

**NISTIR 8280**

**Ongoing Face Recognition  
Vendor Test (FRVT)  
Part 3: Demographic Effects**

**Annex 12 : Error tradeoff characteristics with United States  
mugshots**

This document is an annex of NIST Interagency Report 8280:  
<https://doi.org/10.6028/NIST.IR.8280>

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**NIST**  
**National Institute of  
Standards and Technology**  
U.S. Department of Commerce

## 1 Overview

This annex includes figures that shows error tradeoff characteristics for mugshot images. Each page contains one figure corresponding to one algorithm. Each figure is a plot of FNMR against FMR for six demographic groups: male and female, whites, asians and blacks.

## 2 Data

The mugshot dataset is described in Annex [Annex 1](#).

For the generation of the Figures in this annex, each algorithm executed the number of comparisons tabulated below using a total of 8 201 678 images. Note that we did not execute a full cross-comparison. In particular we only compared subjects of the same sex and same race. We disregard age in forming the comparison sets because the dataset under-represents the older demographic.

Race Label	Sex Label	Mated Comparison Count	Impostor Comparison Count	
1	A	F	10 995	3 000 000
2	A	M	139 342	3 000 001
3	B	F	263 910	3 000 007
4	B	M	1 954 864	3 000 009
7	W	F	362 816	3 000 012
8	W	M	1 033 237	3 000 017
9	Total		4061227	108000690

[comment on significance](#)

## 3 Fixed Threshold

A false match is declared if the comparison score is equal to, or exceeds, a threshold. This same value applies to all comparisons in all cells. The threshold value could be any value germane to that comparison algorithm. The threshold value was taken from a different experiment in which mugshot impostor pairs were compared. It is the value that gave a FMR of 0.00003 over that set.

## 4 Plot

The DET plots

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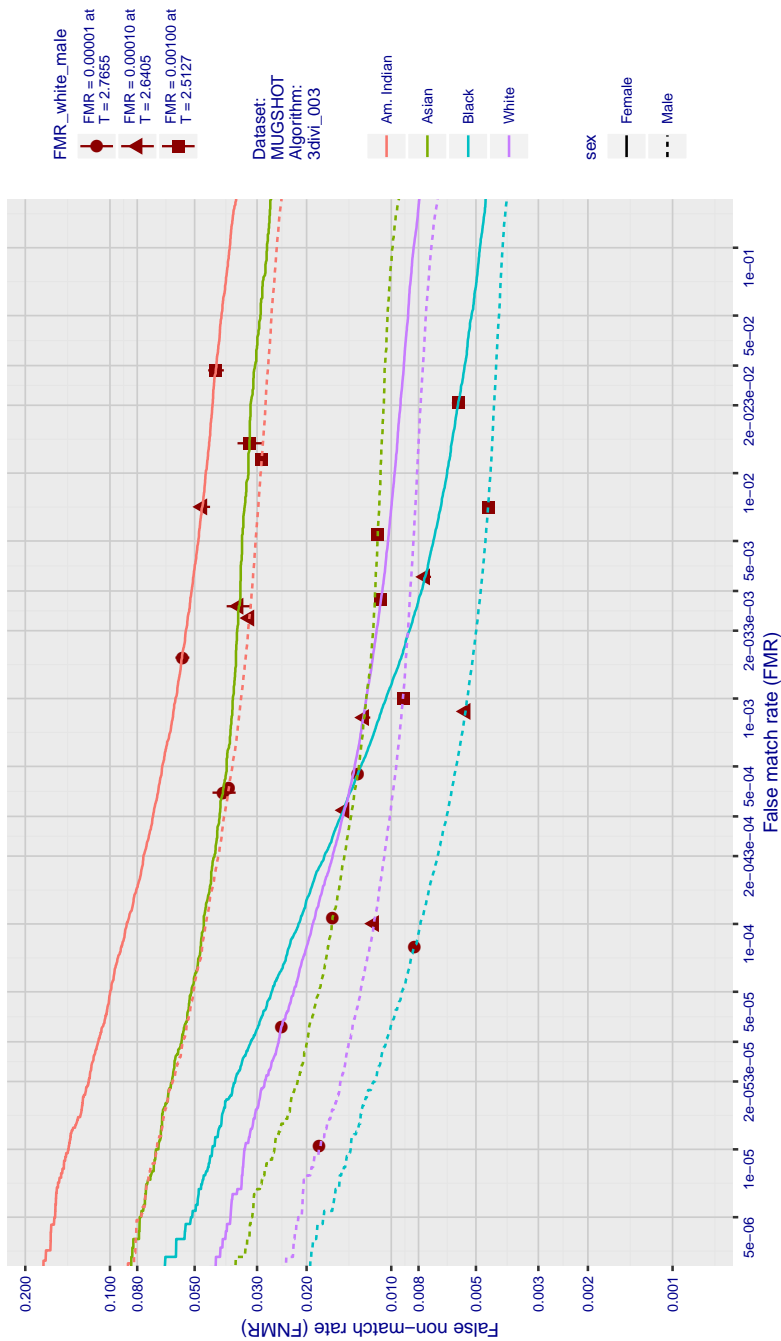


Figure 1: Verification error by sex and race: For algorithm 3divi-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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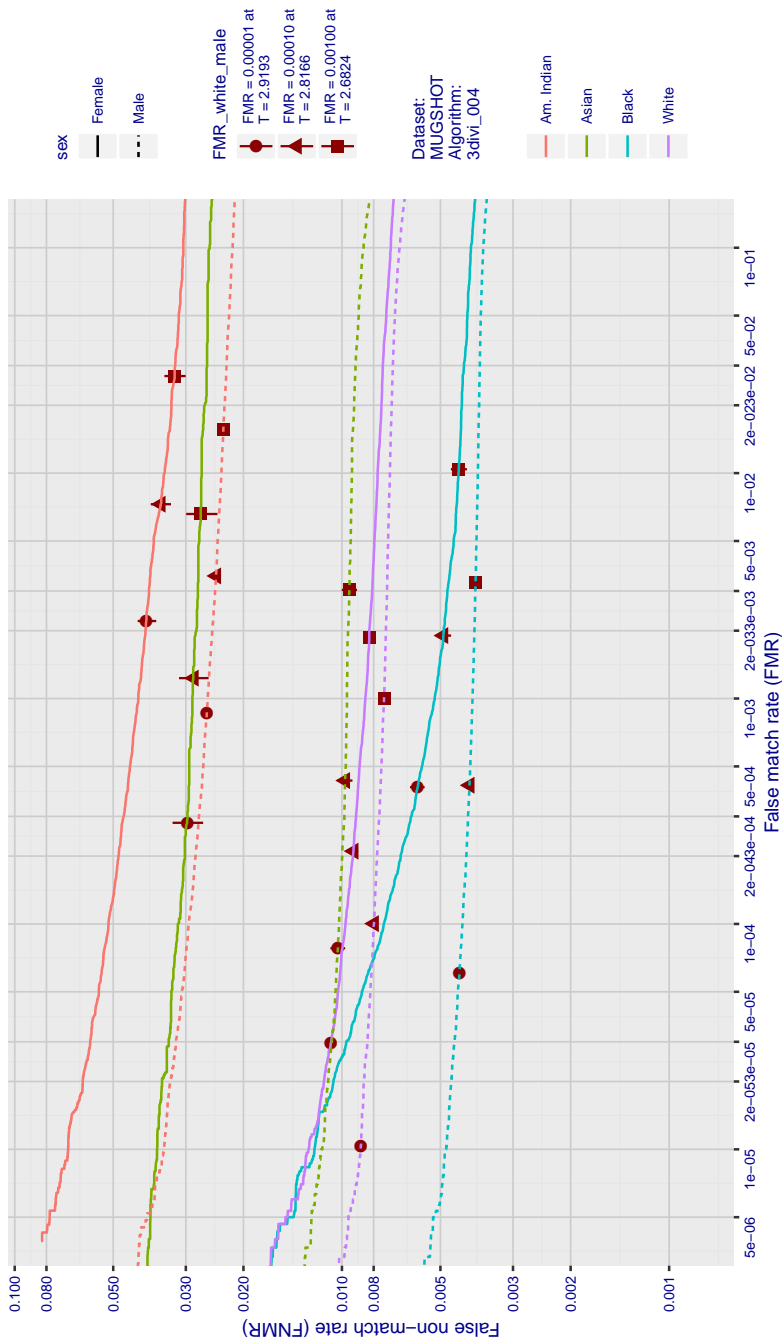


