A: Datasheet

Algorithm: ptakuratsatu_000

Developer: Akurat Satu Indonesia

Submission Date: 2020_10_23

Template size: 538 bytes

Template time (2.5 percentile): 898 msec

Template time (median): 906 msec

Template time (97.5 percentile): 1012 msec

Investigation:

Frontal mugshot ranking 56 (out of 271) -- FNIR(1600000, 0, 1) = 0.0030 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 59 (out of 232) -- FNIR(1600000, 0, 1) = 0.0166 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 67 (out of 201) -- FNIR(1600000, 0, 1) = 0.6050 vs. lowest 0.0591 from sensetime_005

Immigration visa-border ranking 39 (out of 160) -- FNIR(1600000, 0, 1) = 0.0051 vs. lowest 0.0013 from visionlabs_010

Immigration visa-kiosk ranking 32 (out of 157) -- FNIR(1600000, 0, 1) = 0.1050 vs. lowest 0.0568 from hr_000

Identification:

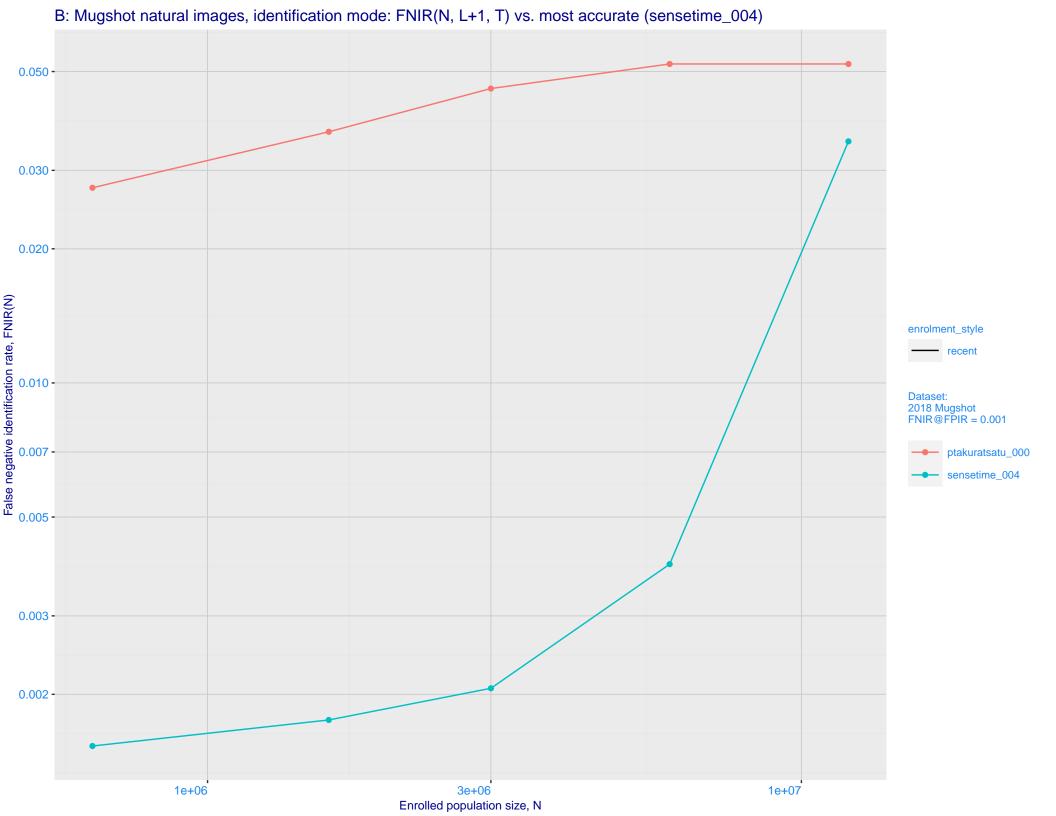
Frontal mugshot ranking 61 (out of 271) -- FNIR(1600000, T, L+1) = 0.0366, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004

