A: Datasheet

Algorithm: cyberlink_003

Developer: Cyberlink Corp

Submission Date: 2021_01_05

Template size: 6212 bytes

Template time (2.5 percentile): 690 msec

Template time (median): 692 msec

Template time (97.5 percentile): 715 msec

Investigation:

Frontal mugshot ranking 18 (out of 271) –– FNIR(1600000, 0, 1) = 0.0016 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 13 (out of 232) –– FNIR(1600000, 0, 1) = 0.0090 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 45 (out of 201) –– FNIR(1600000, 0, 1) = 0.4745 vs. lowest 0.0591 from sensetime_005

Immigration visa–border ranking 15 (out of 160) –– FNIR(1600000, 0, 1) = 0.0027 vs. lowest 0.0013 from visionlabs_010

Immigration visa–kiosk ranking 13 (out of 157) –– FNIR(1600000, 0, 1) = 0.0819 vs. lowest 0.0568 from hr_000

Identification:

Frontal mugshot ranking 15 (out of 271) –– FNIR(1600000, T, L+1) = 0.0077, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004
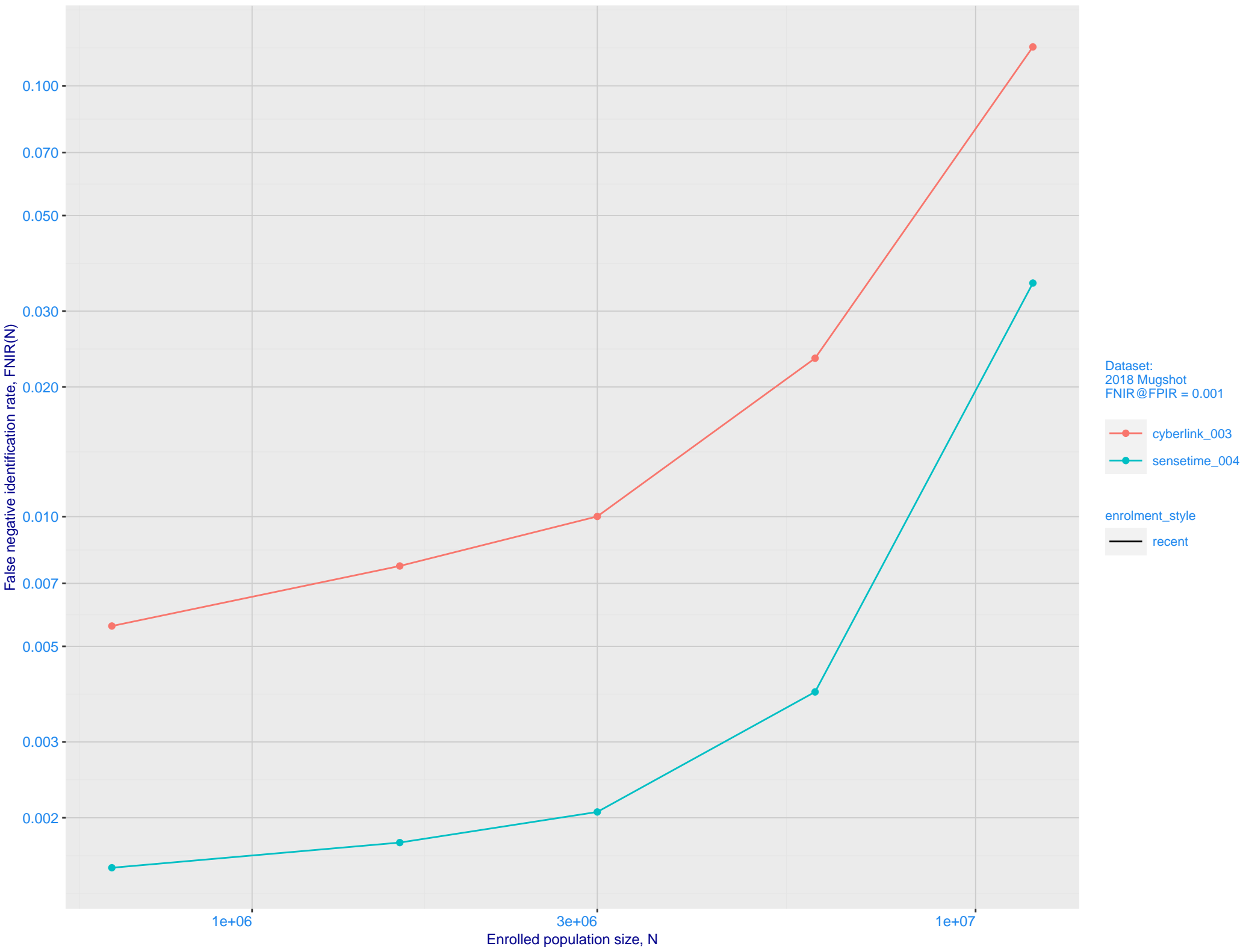
Mugshot webcam ranking 18 (out of 230) –– FNIR(1600000, T, L+1) = 0.0351, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 49 (out of 200) –– FNIR(1600000, T, L+1) = 0.9723, FPIR=0.001000 vs. lowest 0.1331 from hr_000
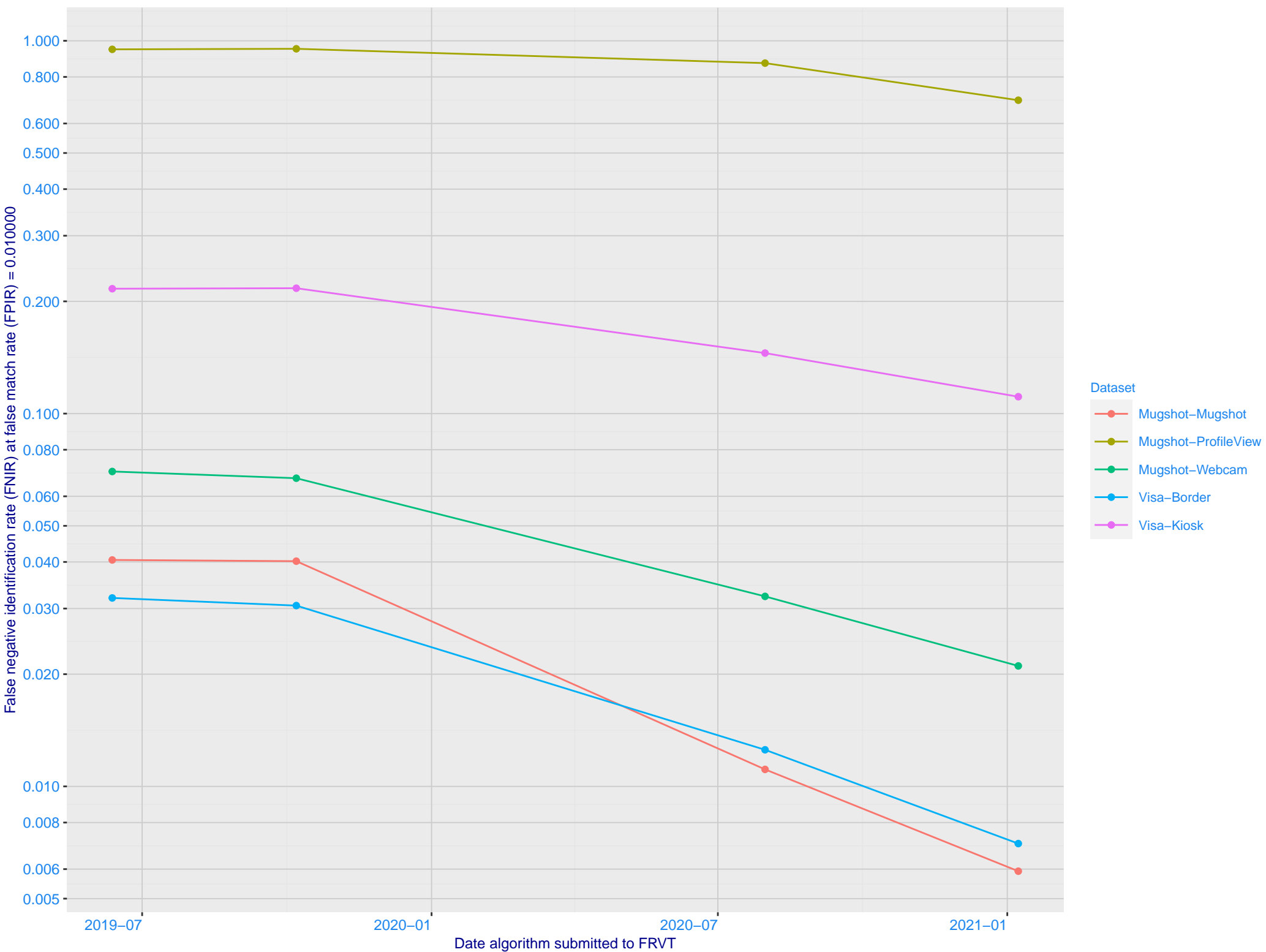
Immigration visa–border ranking 14 (out of 159) –– FNIR(1600000, T, L+1) = 0.0122, FPIR=0.001000 vs. lowest 0.0047 from idemia_008

