A: Datasheet

Algorithm: cyberlink_002

Developer: Cyberlink Corp

Submission Date: 2020_07_31

Template size: 4140 bytes

Template time (2.5 percentile): 723 msec

Template time (median): 725 msec

Template time (97.5 percentile): 776 msec

Investigation:

Frontal mugshot ranking 46 (out of 265) –– FNIR(1600000, 0, 1) = 0.0026 vs. lowest 0.0009 from sensetime_005

Mugshot webcam ranking 25 (out of 227) –– FNIR(1600000, 0, 1) = 0.0117 vs. lowest 0.0062 from sensetime_005

Mugshot profile ranking 60 (out of 196) –– FNIR(1600000, 0, 1) = 0.5770 vs. lowest 0.0591 from sensetime_005

Immigration visa–border ranking 28 (out of 148) –– FNIR(1600000, 0, 1) = 0.0038 vs. lowest 0.0013 from visionlabs_010

Immigration visa–kiosk ranking 34 (out of 145) –– FNIR(1600000, 0, 1) = 0.1073 vs. lowest 0.0568 from hr_000

Identification:

Frontal mugshot ranking 24 (out of 265) –– FNIR(1600000, T, L+1) = 0.0147, FPIR=0.001000 vs. lowest 0.0018 from sensetime_004
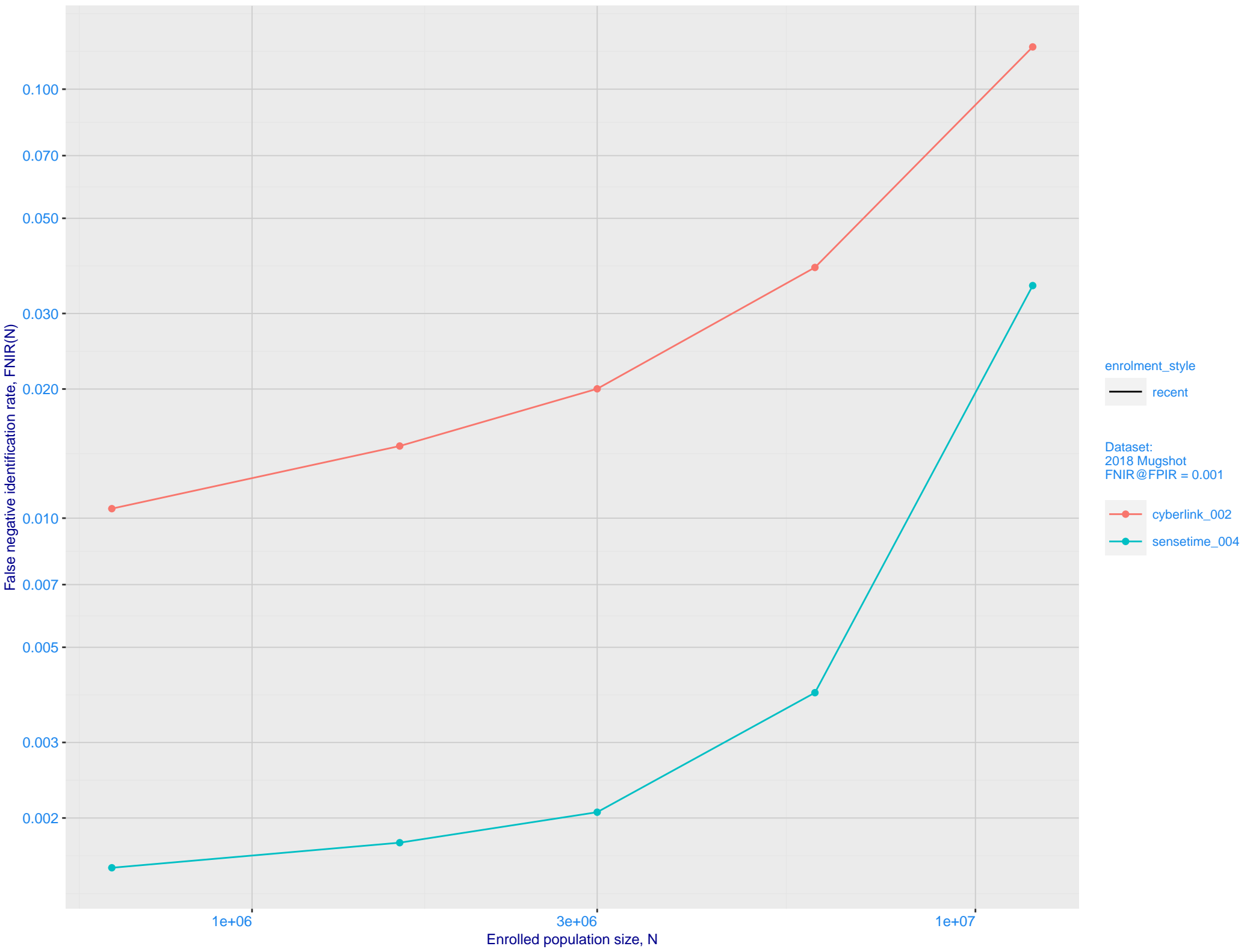
Mugshot webcam ranking 28 (out of 225) –– FNIR(1600000, T, L+1) = 0.0530, FPIR=0.001000 vs. lowest 0.0122 from sensetime_003