Figure 2: Verification error by sex and race: For algorithm 3divi-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

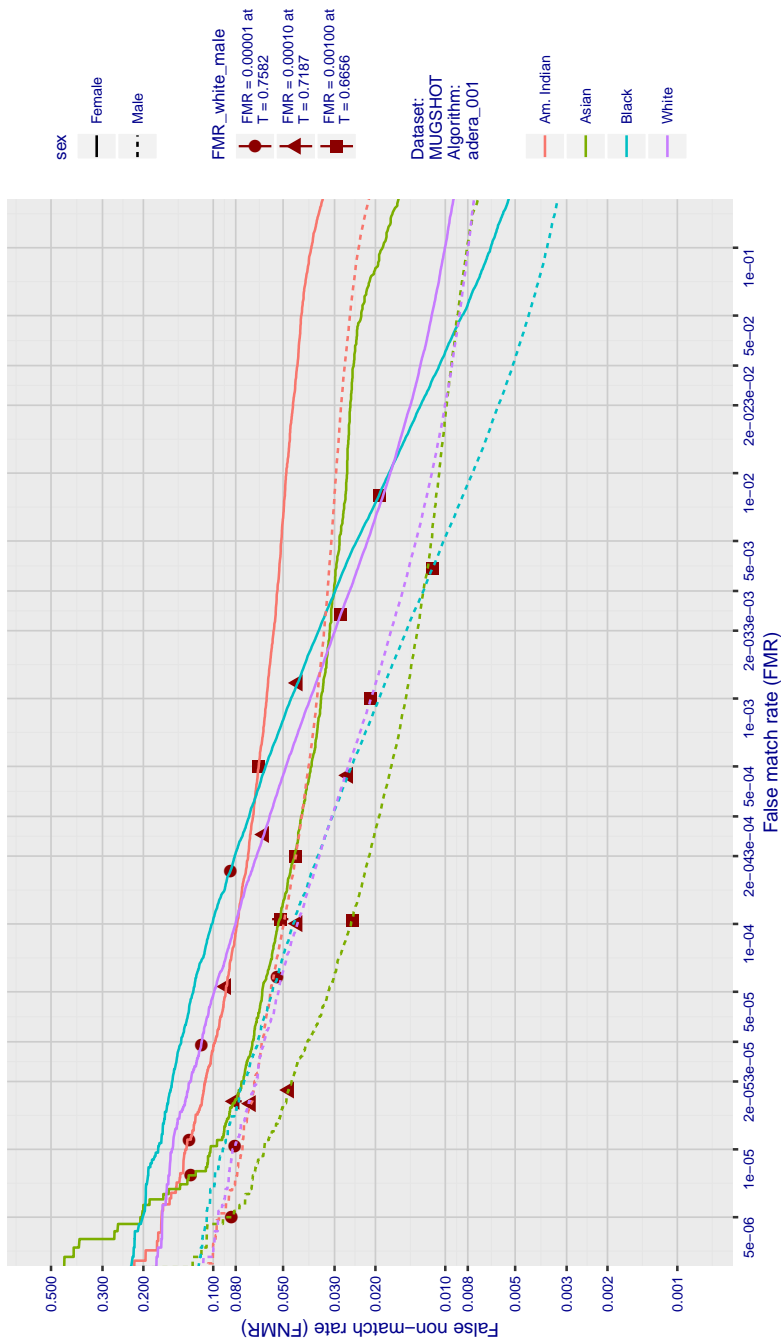


Figure 3: Verification error by sex and race: For algorithm adera-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