Immigration visa–kiosk ranking 53 (out of 154) –– FNIR(1600000, T, L+1) = 0.3713, FPIR=0.001000 vs. lowest 0.0996 from hr_000
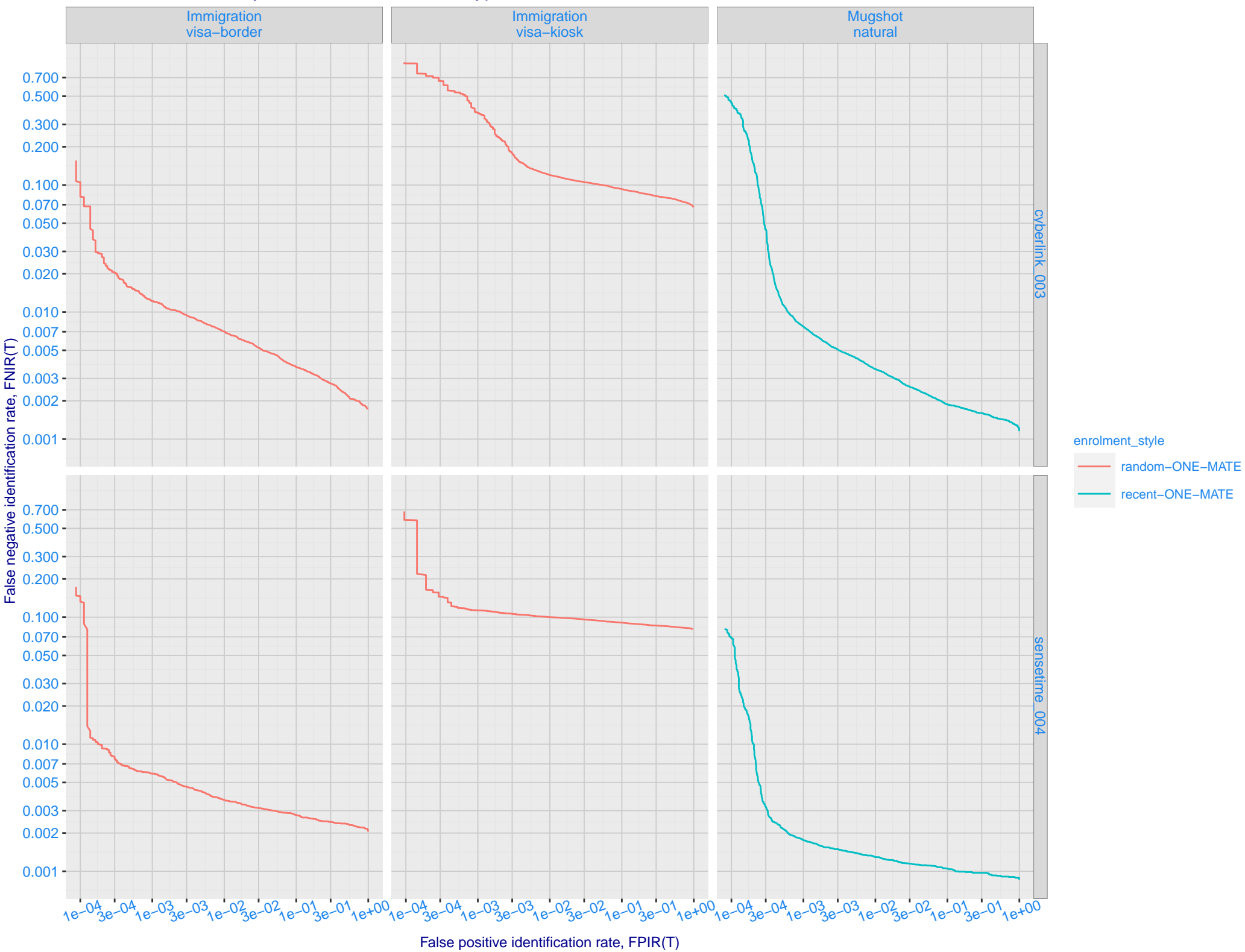
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)

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

Y-axis: False negative identification rate (FNIR) at false match rate (FPIR) = 0.010000