Mugshot profile ranking 73 (out of 195) –– FNIR(1600000, T, L+1) = 0.9884, FPIR=0.001000 vs. lowest 0.1331 from hr_000
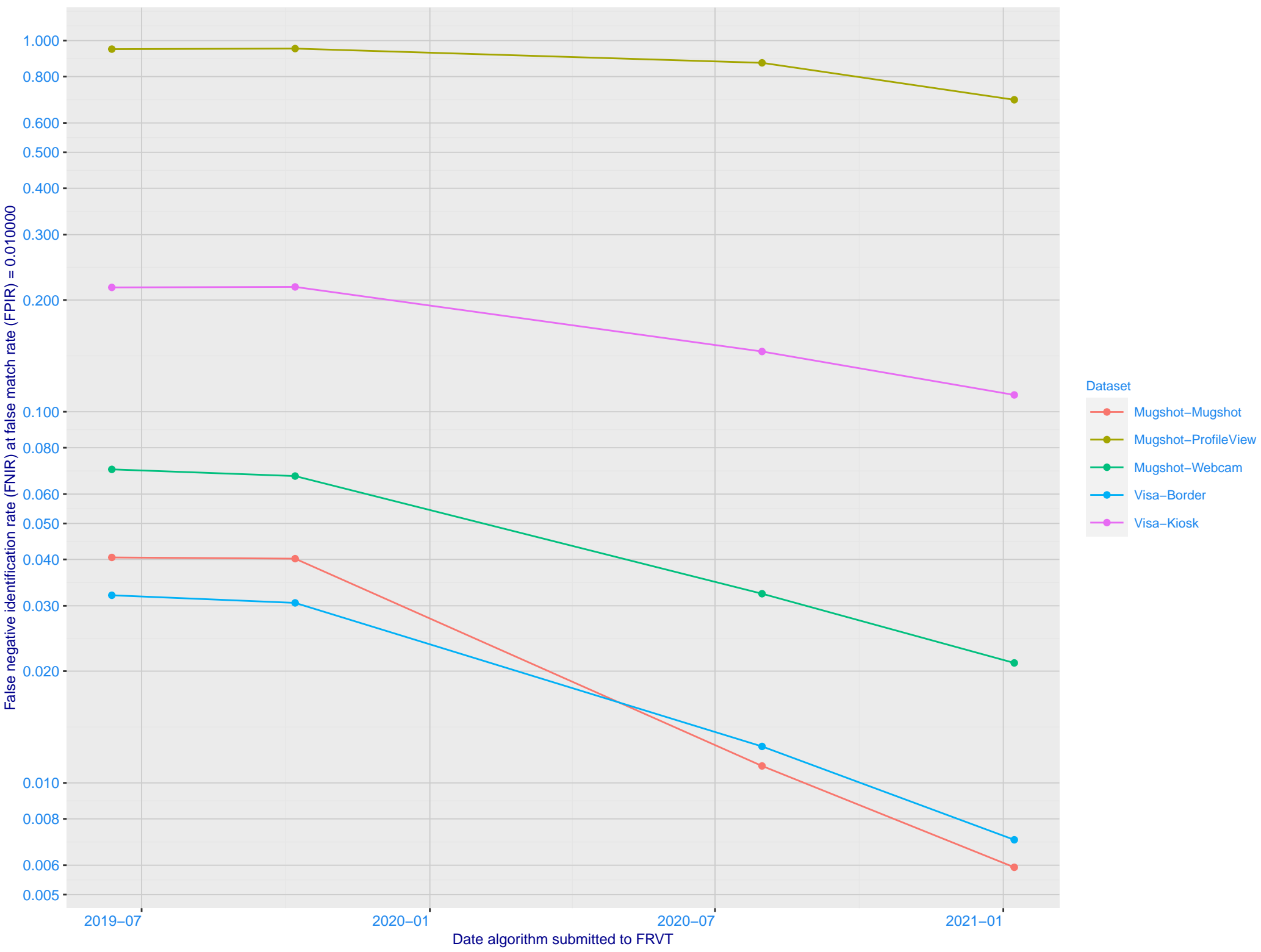
Immigration visa–border ranking 22 (out of 146) –– FNIR(1600000, T, L+1) = 0.0242, FPIR=0.001000 vs. lowest 0.0049 from hr_000