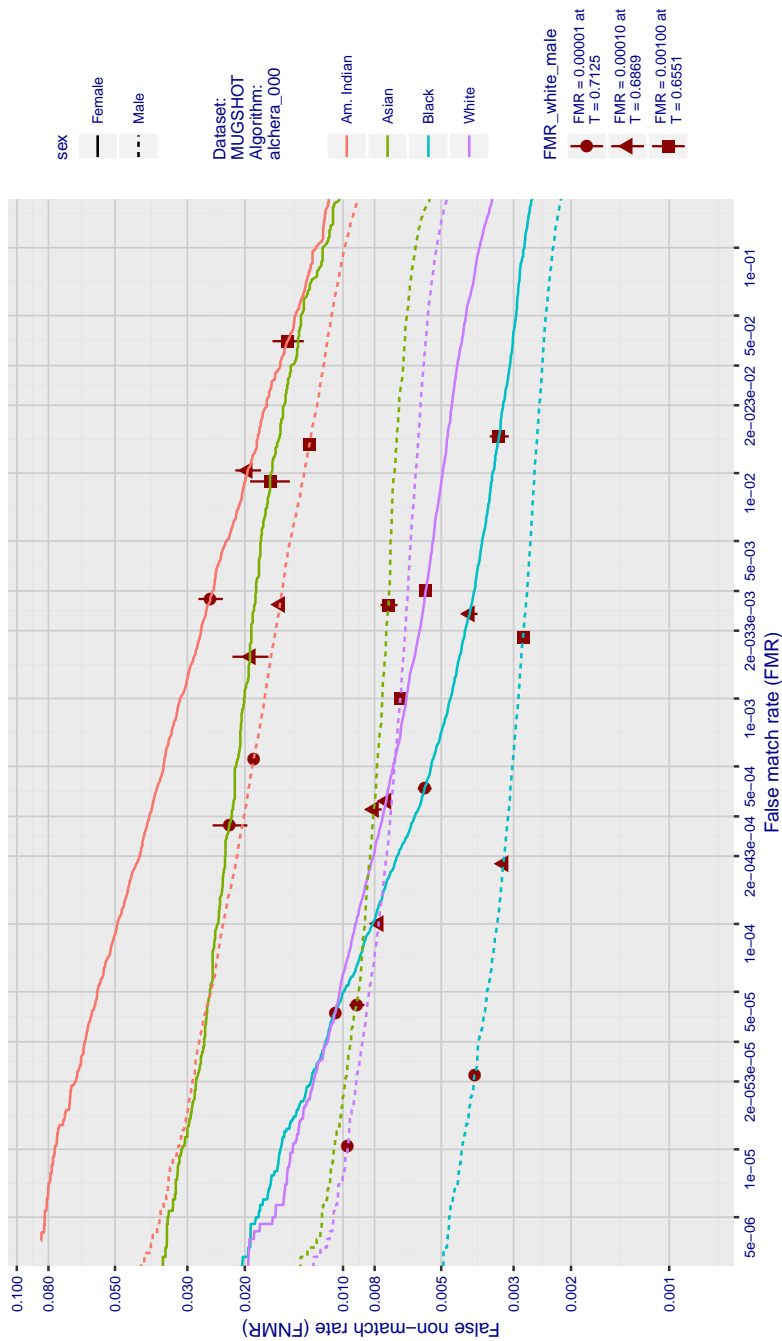


Figure 4: Verification error by sex and race: For algorithm alchera-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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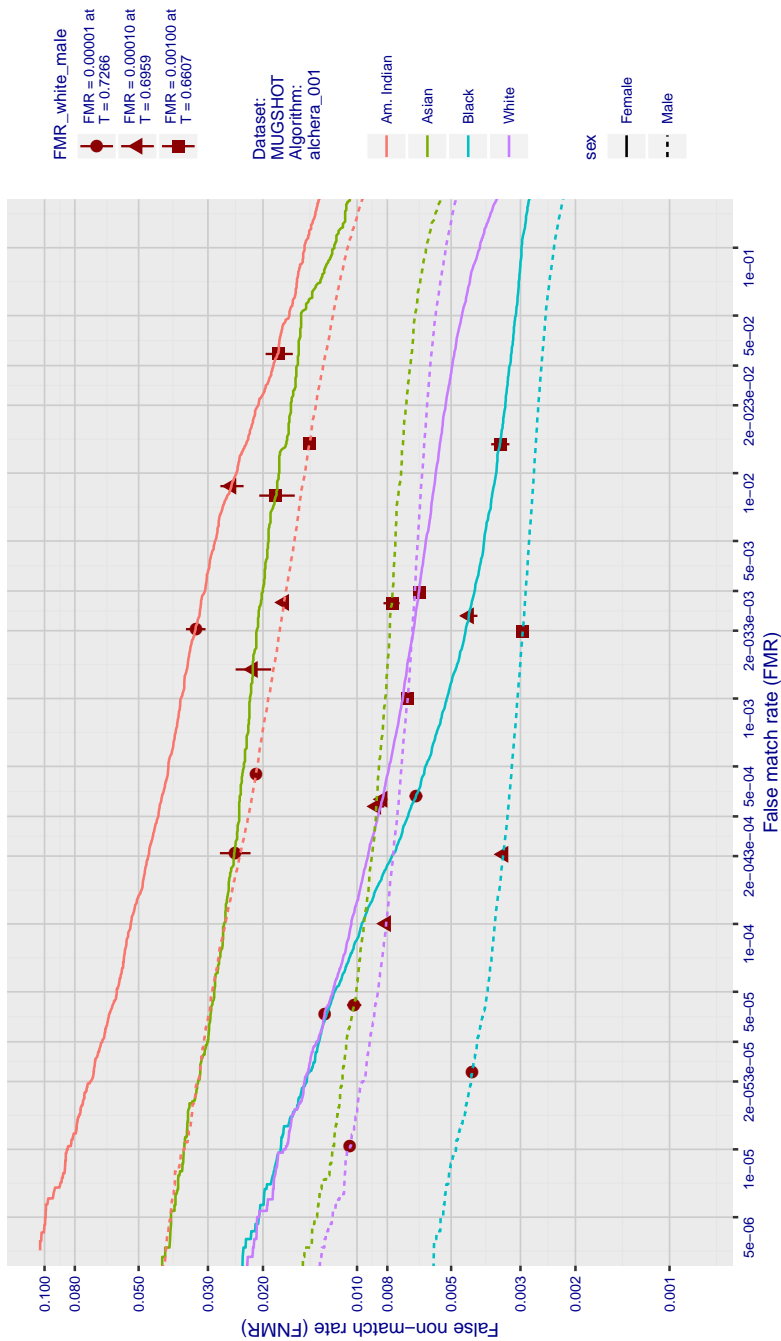


Figure 5: Verification error by sex and race: For algorithm alchera-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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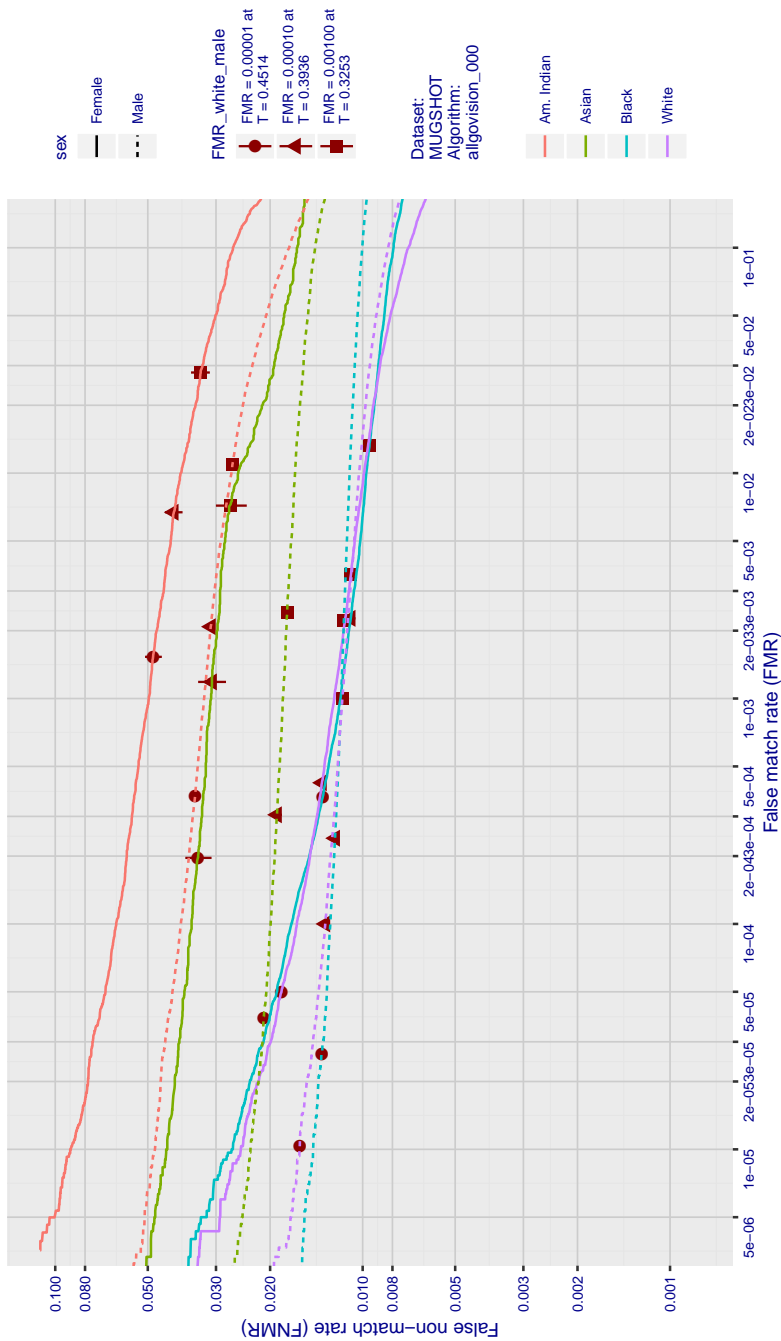


Figure 6: Verification error by sex and race: For algorithm allgovision-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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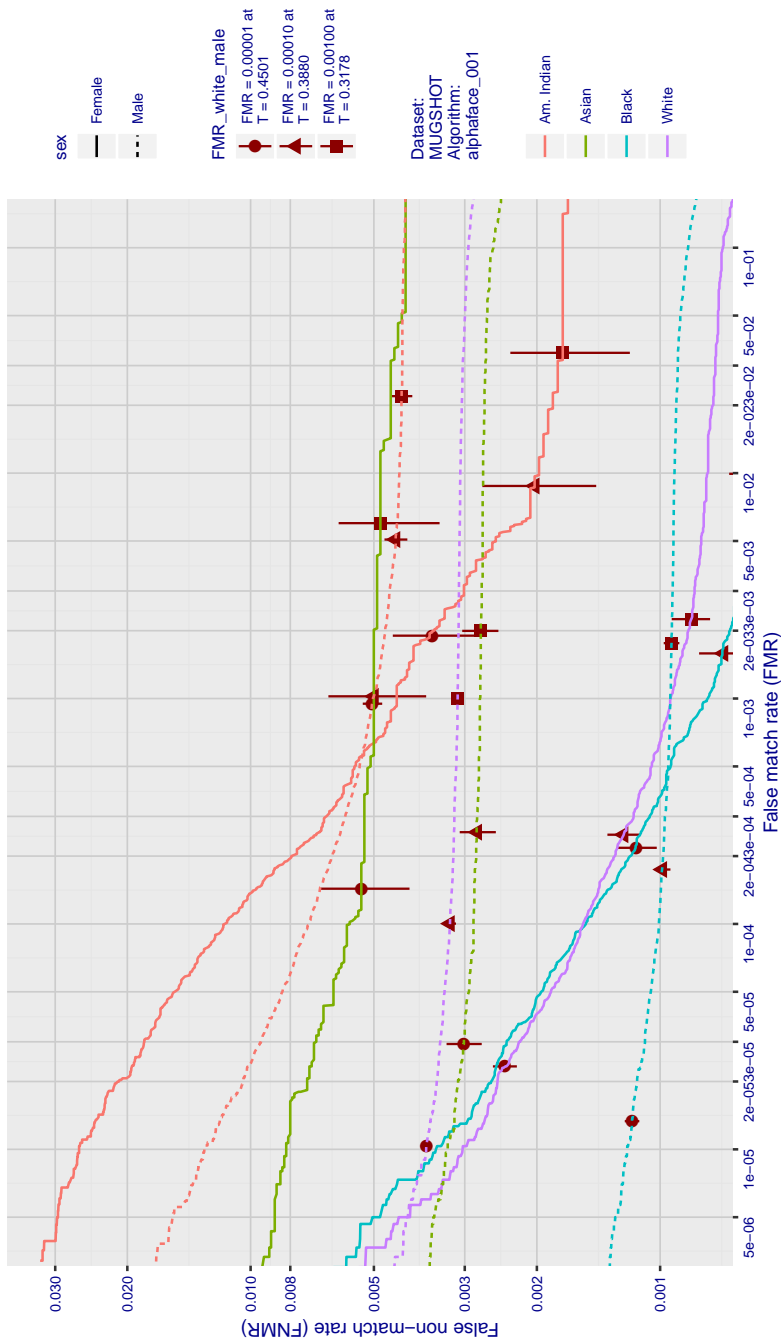