X-axis: Date algorithm submitted to FRVT

Dataset:
- Mugshot–Mugshot
- Mugshot–ProfileView
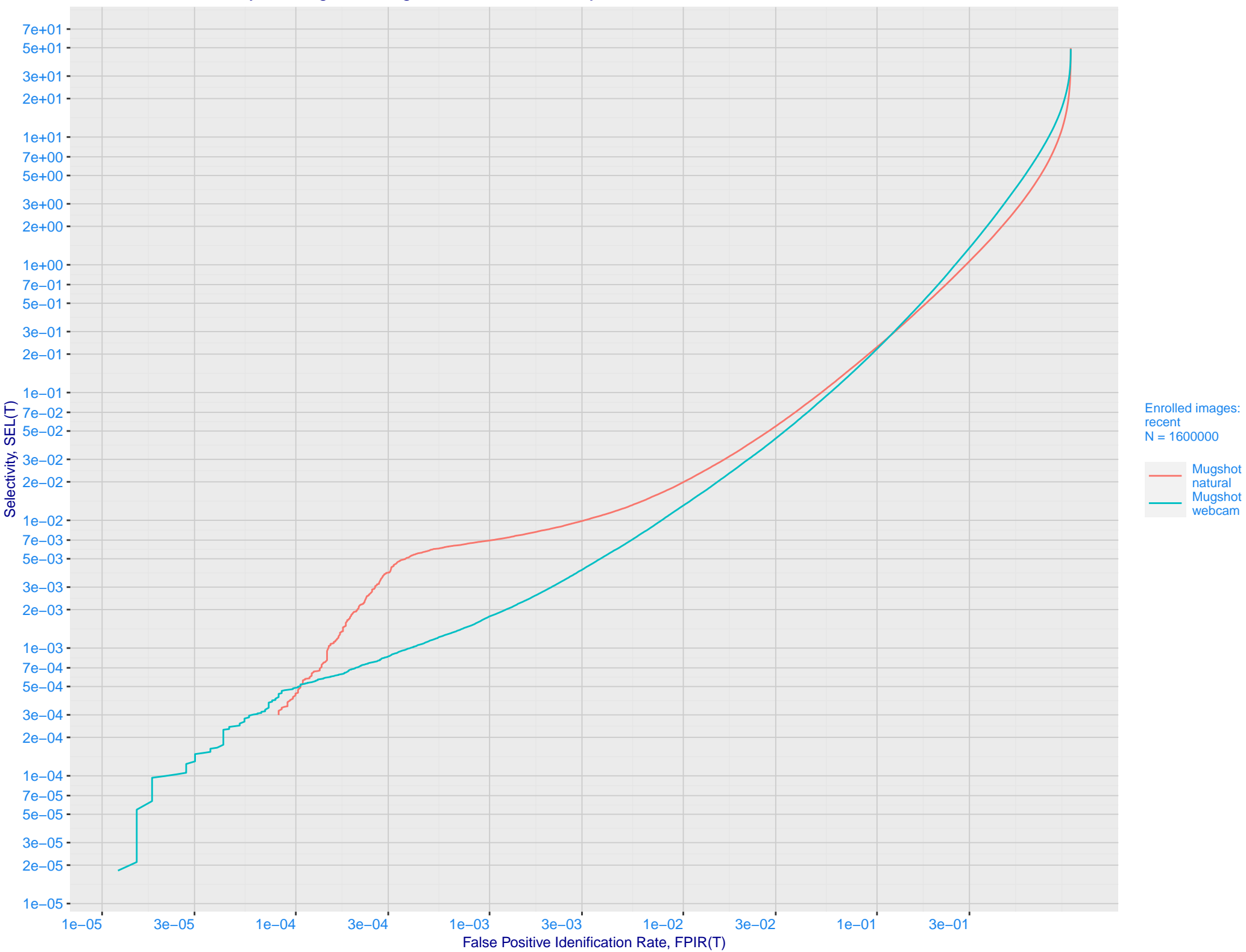- Mugshot–Webcam
- Visa–Border
- Visa–Kiosk

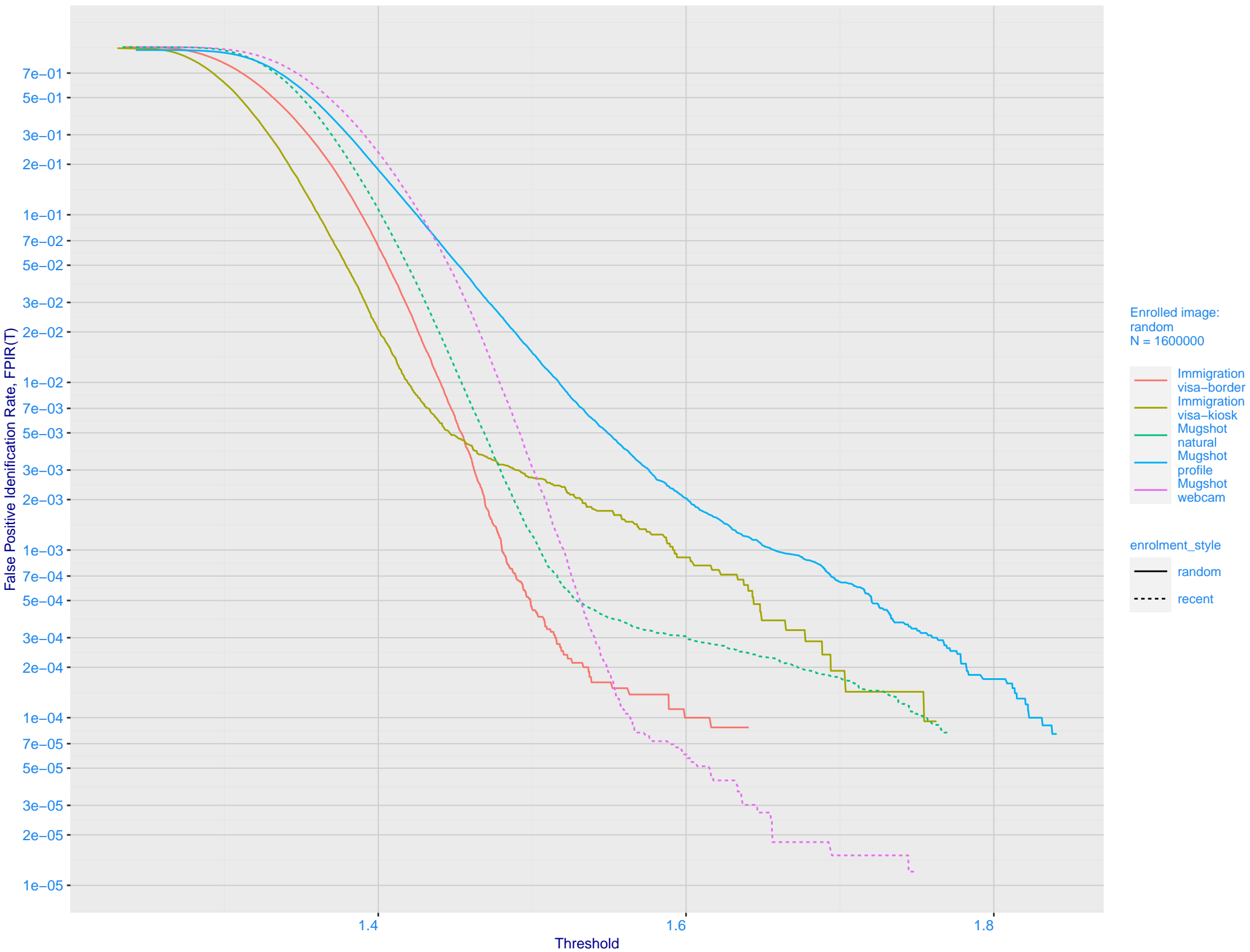D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