Immigration visa–kiosk ranking 39 (out of 141) –– FNIR(1600000, T, L+1) = 0.3003, FPIR=0.001000 vs. lowest 0.0996 from hr_000
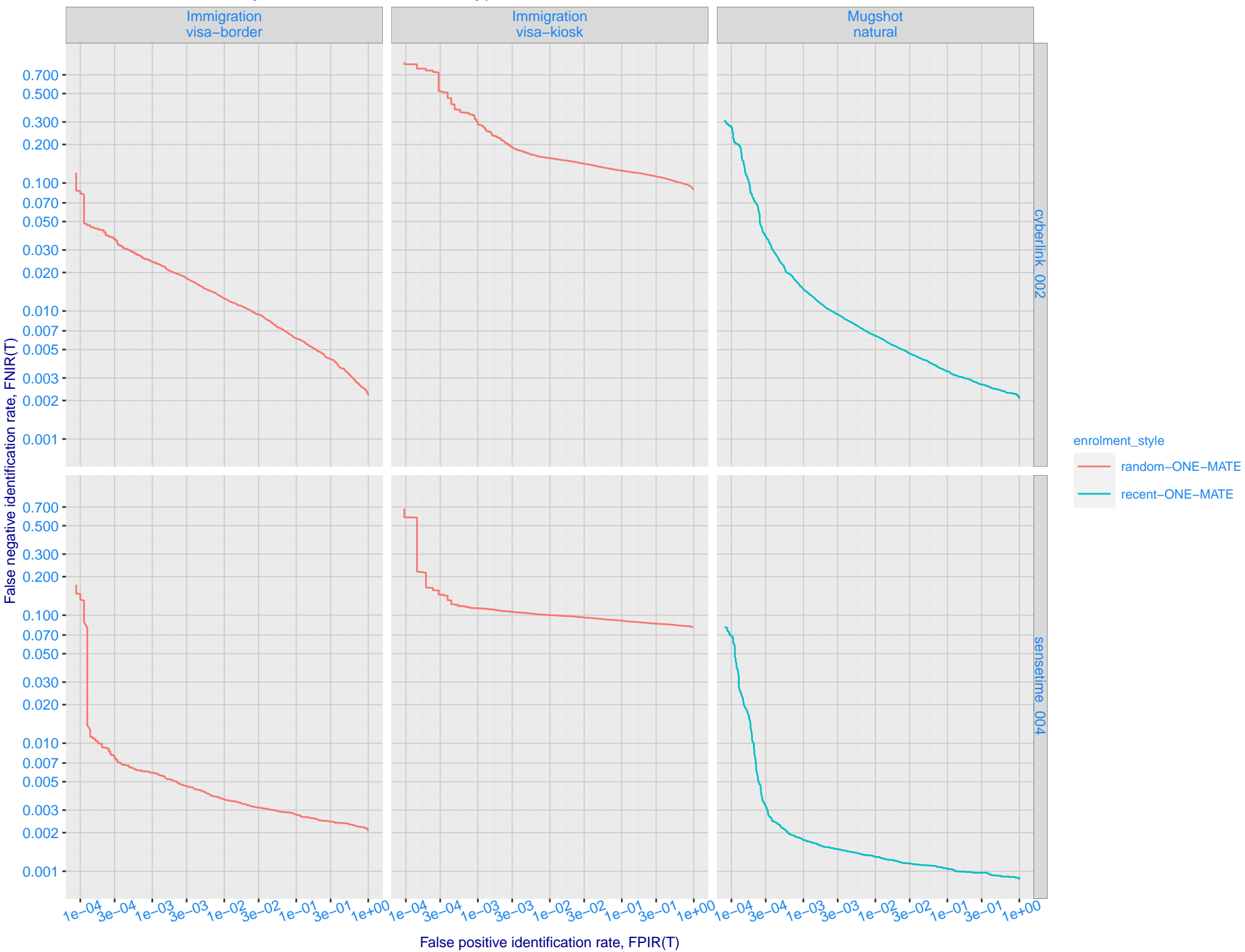
B: Mugshot natural images, identification mode: FNIR(N, L+1, T) vs. most accurate (sensetime_004)

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

Date algorithm submitted to FRVT

False negative identification rate (FNIR) at false match rate (FPIR) = 0.010000

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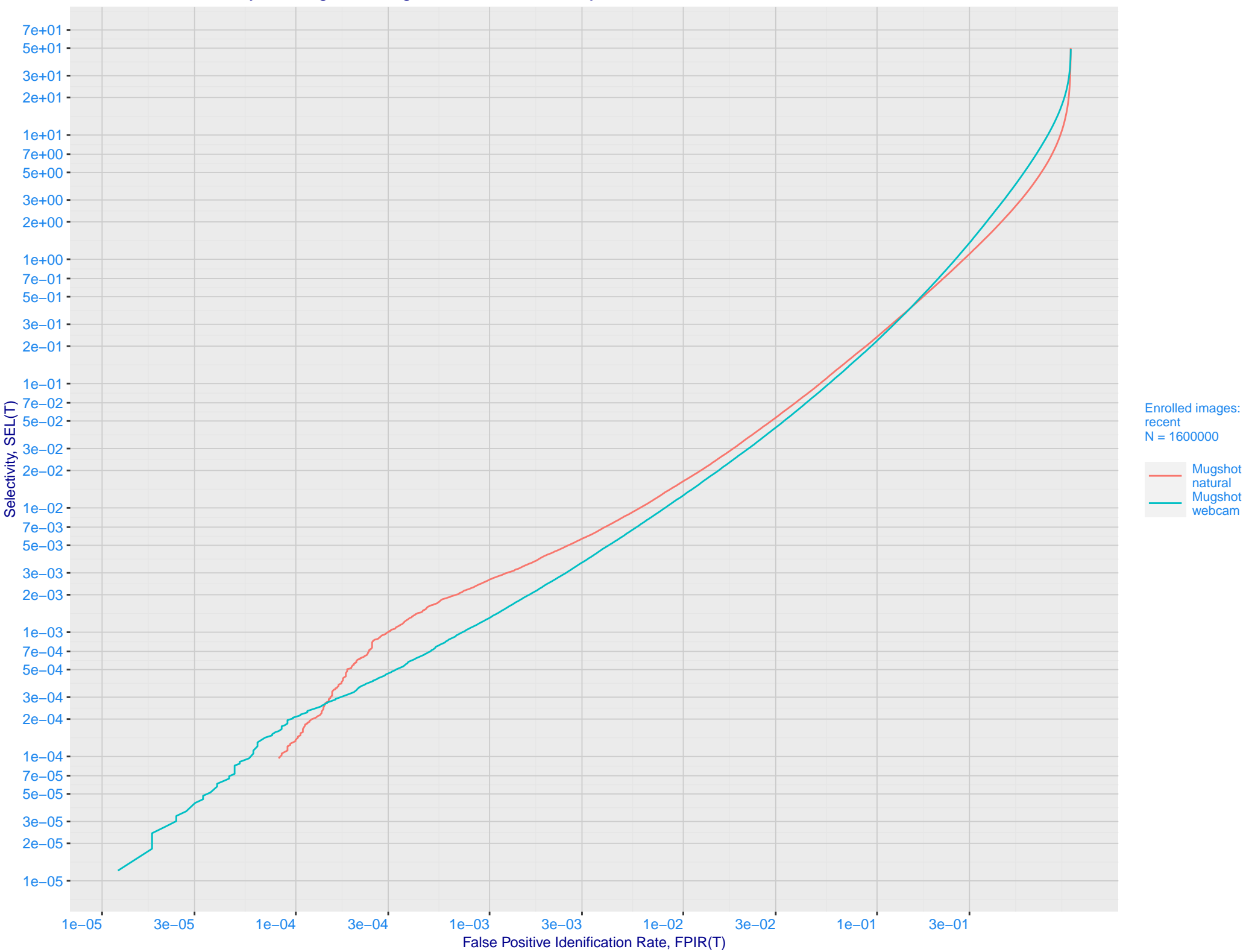- Visa–Border
- Visa–Kiosk