Figure 7: Verification error by sex and race: For algorithm alphaface-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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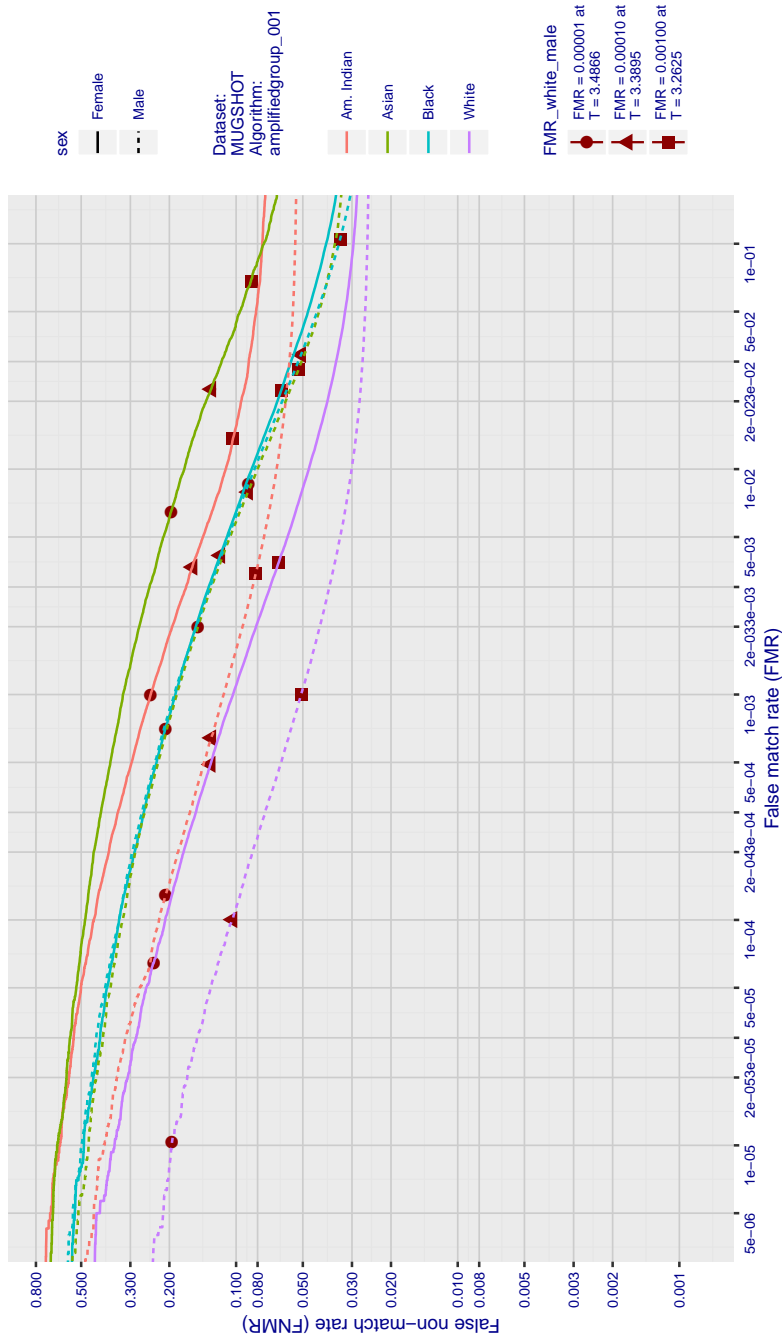


Figure 8: Verification error by sex and race: For algorithm amplifiedgroup-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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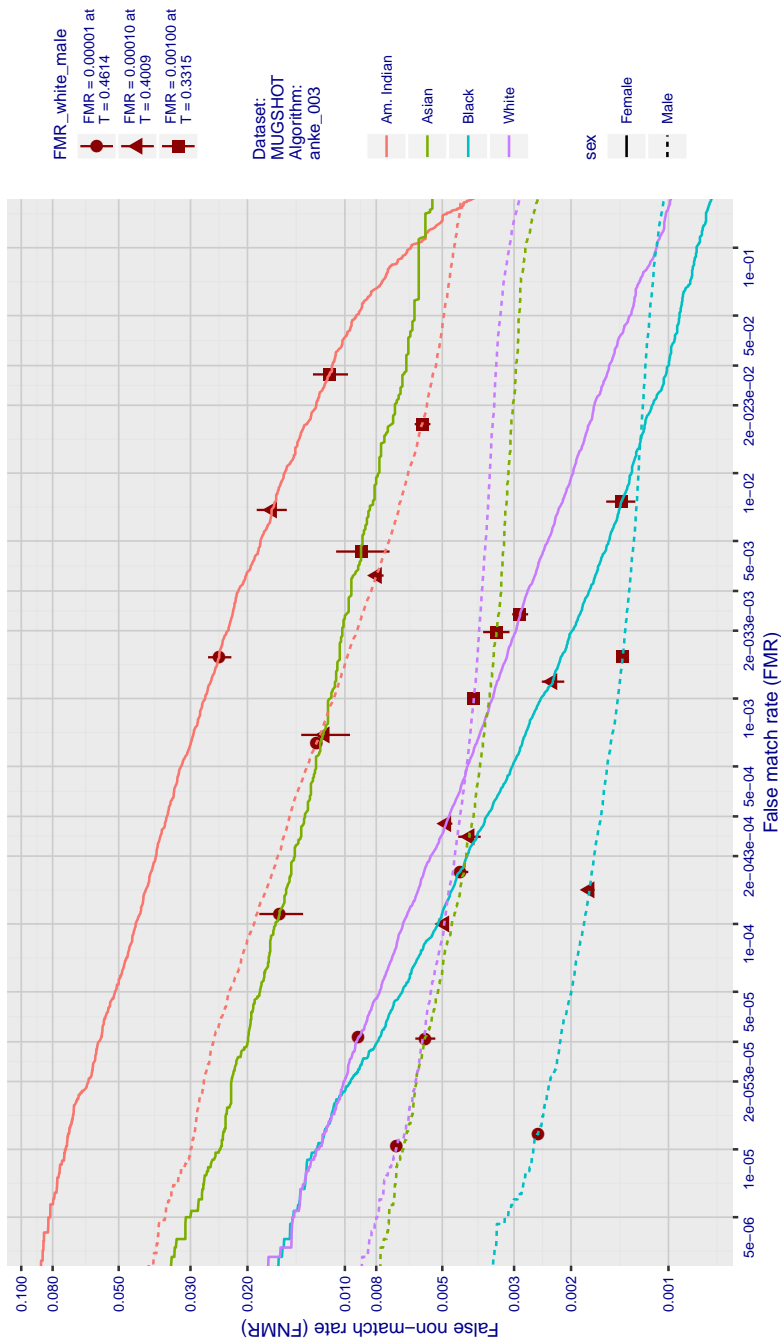