Mugshot webcam ranking 93 (out of 230) -- FNIR(1600000, T, L+1) = 0.1238, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

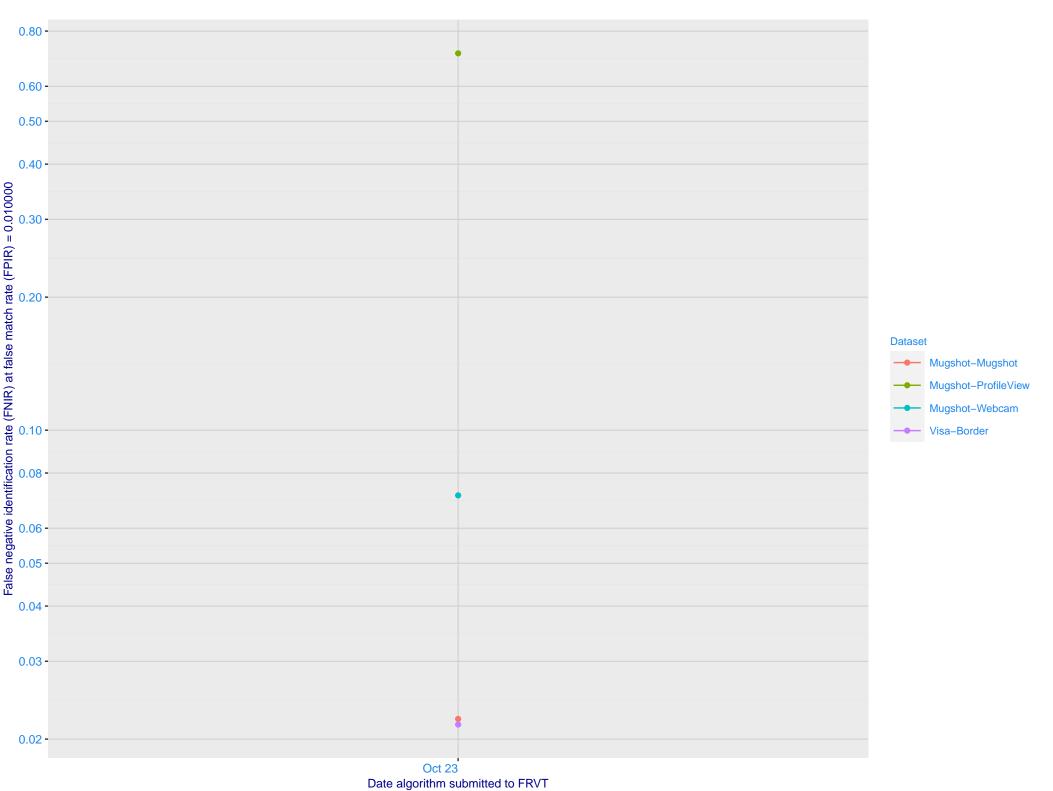
Mugshot profile ranking 35 (out of 200) -- FNIR(1600000, T, L+1) = 0.9241, FPIR=0.001000 vs. lowest 0.1331 from hr_000

Immigration visa-border ranking 44 (out of 159) -- FNIR(1600000, T, L+1) = 0.0463, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa-kiosk ranking 27 (out of 154) -- FNIR(1600000, T, L+1) = 0.2326, FPIR=0.001000 vs. lowest 0.0996 from hr_000