E: Dependence of error rates on T by number enrolled identities, N, for Mugshot natural images
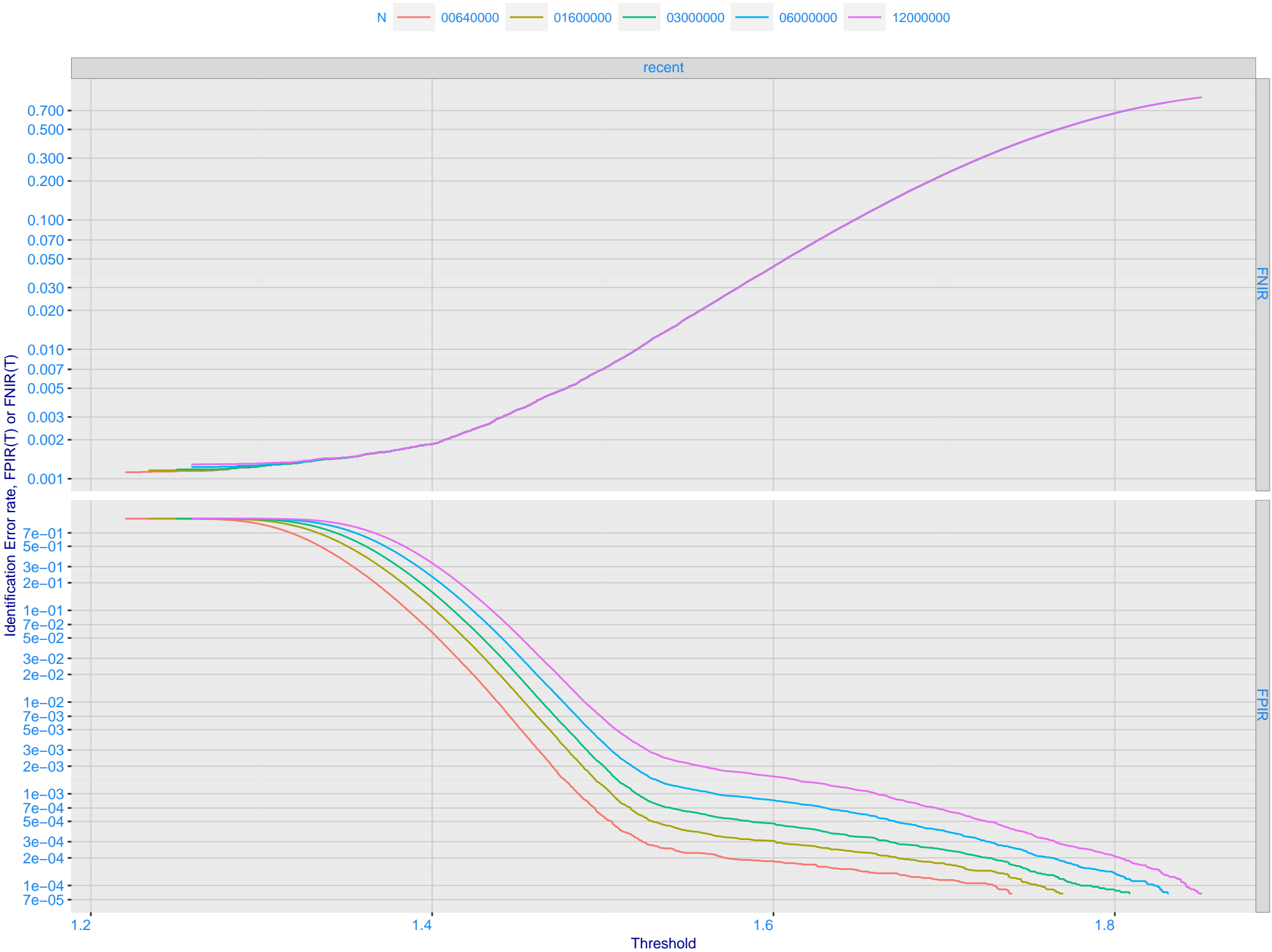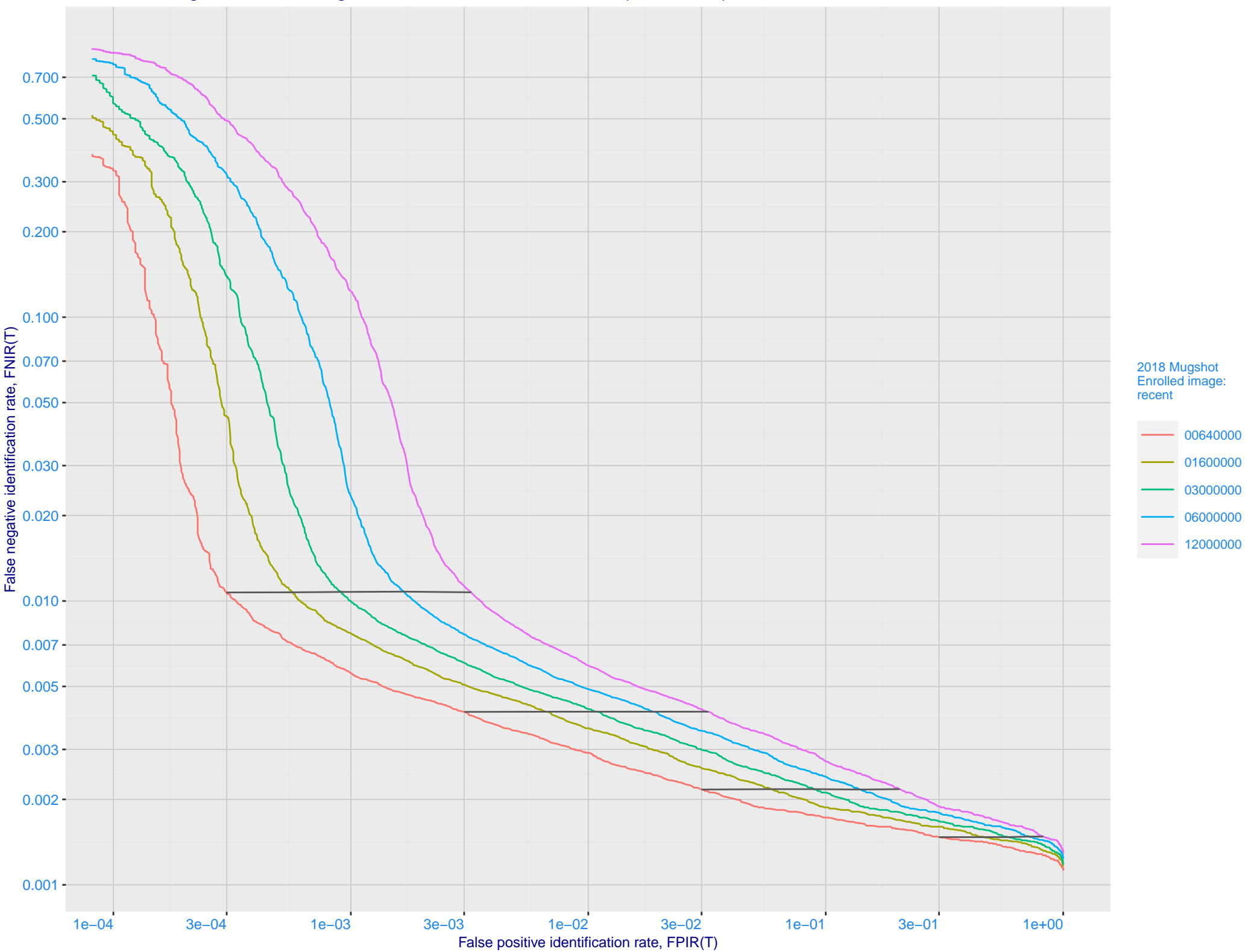
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate

G: FPIR dependence on T by probe type for N = 1600000 subjects

H: DET for Mugshot natural images and various N. Links connect points of equal threshold.

2018 Mugshot Enrolled image: recent

- 00640000
- 01600000
- 03000000
- 06000000
- 12000000

False negative identification rate, FNIR(T)

False positive identification rate, FPIR(T)

I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005)
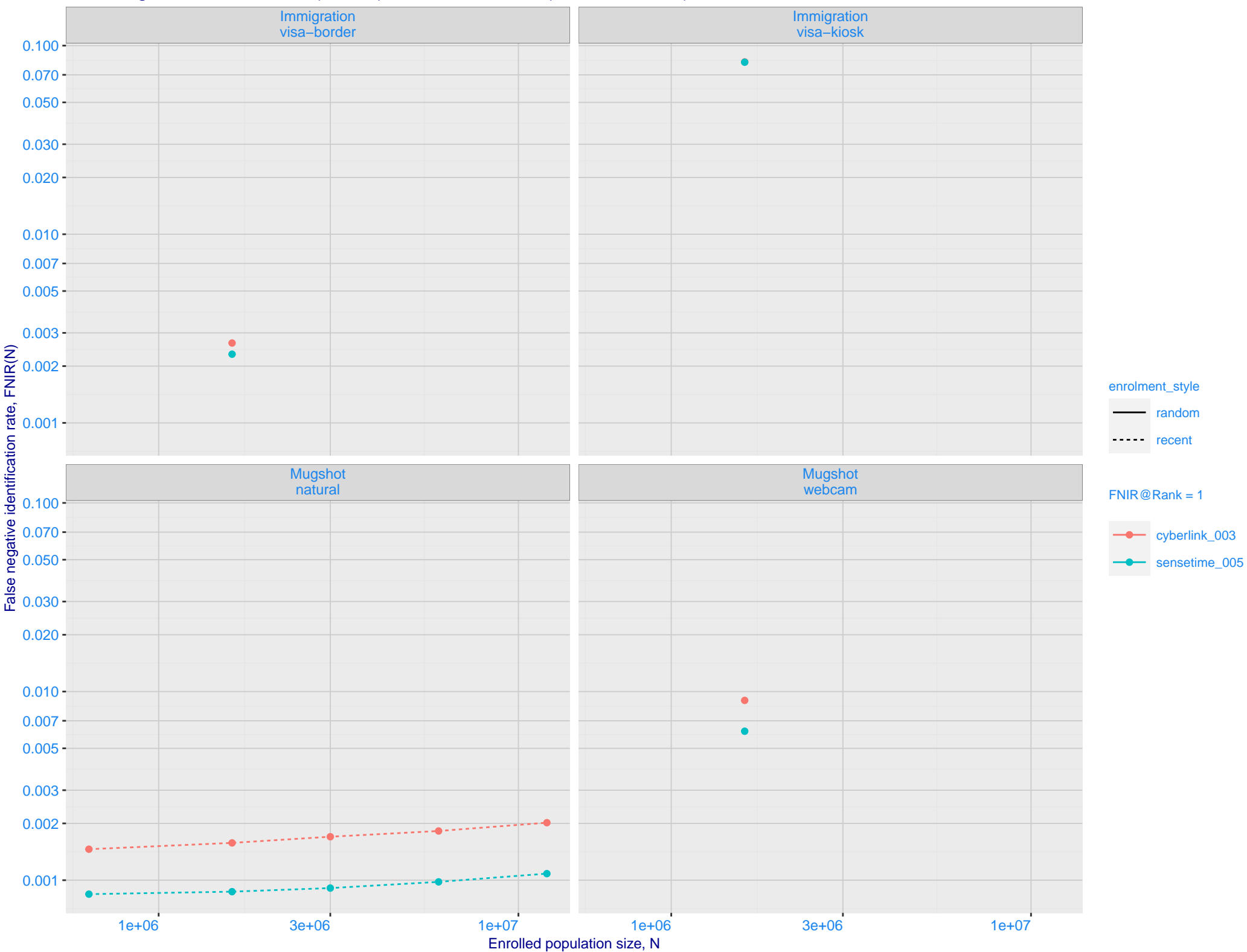
J: Investigational mode: FNIR(1600000, R, 0) by probe type