Figure 9: Verification error by sex and race: For algorithm anke-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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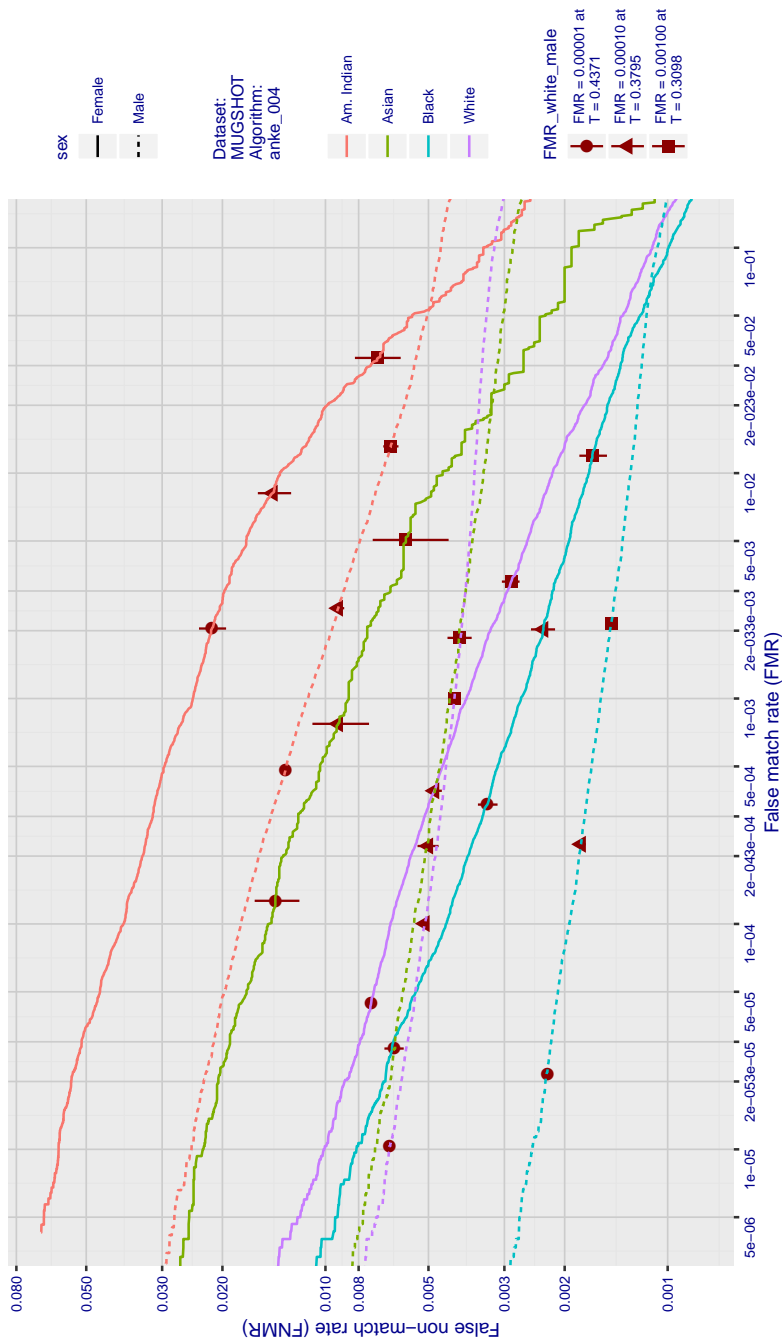


Figure 10: Verification error by sex and race: For algorithm anke-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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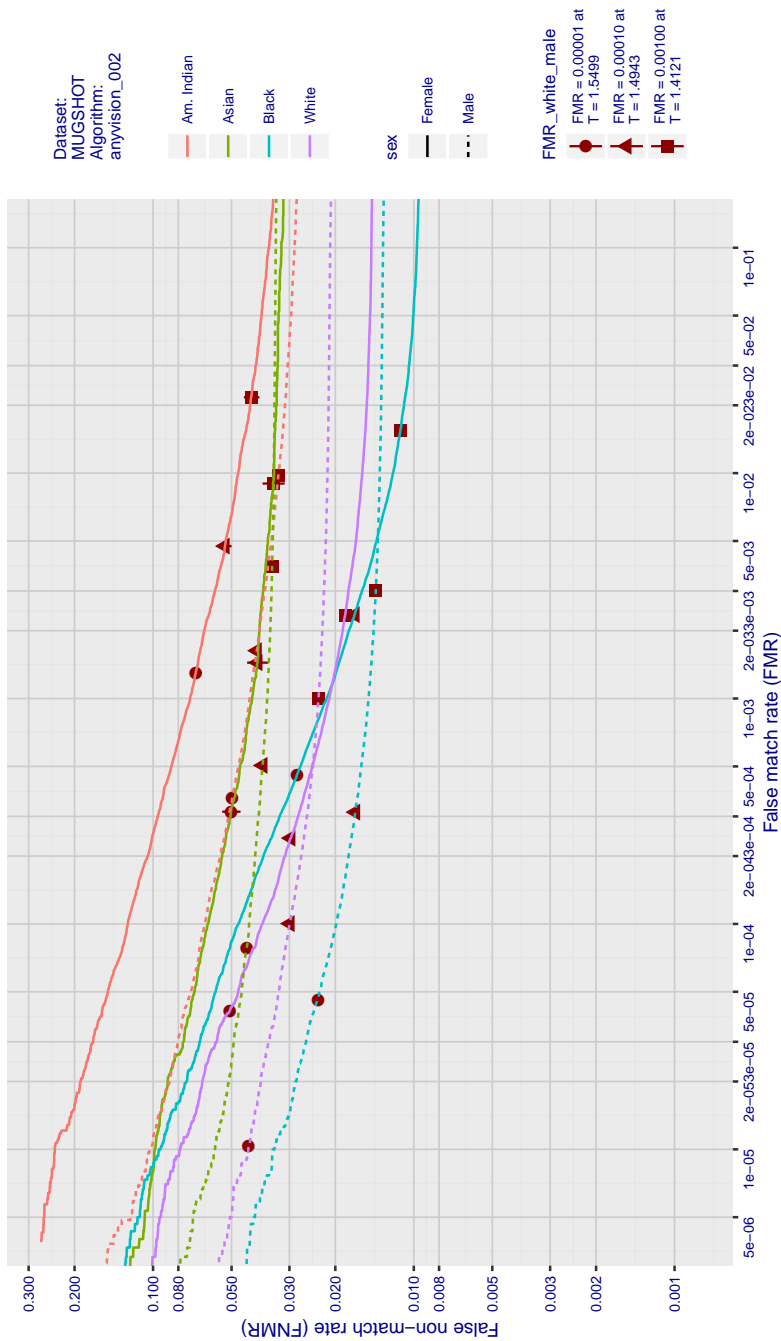


Figure 11: Verification error by sex and race: For algorithm anyvision-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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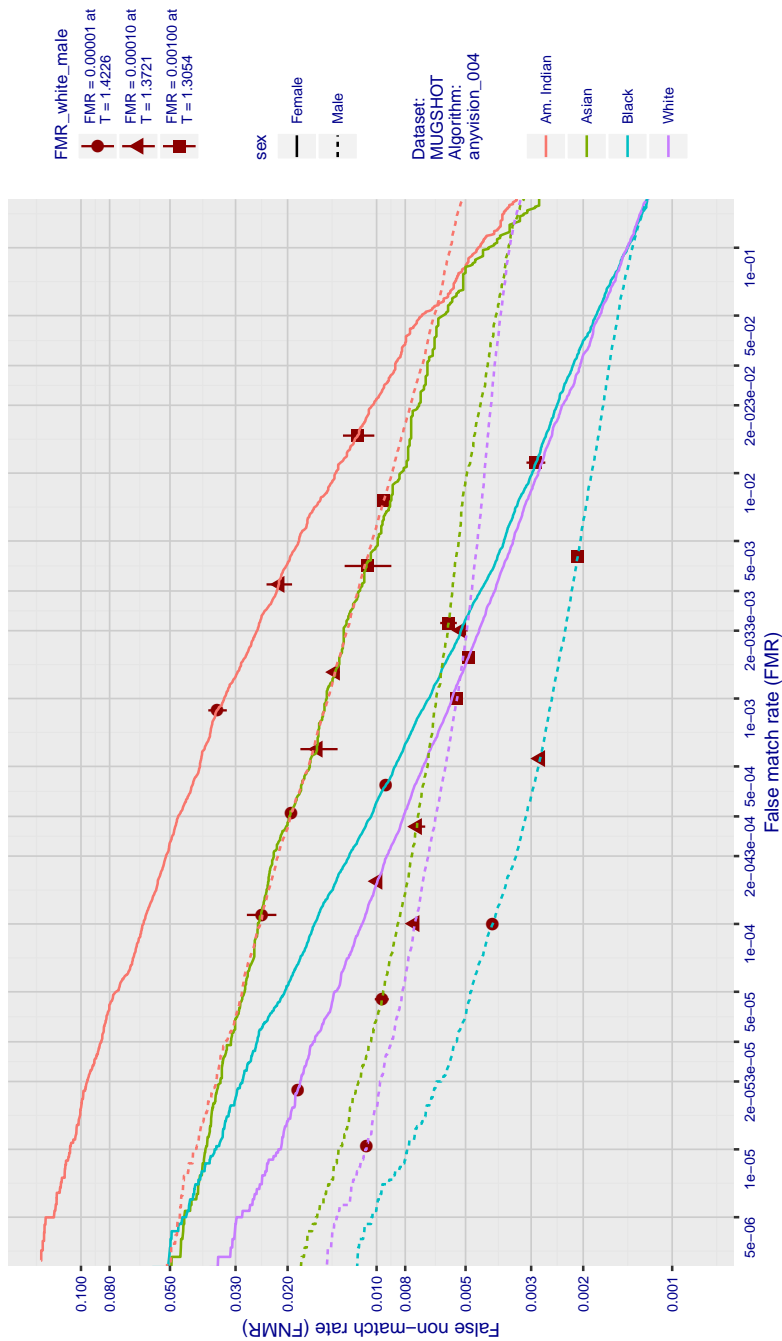