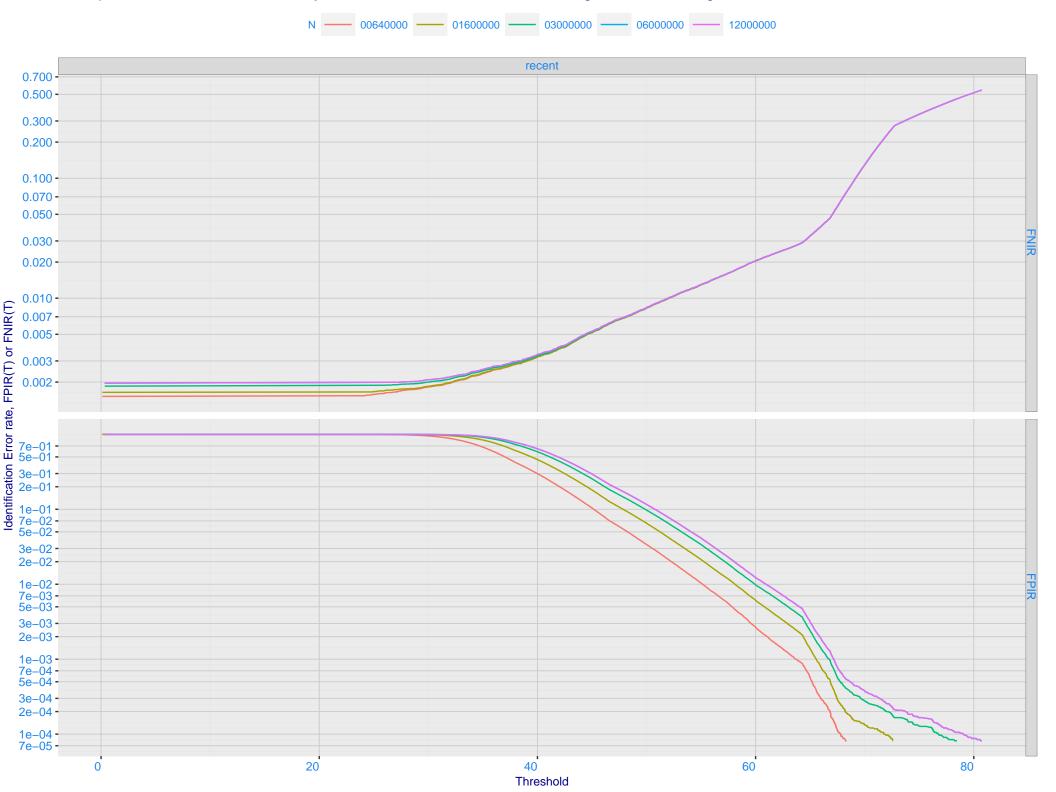
C: Evolution of accuracy for PTAKURATSATU algorithms on three datasets 2018 – present