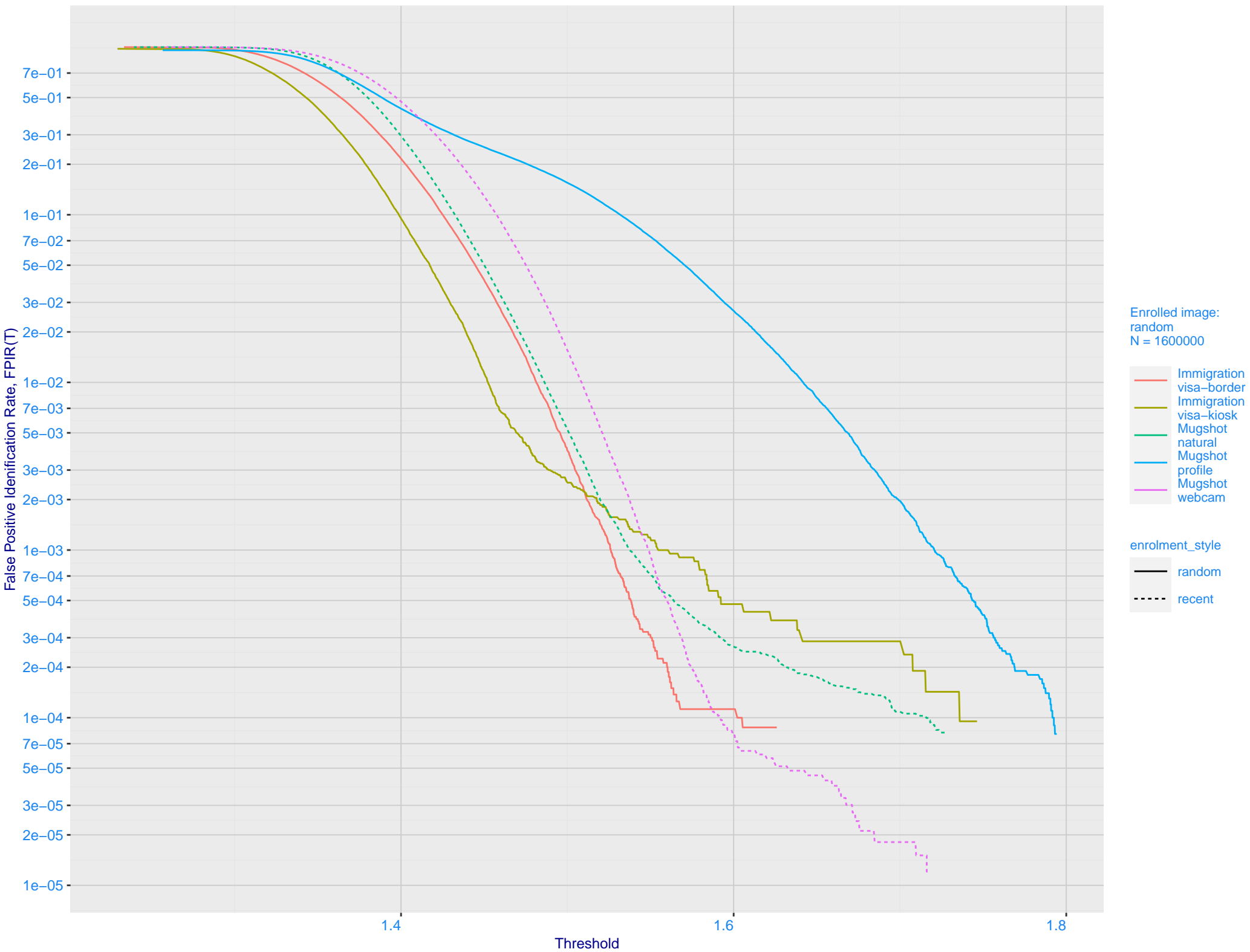D: 1:N error tradeoff by dataset and enrollment type. N = 1600000 individuals