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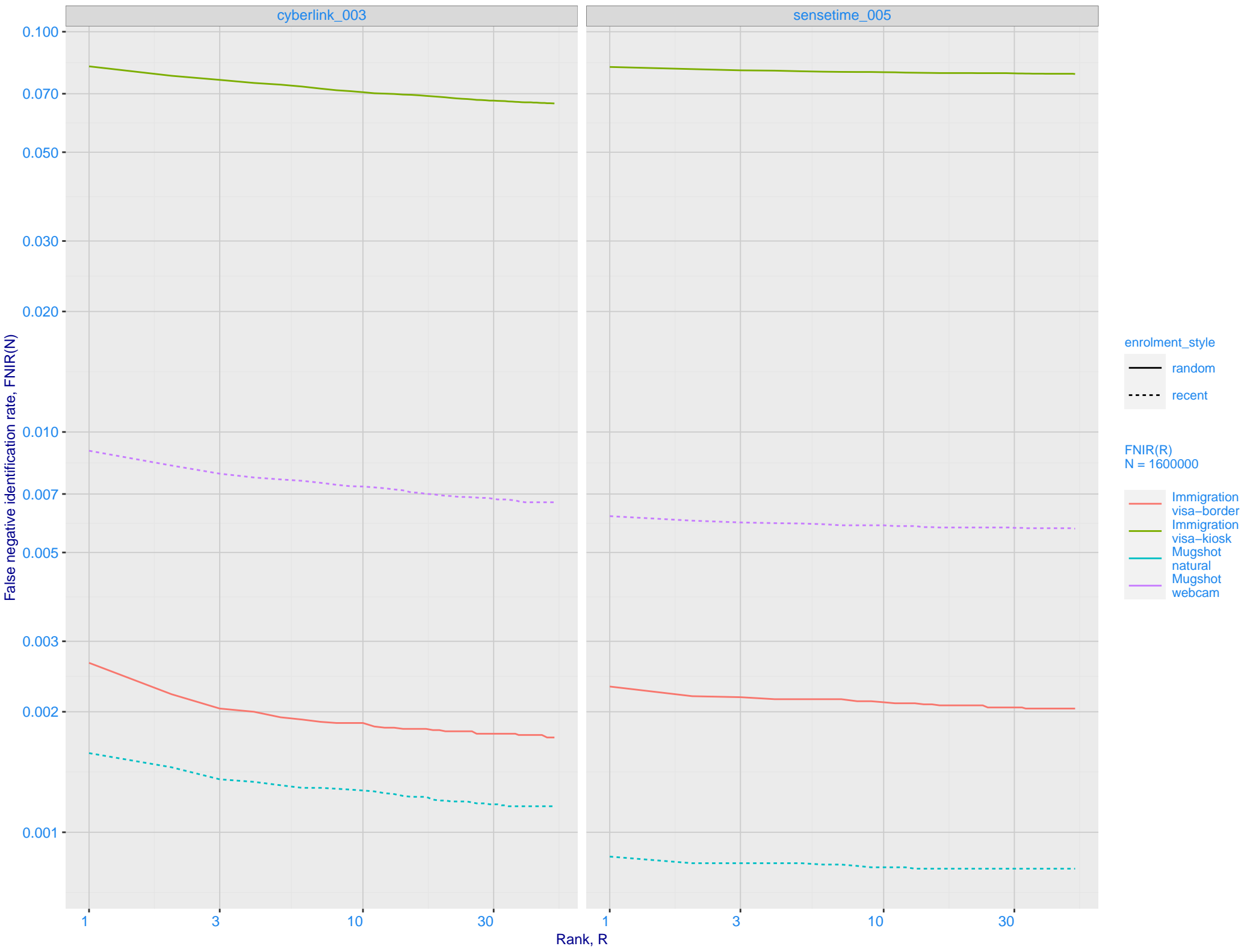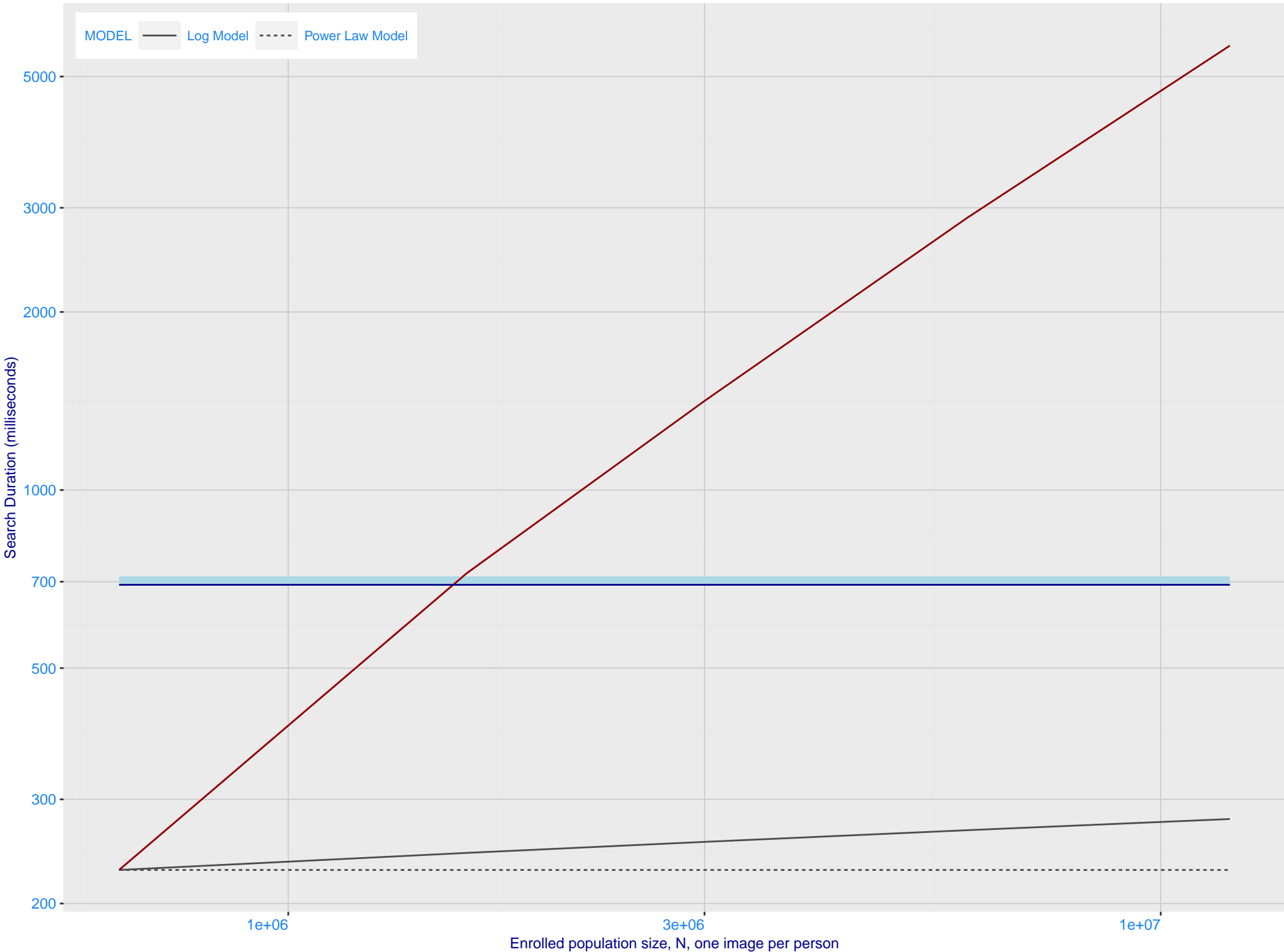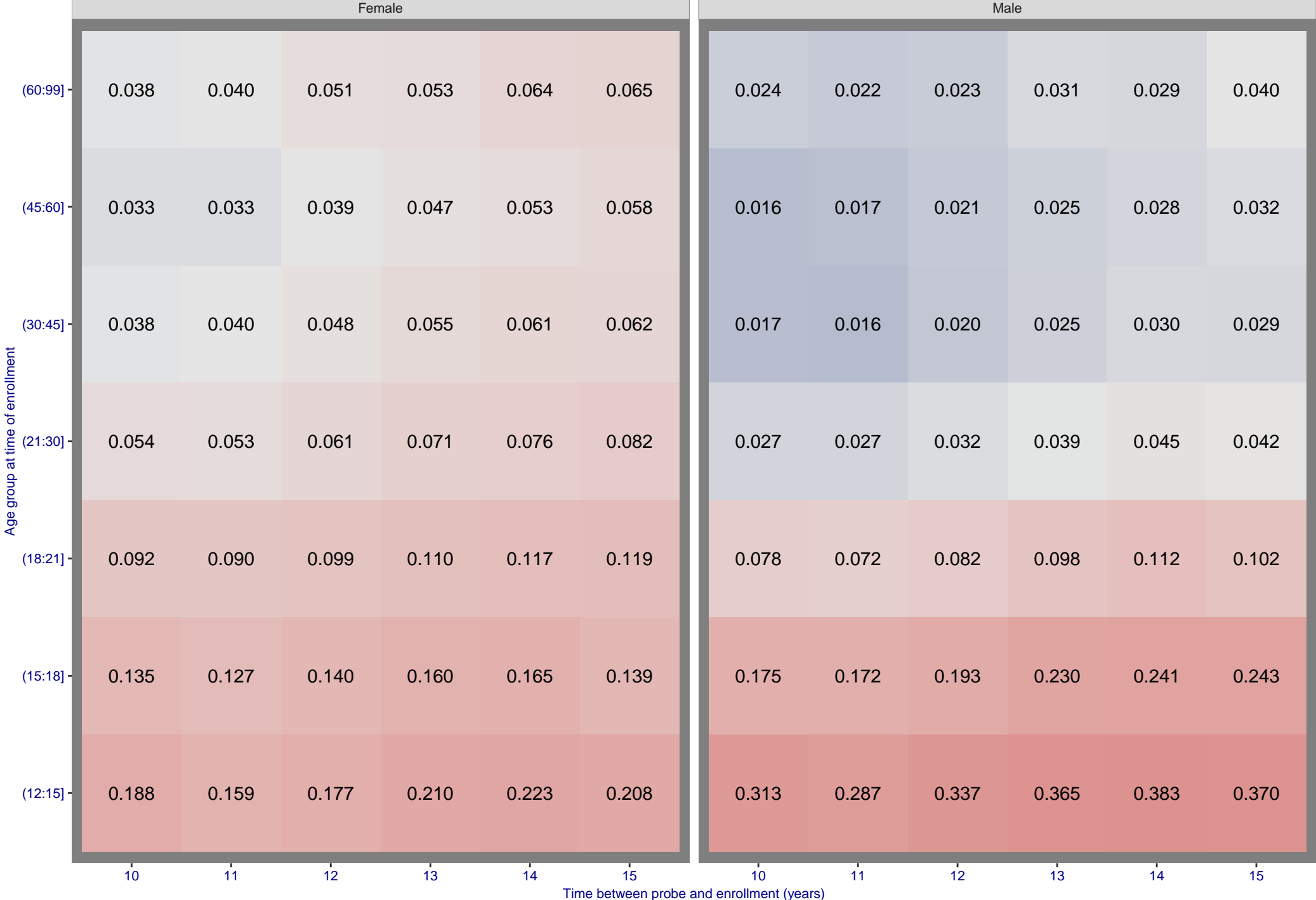