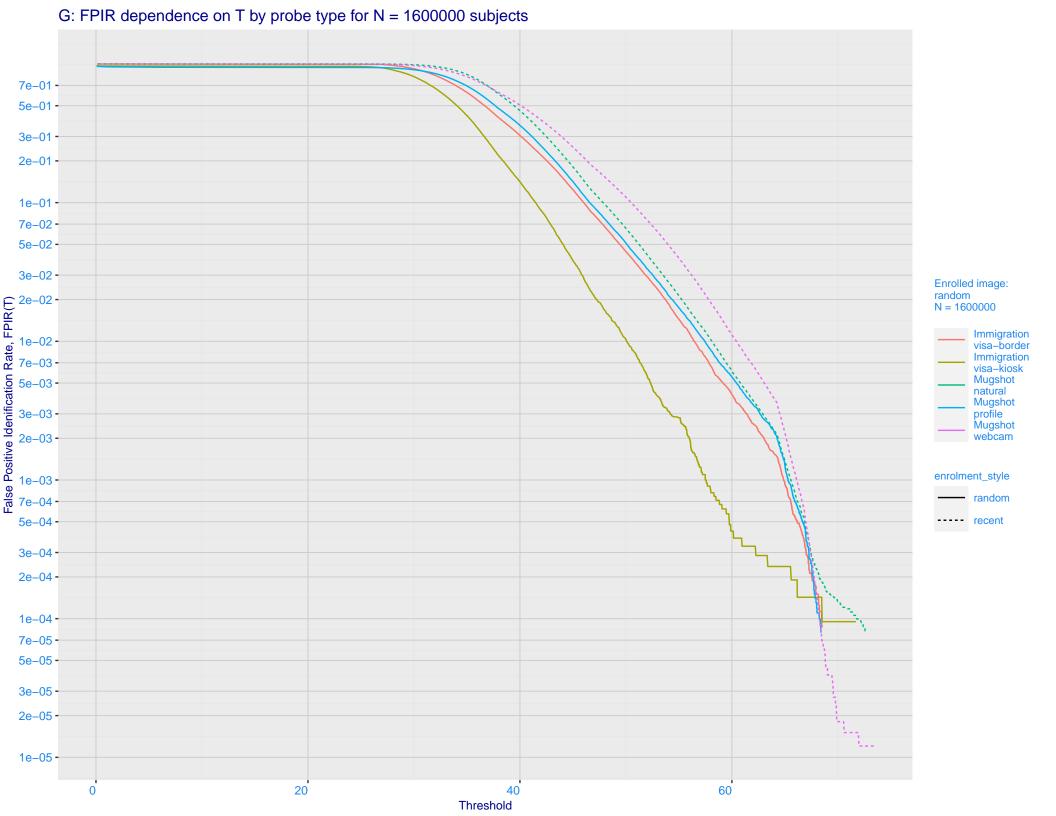
D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals Immigration Immigration Mugshot visa-border visa-kiosk natural 0.700 -0.500 -0.300 -0.200 -0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -Ealse negative identification rate, FNIR(T) 0.003 - 0.0001 - 0.001 - 0.500 - 0.200 - 0.200 - 0.100 - 0 enrolment_style random-ONE-MATE recent-ONE-MATE 0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 -0.002 -0.001 -

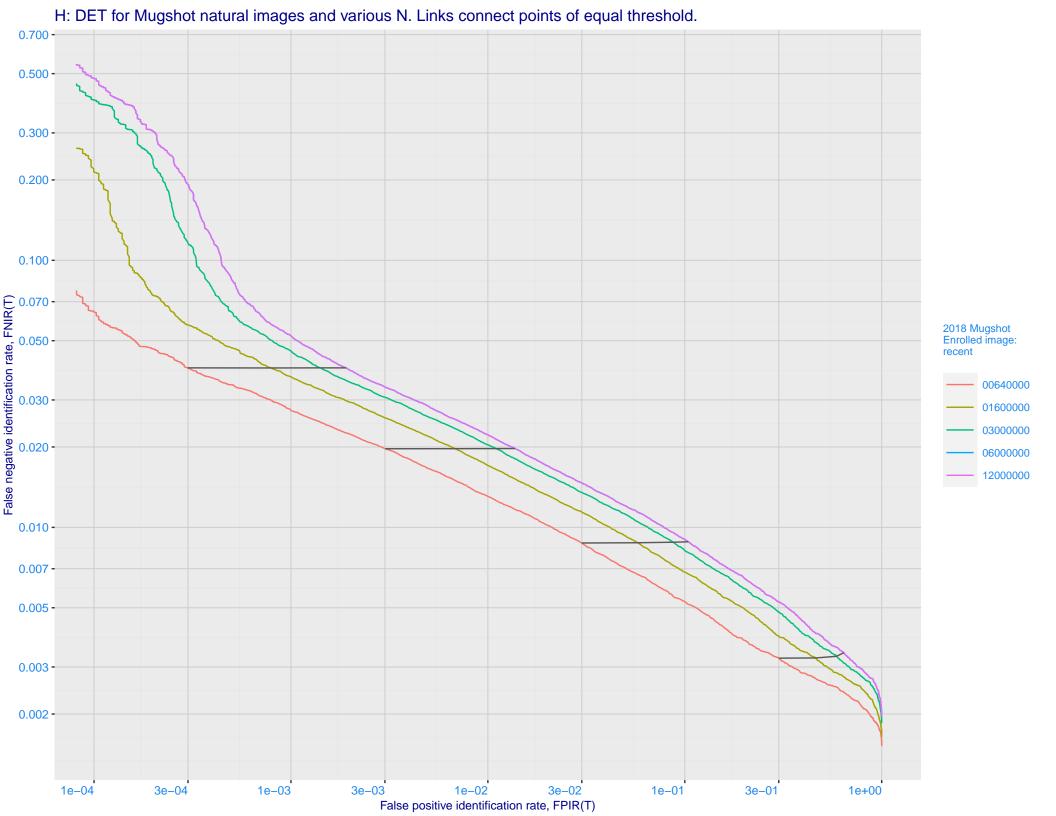
False positive identification rate, FPIR(T)