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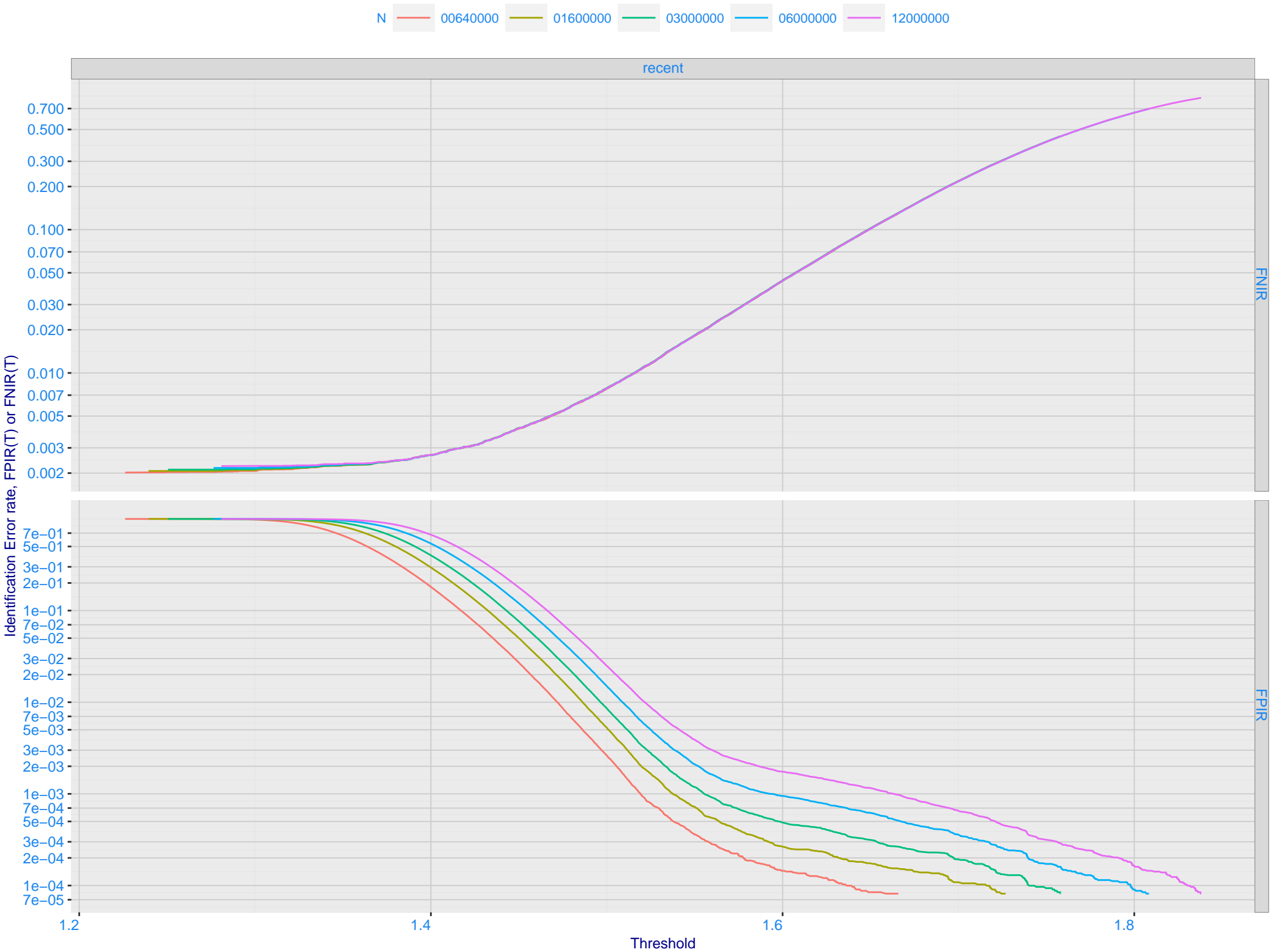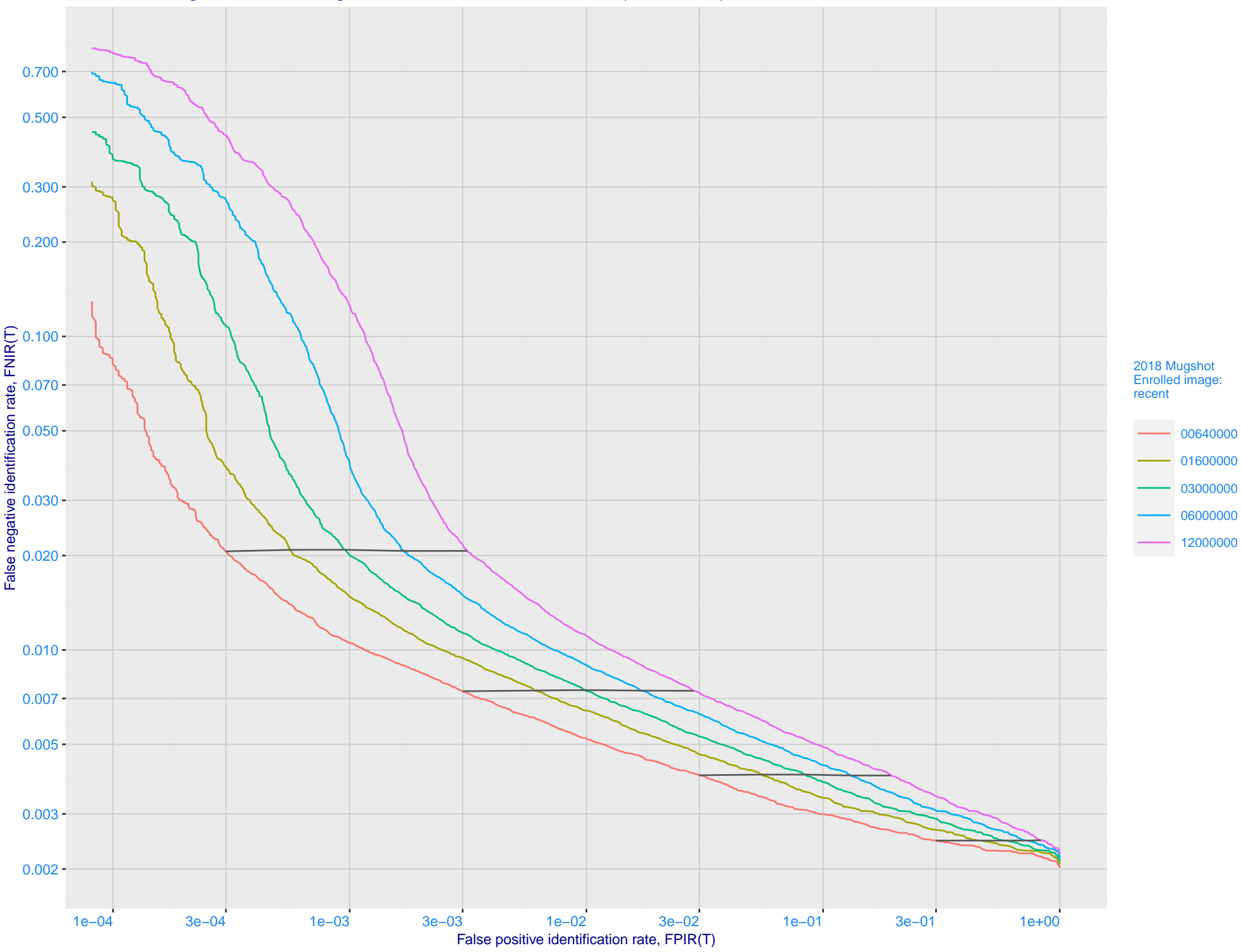
F: FPIR vs. Selectivity for mugshot images, N = 1600000 subjects enrolled with one recent mate