Figure 12: Verification error by sex and race: For algorithm anyvision-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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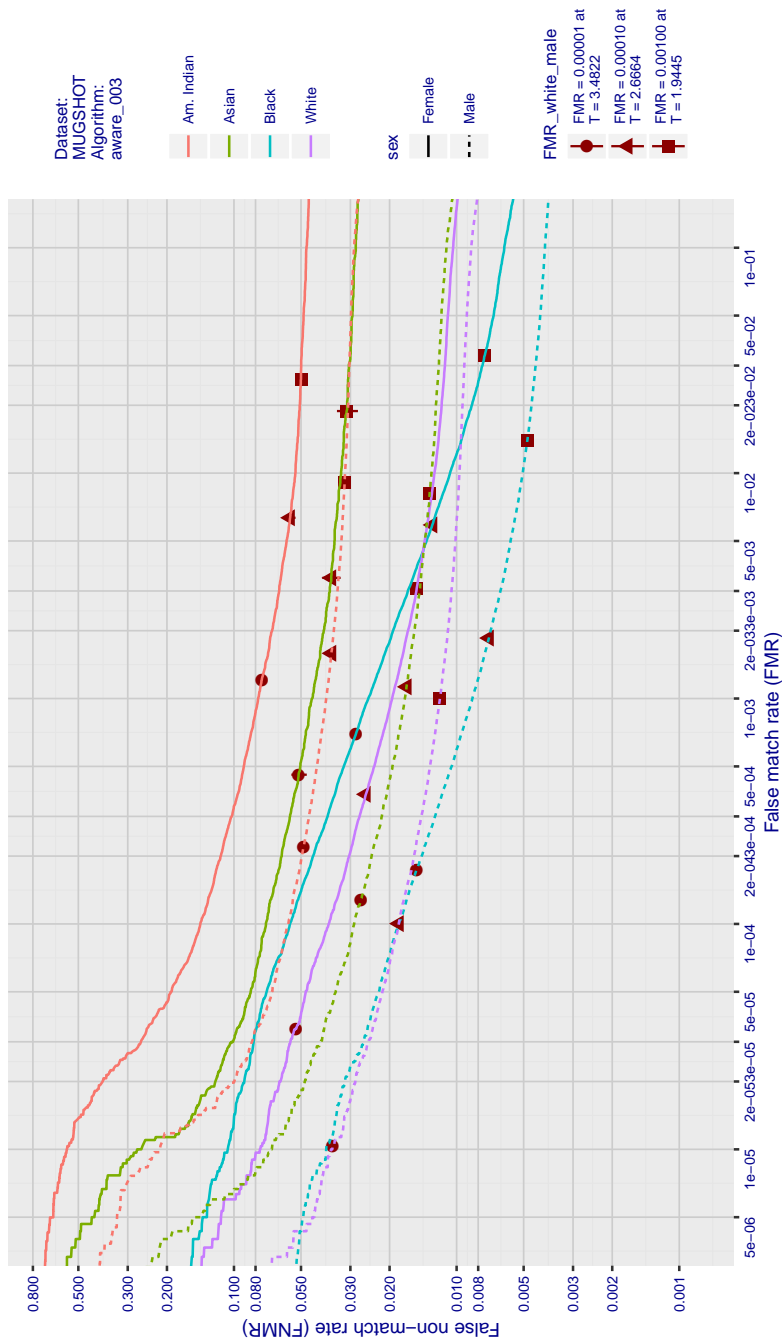


Figure 13: Verification error by sex and race: For algorithm aware-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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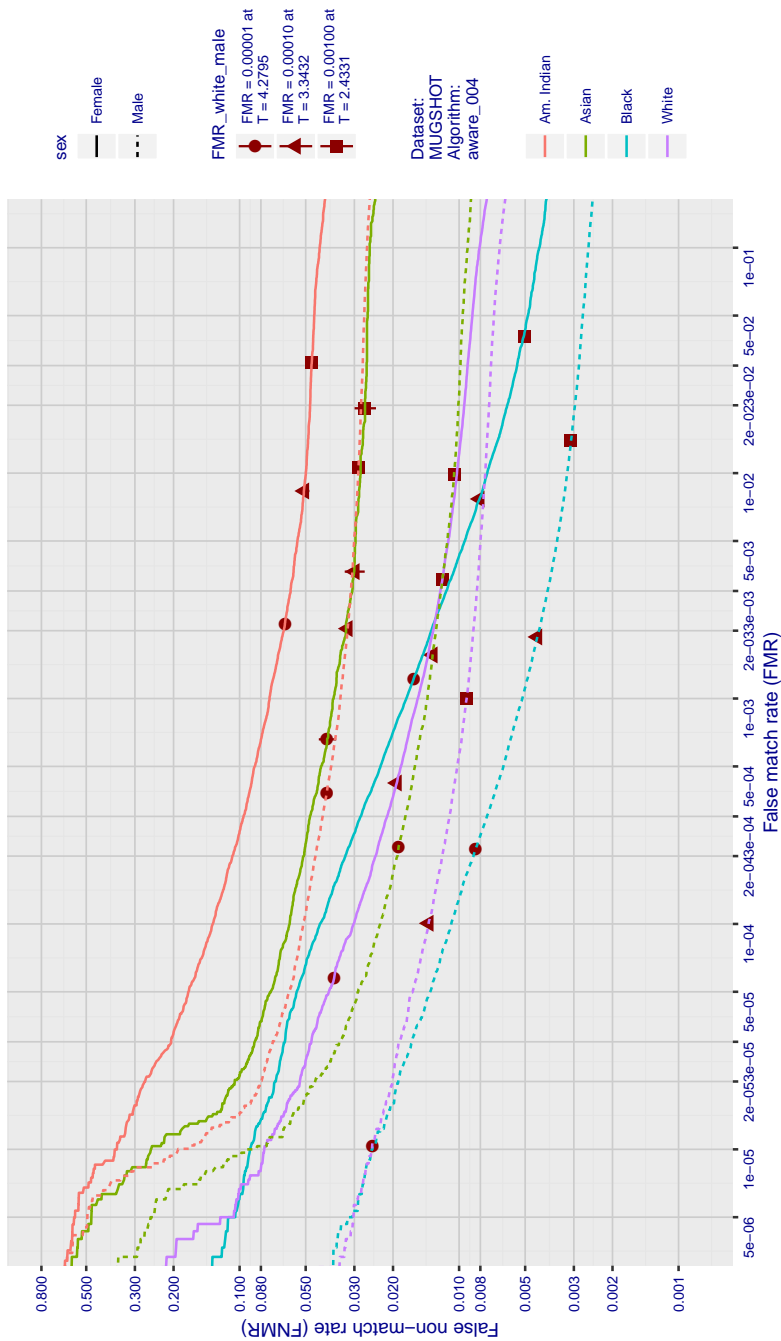