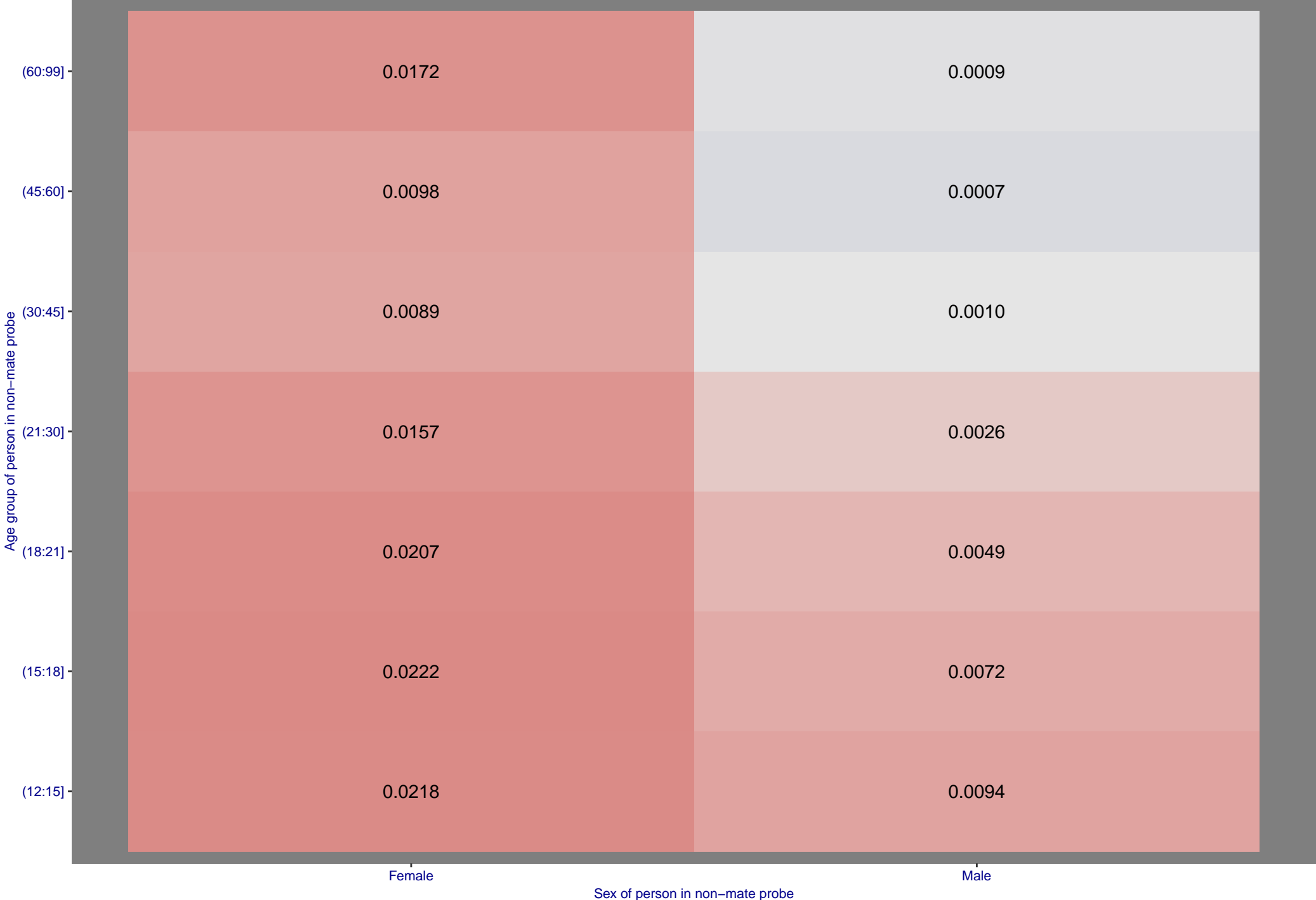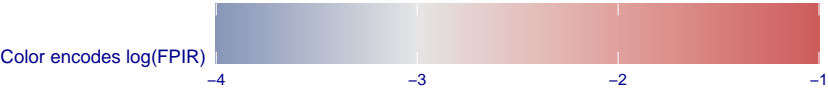
M–A: FNIR(T, N = 1.6 million) by sex, age and time–lapse