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

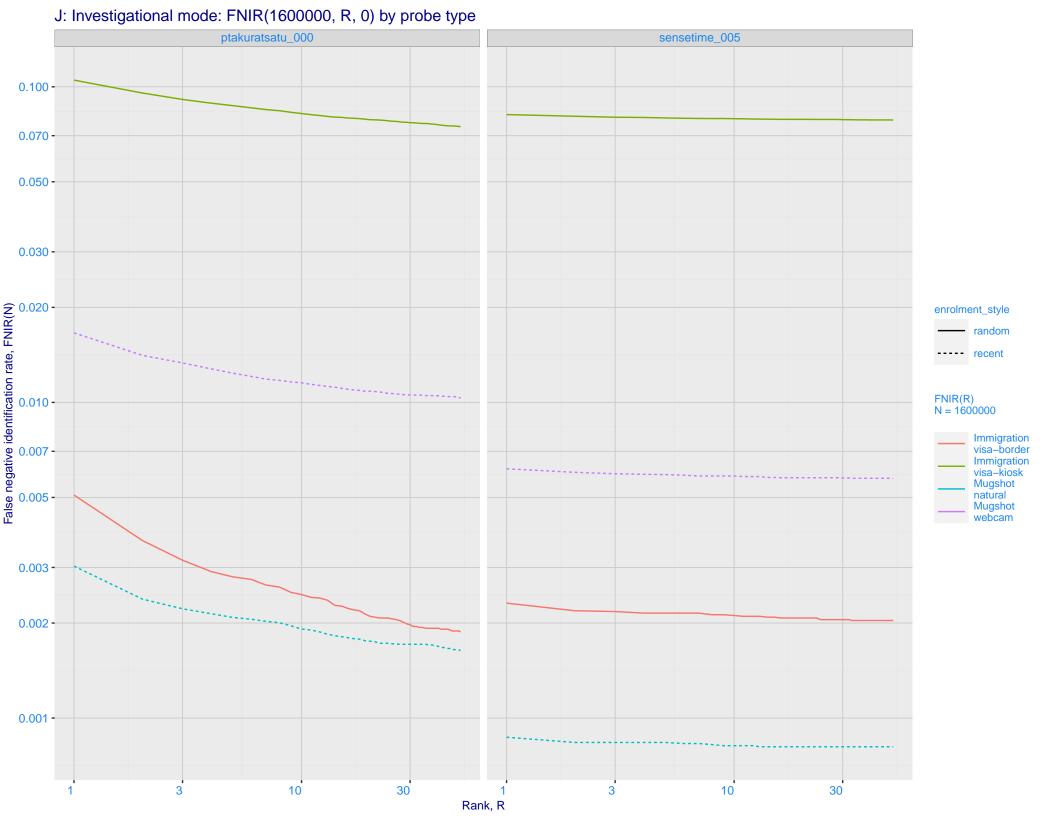


F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate 7e+01 -5e+01 -3e+01 -2e+01 -1e+01 -7e+00 -5e+00 -3e+00 -2e+00 -1e+00 -7e-01 -5e-01 -3e-01 -2e-01 -1e-01 -7e-02 -5e-02 -3e-02 -3e-02 -1e-02 -**Enrolled images:** recent N = 1600000 Mugshot natural Mugshot webcam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