Figure 14: Verification error by sex and race: For algorithm aware-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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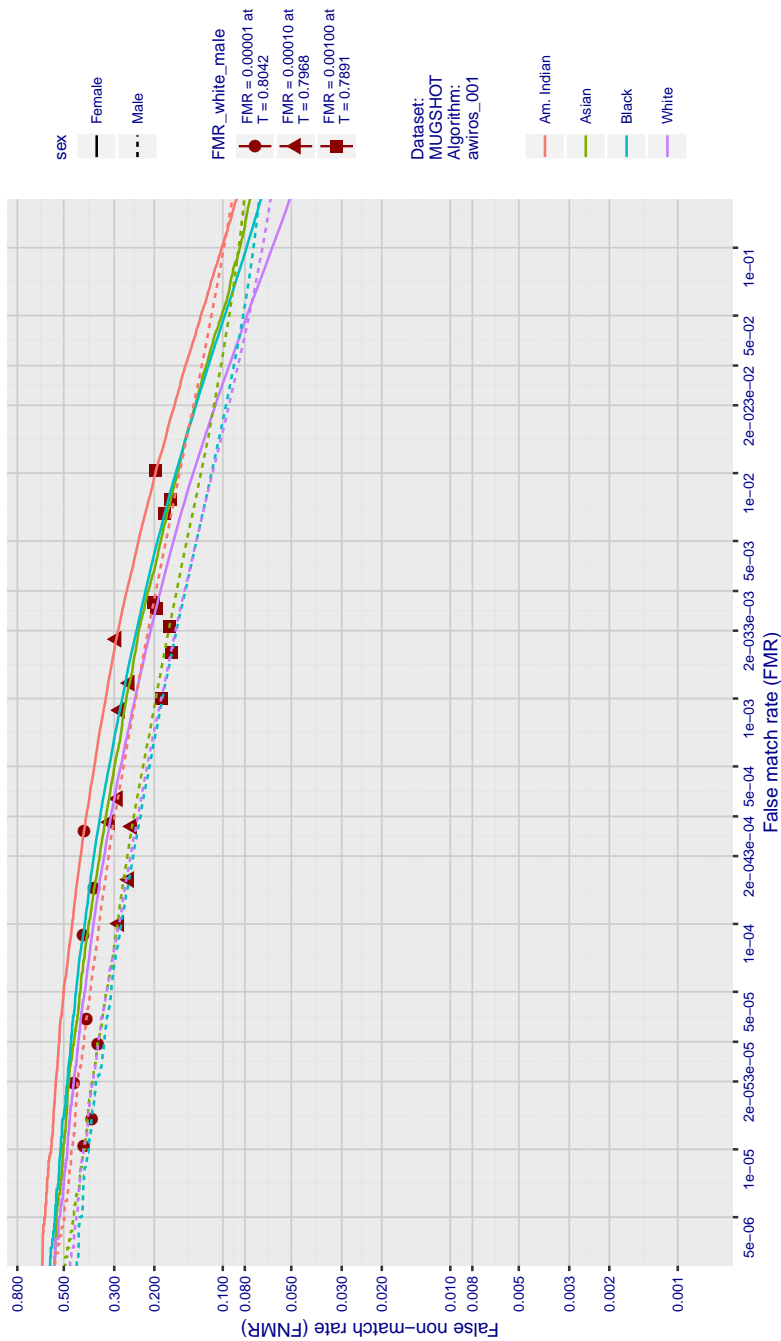


Figure 15: Verification error by sex and race: For algorithm awiros-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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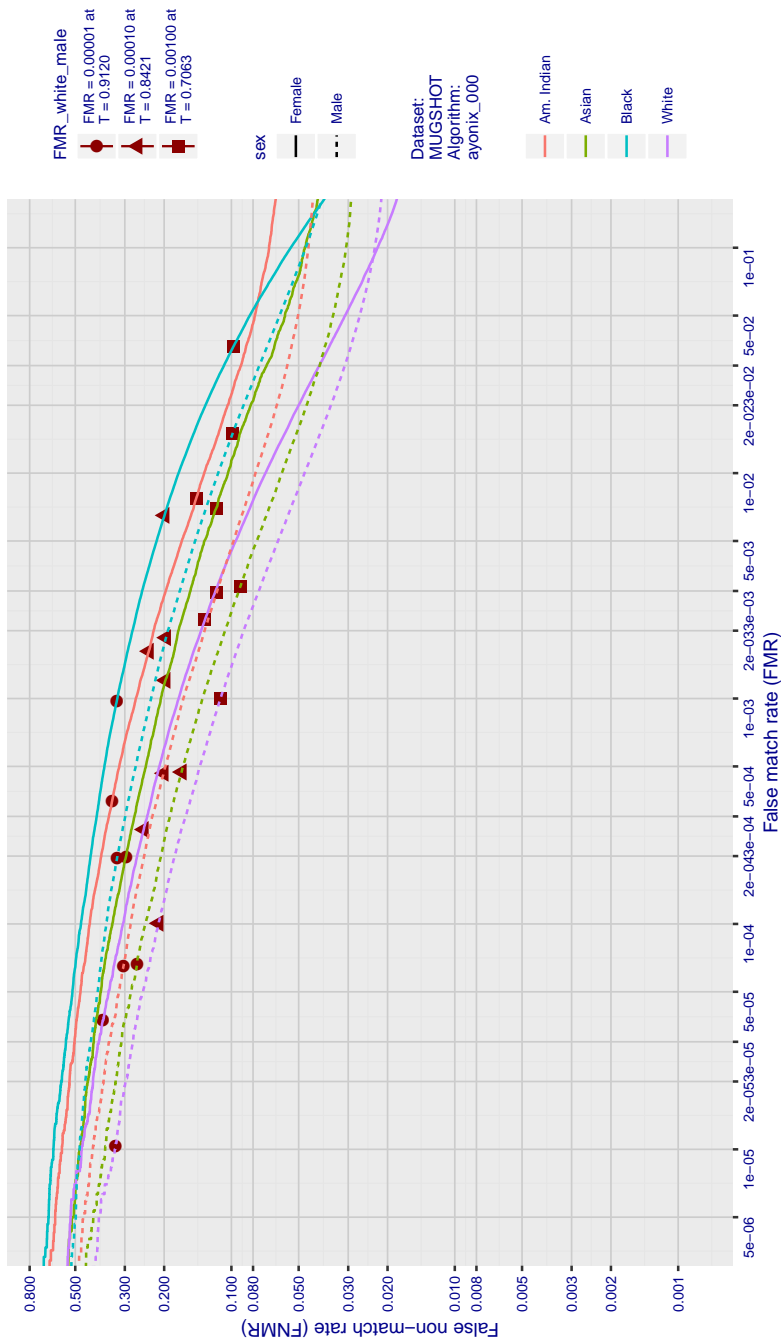


Figure 16: Verification error by sex and race: For algorithm ayonix-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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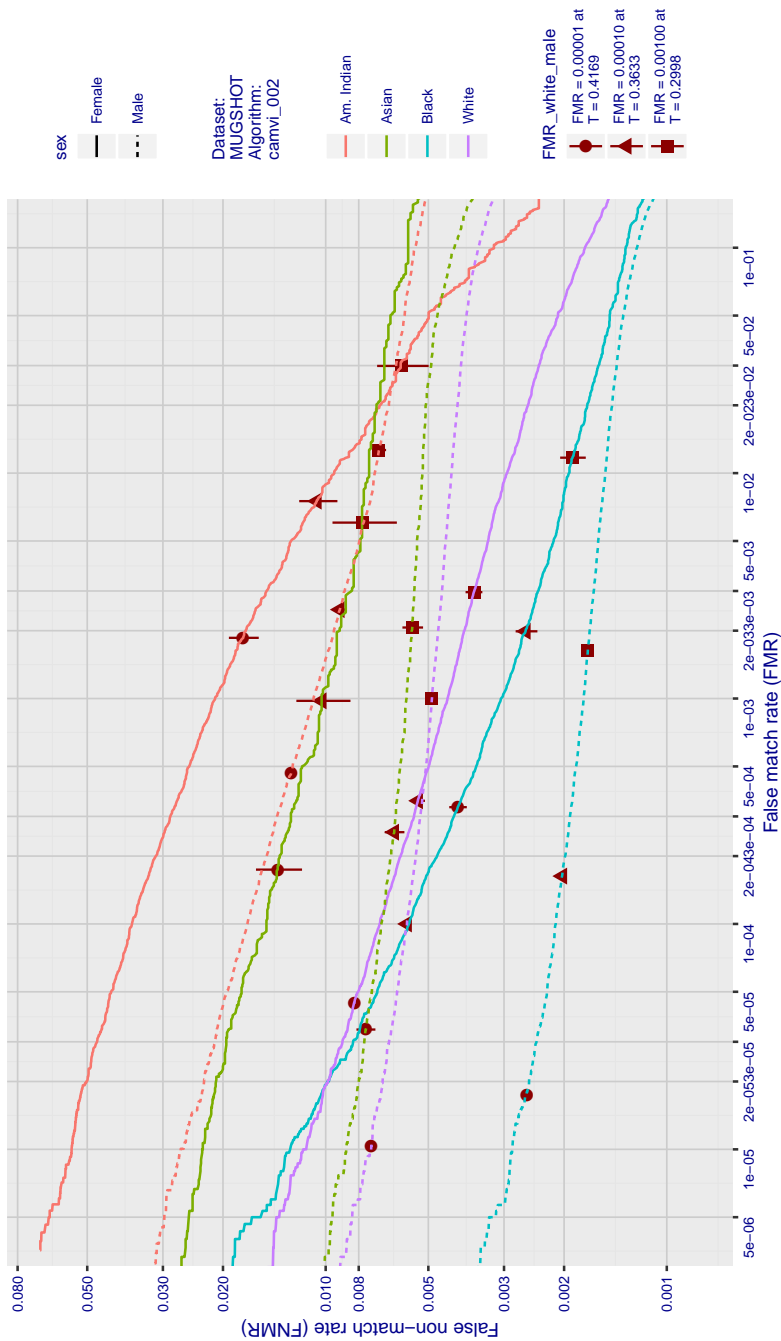