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

Enrolled image:
random
N = 1600000

Immigration
visa–border
Immigration
visa–kiosk
Mugshot
natural
Mugshot
profile
Mugshot
webcam

enrolment_style
—— random
---- recent
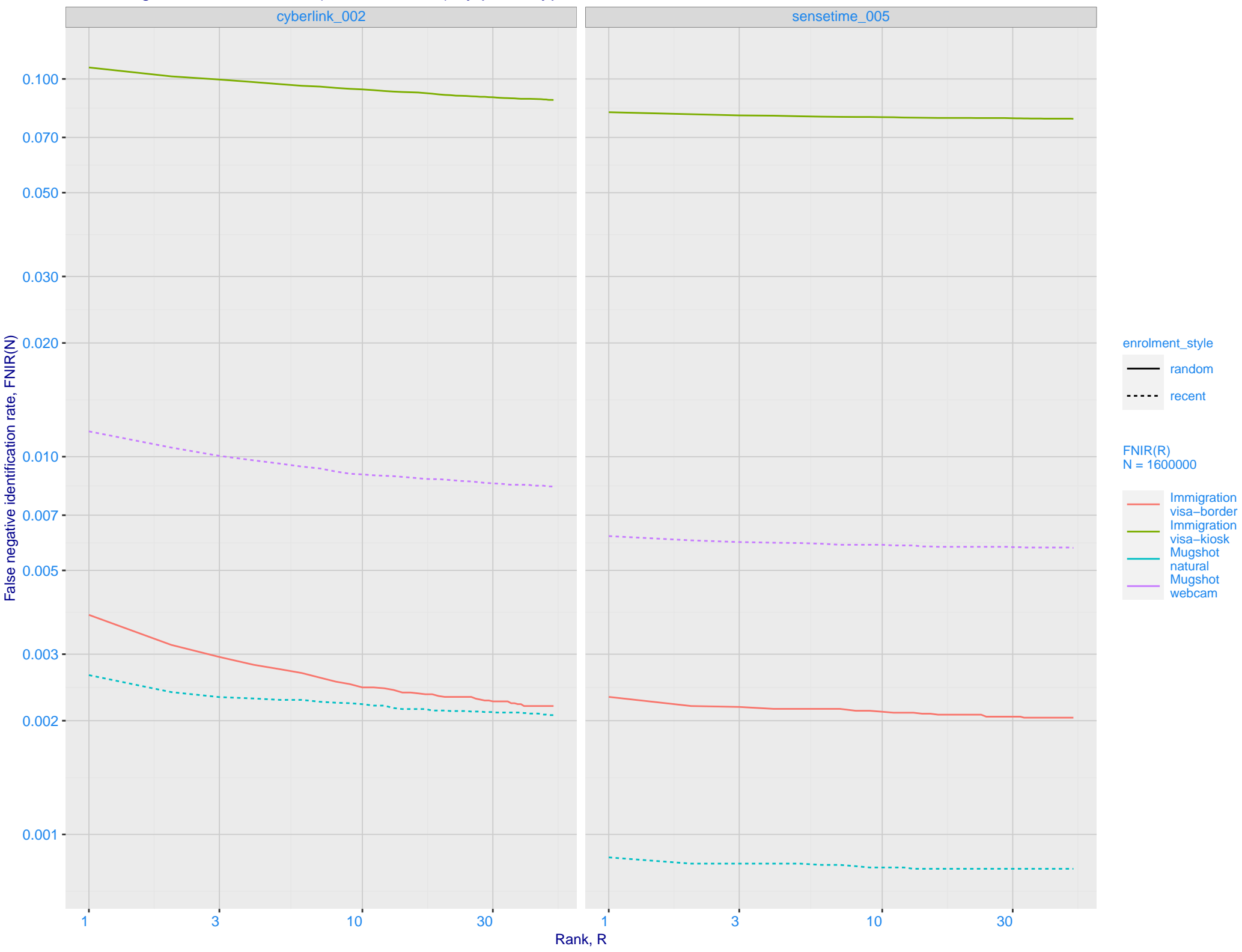
Threshold

False Positive Idenification Rate, FPIR(T)