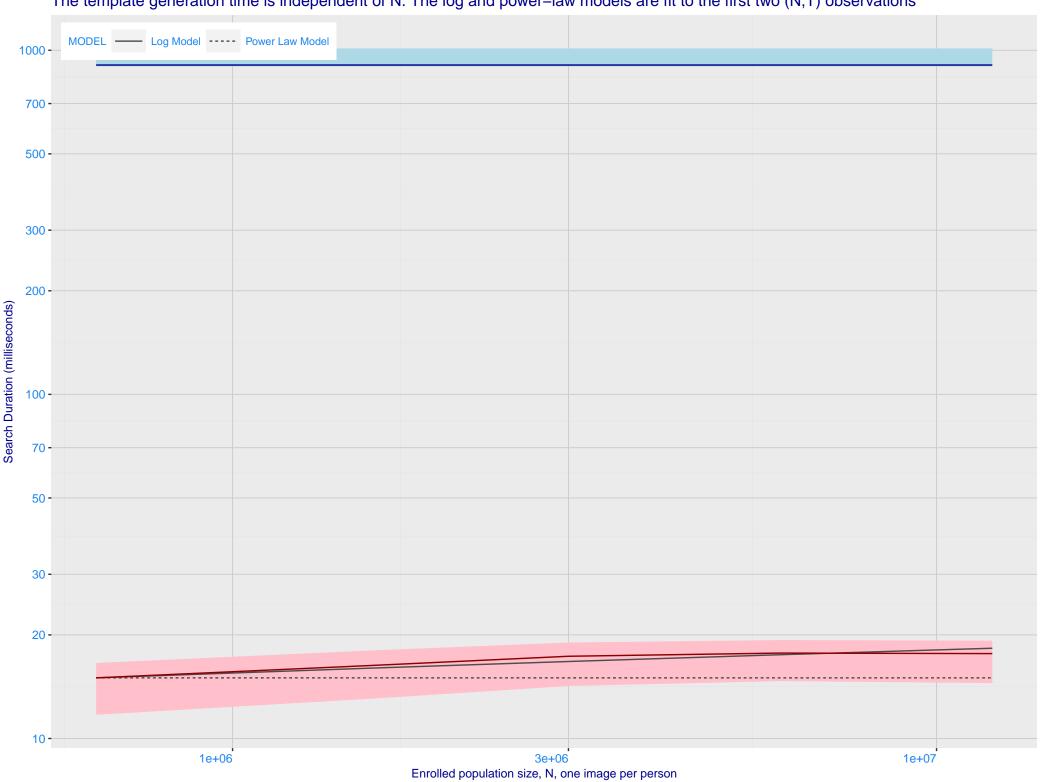




I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005) Immigration **Immigration** visa-border visa-kiosk 0.100 -0.070 -0.050 -0.030 -0.020 -0.010 -0.007 -0.005 -0.003 - 0.002 - 0.001 - 0.001 - 0.000 enrolment_style random ---- recent Mugshot natural Mugshot webcam FNIR@Rank = 1 ptakuratsatu_000 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

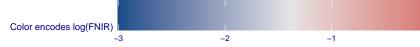


K: Template duration; search duration vs. N. The blue and pink ribbon covers 95 percent of observed measurements. The template generation time is independent of N. The log and power–law models are fit to the first two (N,T) observations

