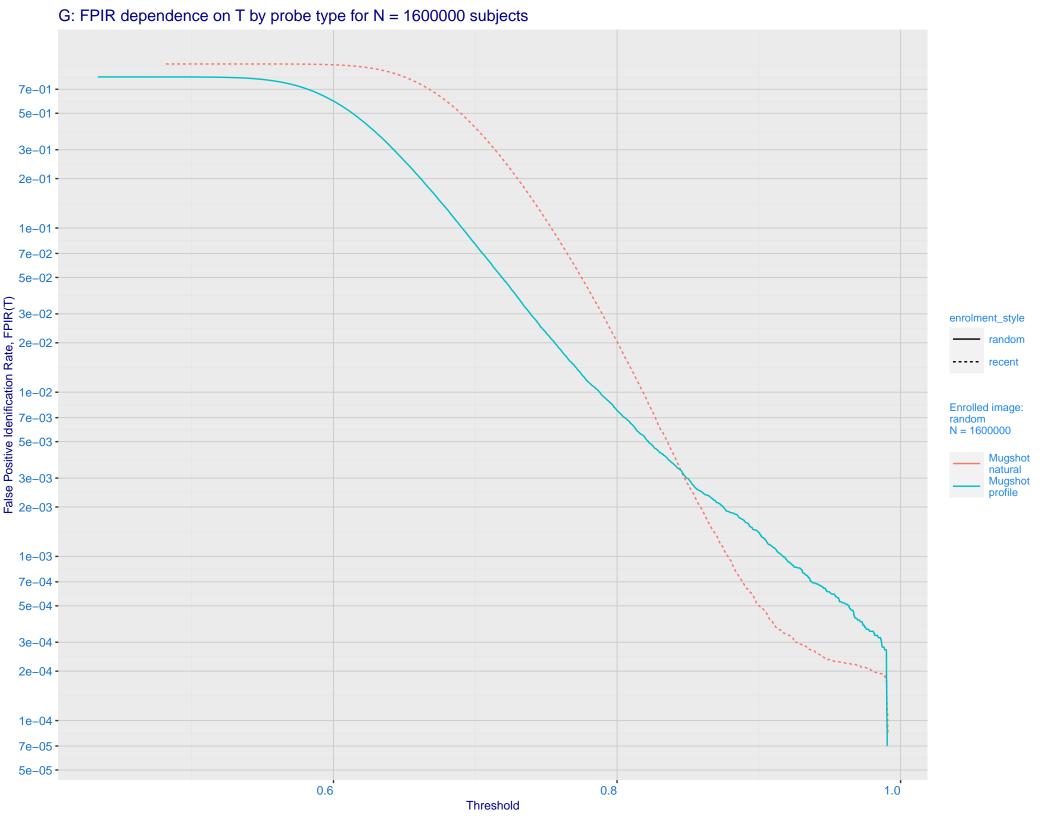


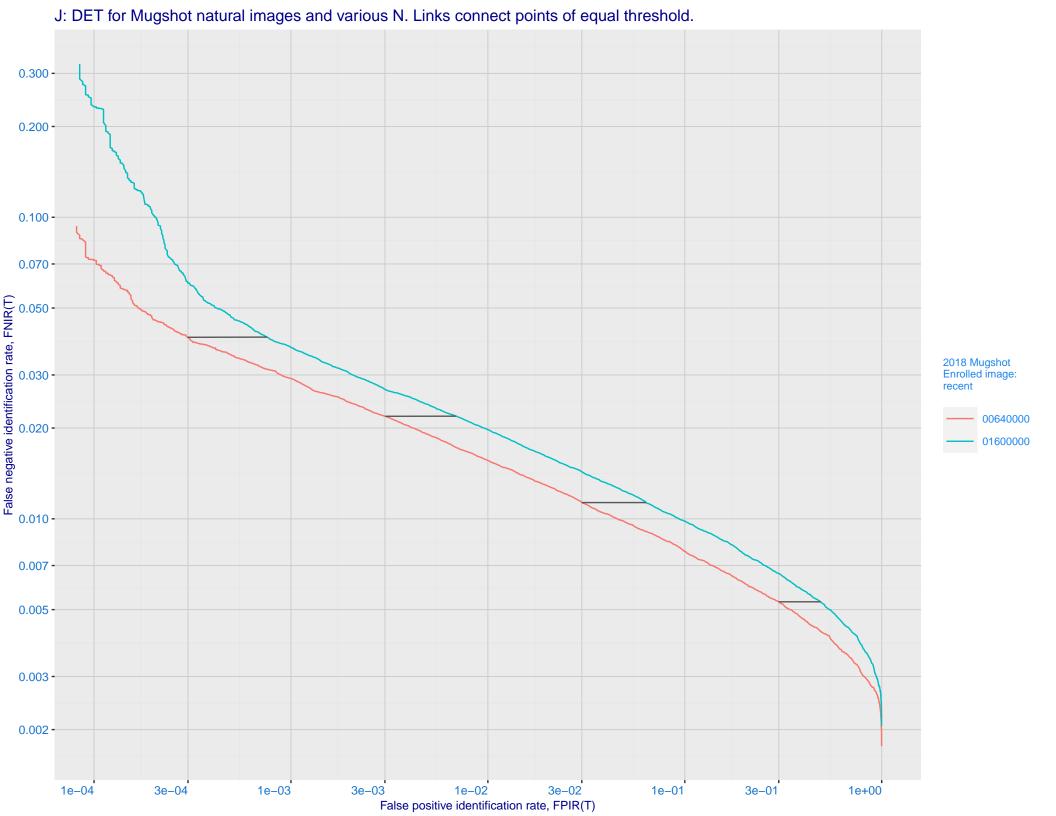
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals **Immigration Immigration** Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 - 0.005 - 0.003 - 0.002 - 0.001 - 0.500 - 0.500 - 0.200 enrolment\_style consolidated-ONE-MATE random-ONE-MATE recent-ONE-MATE unconsolidated-ALL-MATES unconsolidated-ANY-MATE 0.100 -0.070 -0.050 rankone 006 0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -1e-03e-04e-03e-03e-03e-02e-03e-01e+001e-03e-04e-03e-03e-02e-03e-01e+001e-03e-01e+001e-03e-04e-03e-03e-02e-01e+00

False positive identification rate, FPIR(T)



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 -Selectivity. SEL(T) 1e-01 - 777 5e-02 - 5e-02 - 3e-02 - 787 5e-02 Enrolled images: recent N = 1600000 Mugshot natural 2e-02 -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 -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\_006) Immigration **Immigration** visa-border visa-kiosk 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -Ealse negative identification rate, FNIR(N) - 0.000 enrolment\_style consolidated ---- random --- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 rankone\_006 sensetime\_006 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

L: Investigational mode: FNIR(1600000, R, 0) by probe type rankone\_006 sensetime\_006 0.070 -0.050 -0.030 -0.020 enrolment\_style False negative identification rate, FNIR(N) - 0.000 - lifetime\_consolidated ---- random --- recent FNIR(R) N = 1600000 Immigration visa-border Immigration visa-kiosk Mugshot natural Mugshot webcam 0.002 -0.001 -10 30 3 10 30 Rank, R

	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
Search Duration (milliseconds)	
	Enrolled population size, N, one image per person

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