H: DET for Mugshot natural images and various N. Links connect points of equal threshold.
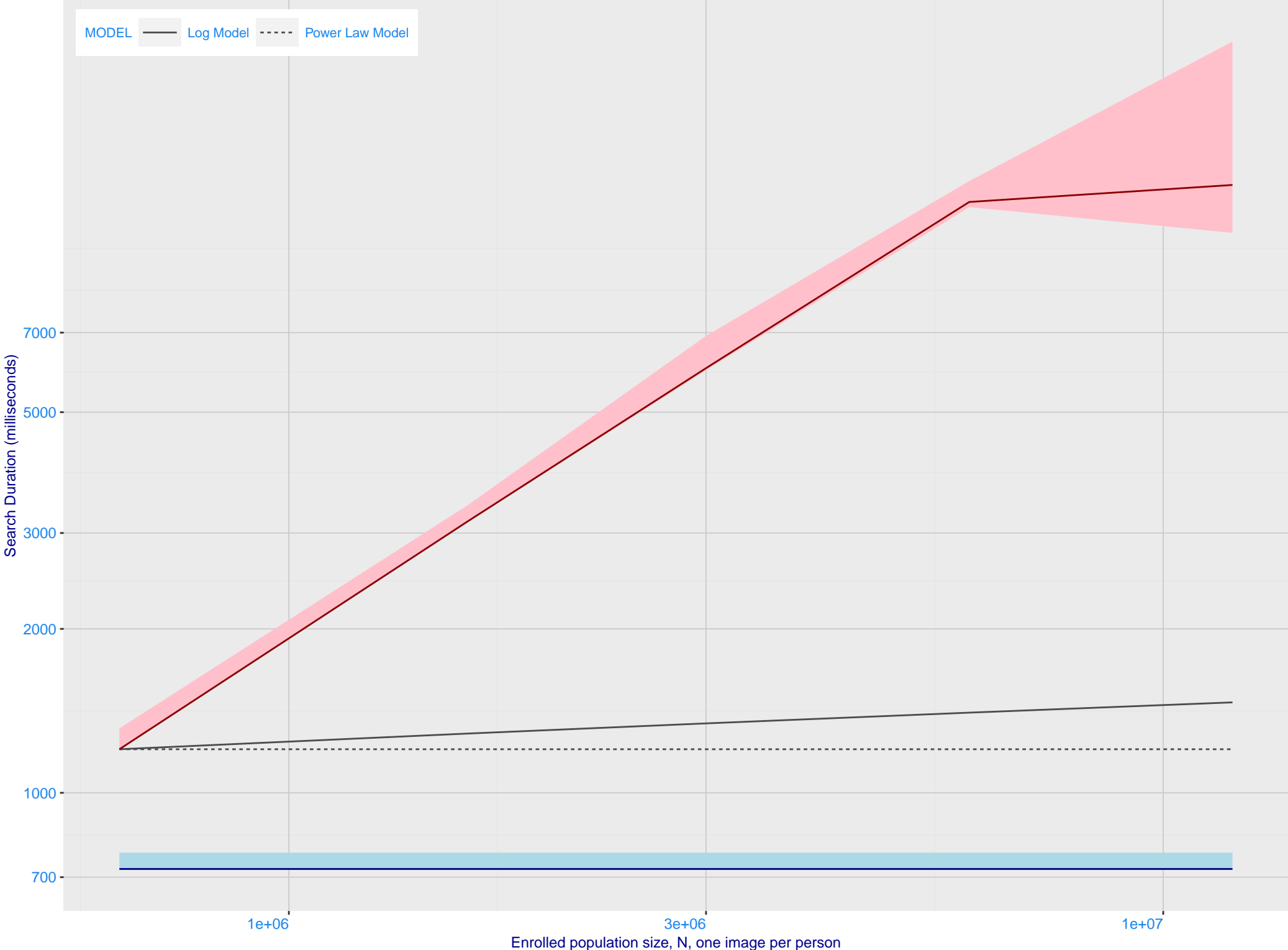
I: Investigational mode: FNIR(N, 1, 0) vs. most accurate (sensetime_005)
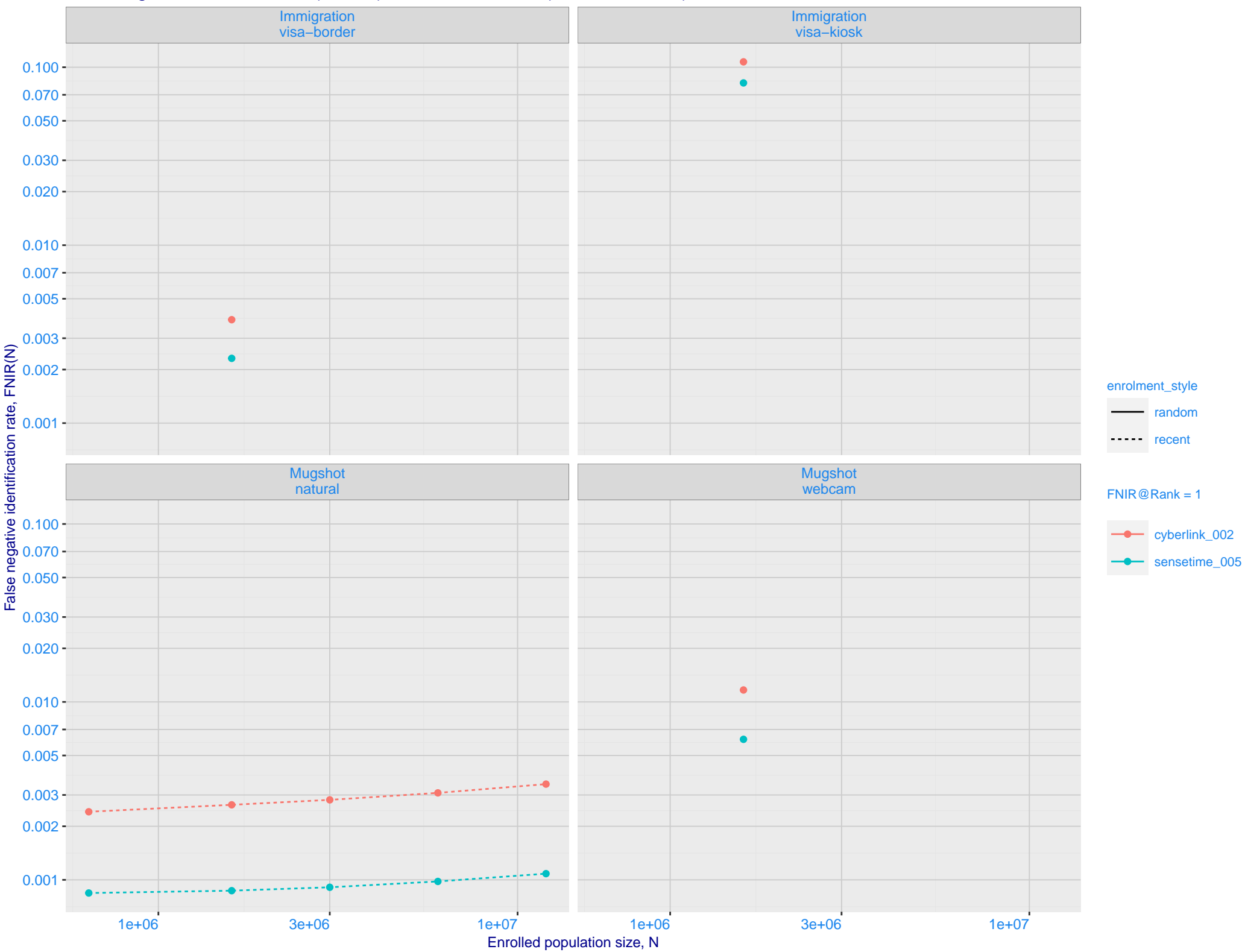
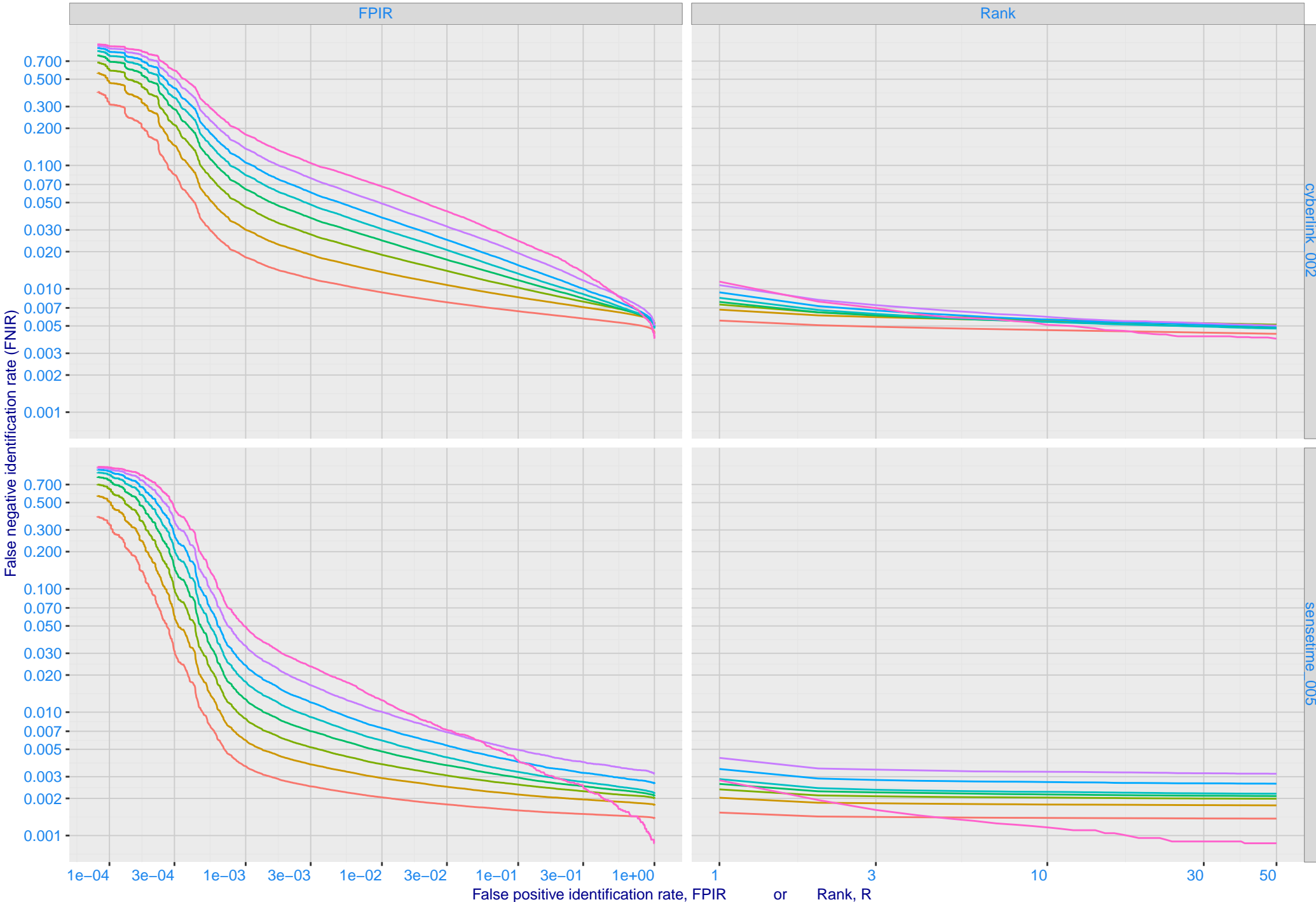J: Investigational mode: FNIR(1600000, R, 0) by probe type

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

MODEL —— Log Model ---- Power Law Model

Search Duration (milliseconds)

7000

5000

3000

2000

1000

700

1e+06   3e+06   1e+07

Enrolled population size, N, one image per person

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

N: Decline of genuine scores with ageing