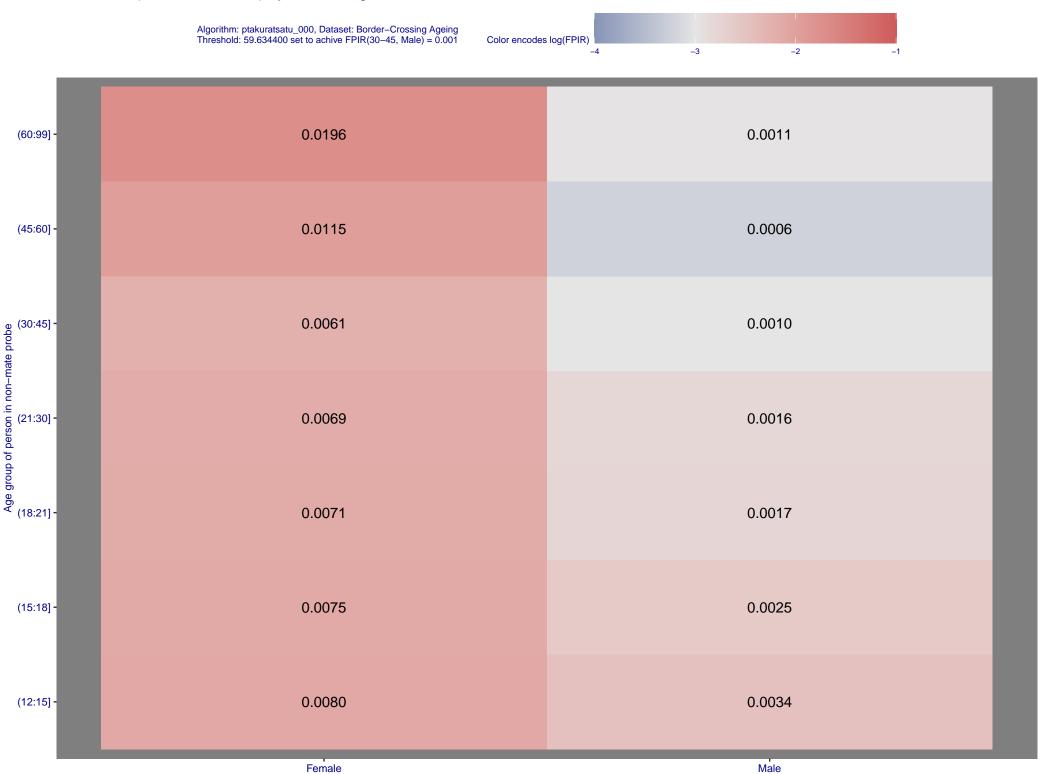


M-A: FNIR(T, N = 1.6 million) by sex, age and time-lapse

Algorithm: ptakuratsatu_000, Dataset: Border–Crossing Ageing Threshold: 59.634400 set to achieve FPIR(30–45, Male) = 0.001



								_				
	Female						Male					
60:99] -	0.109	0.115	0.133	0.139	0.164	0.183	0.072	0.074	0.083	0.096	0.101	0.109
45:60] -	0.097	0.099	0.117	0.135	0.150	0.165	0.056	0.060	0.073	0.084	0.092	0.093
(30:45] -	0.119	0.125	0.141	0.160	0.180	0.183	0.059	0.057	0.070	0.086	0.097	0.094
21:30] -	0.163	0.164	0.182	0.203	0.216	0.231	0.082	0.084	0.101	0.118	0.135	0.125
(18:21] -	0.241	0.236	0.253	0.280	0.289	0.308	0.206	0.201	0.225	0.265	0.286	0.320
15:18] -	0.299	0.287	0.307	0.335	0.356	0.289	0.377	0.380	0.414	0.457	0.486	0.512
(12:15] -	0.368	0.349	0.363	0.403	0.417	0.385	0.569	0.545	0.610	0.634	0.670	0.616
	10	11	12	13	14 Tir	15 me between probe	10 and enrollment (yea	11 ars)	12	13	14	15



Sex of person in non-mate probe

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