Algorithm: cyberlink_003, Dataset: Border–Crossing Ageing
Threshold: 1.454470 set to achieve FPIR(30–45, Male) = 0.001

Color encodes log(FNIR)

Female

Age group at time of enrollment	10	11	12	13	14	15
(60:99]	0.038	0.040	0.051	0.053	0.064	0.065
(45:60]	0.033	0.033	0.039	0.047	0.053	0.058
(30:45]	0.038	0.040	0.048	0.055	0.061	0.062
(21:30]	0.054	0.053	0.061	0.071	0.076	0.082
(18:21]	0.092	0.090	0.099	0.110	0.117	0.119
(15:18]	0.135	0.127	0.140	0.160	0.165	0.139
(12:15]	0.188	0.159	0.177	0.210	0.223	0.208

Male

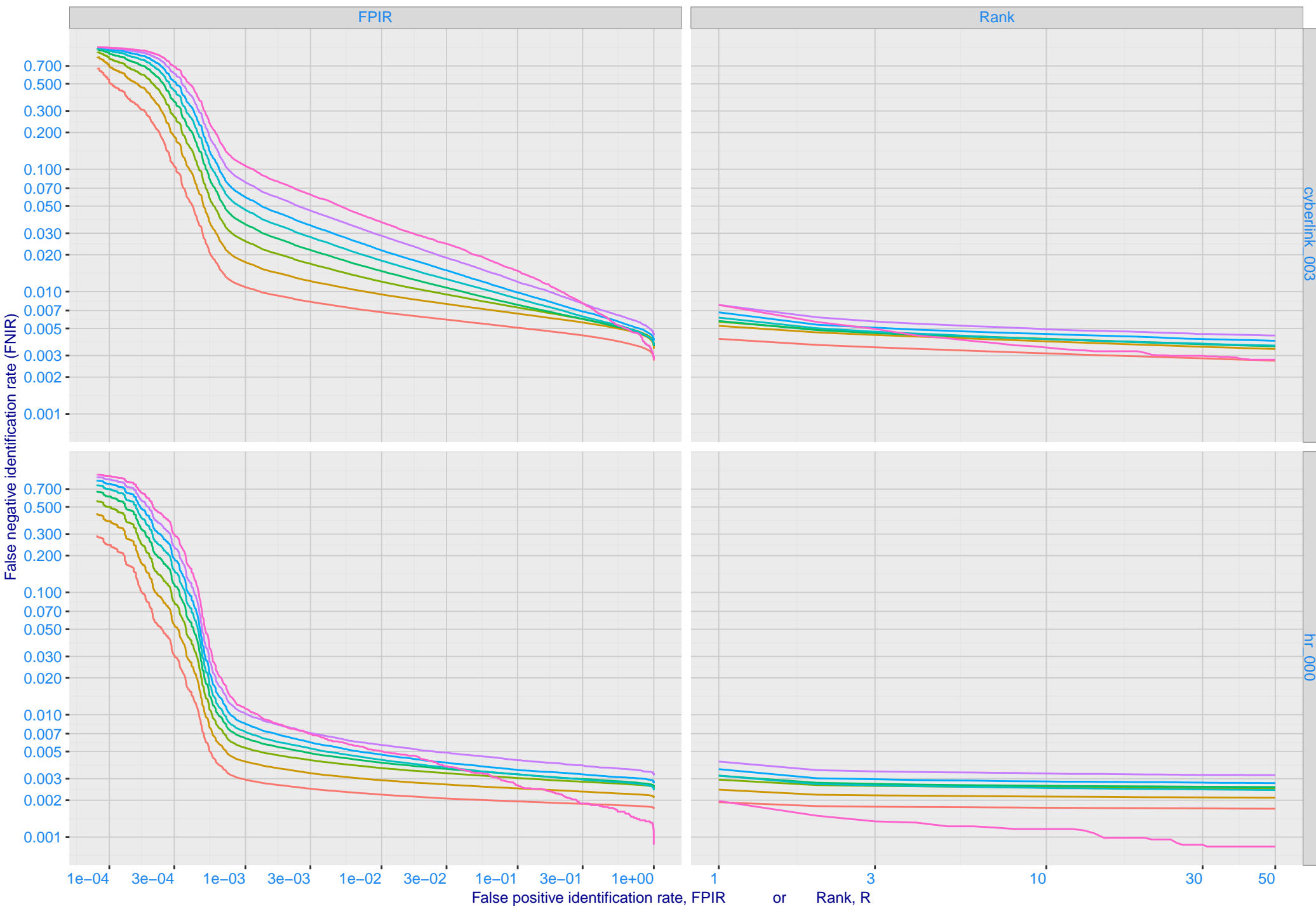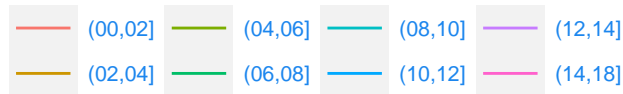| Age group at time of enrollment	10	11	12	13	14	15
(60:99]	0.024	0.022	0.023	0.031	0.029	0.040
(45:60]	0.016	0.017	0.021	0.025	0.028	0.032
(30:45]	0.017	0.016	0.020	0.025	0.030	0.029
(21:30]	0.027	0.027	0.032	0.039	0.045	0.042
(18:21]	0.078	0.072	0.082	0.098	0.112	0.102
(15:18]	0.175	0.172	0.193	0.230	0.241	0.243
(12:15]	0.313	0.287	0.337	0.365	0.383	0.370

Time between probe and enrollment (years)

M–B: FPIR(T, N = 1.6 million) by sex and age

Algorithm: cyberlink_003, Dataset: Border–Crossing Ageing
Threshold: 1.454470 set to achive FPIR(30–45, Male) = 0.001

Color encodes log(FPIR)

Age group of person in non-mate probe	Female	Male
(60:99]	0.0172	0.0009
(45:60]	0.0098	0.0007
(30:45]	0.0089	0.0010
(21:30]	0.0157	0.0026
(18:21]	0.0207	0.0049
(15:18]	0.0222	0.0072
(12:15]	0.0218	0.0094

Sex of person in non–mate probe

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

O: Decline of genuine scores with ageing