Figure 17: Verification error by sex and race: For algorithm camvi-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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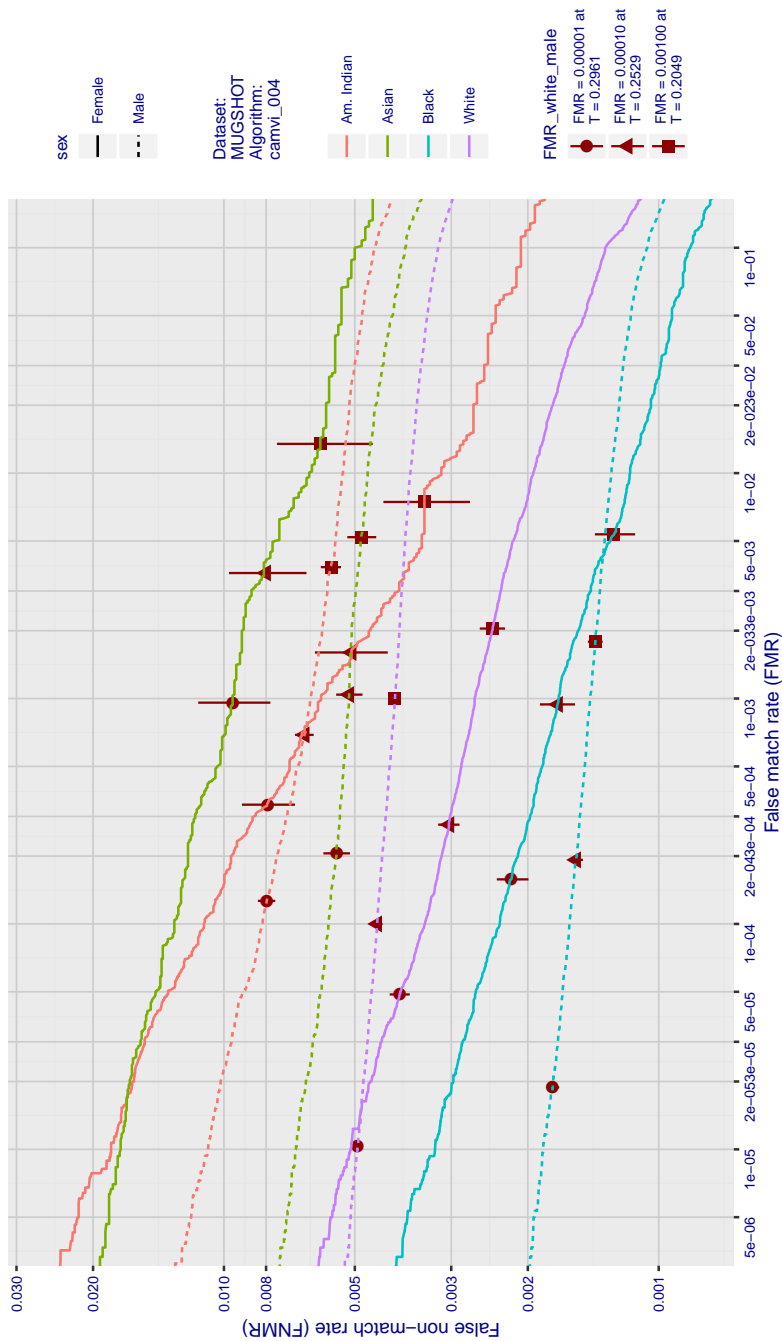


Figure 18: Verification error by sex and race: For algorithm camvi-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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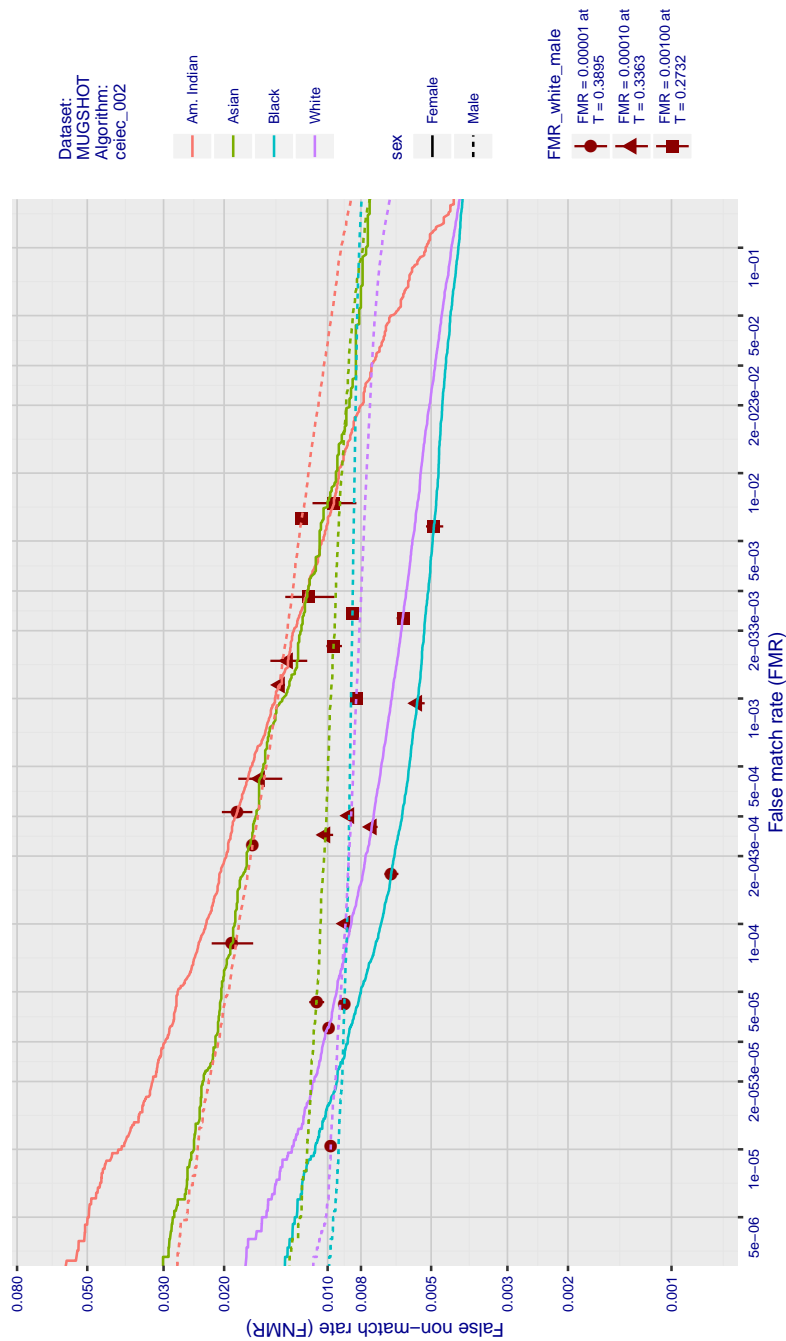


Figure 19: Verification error by sex and race: For algorithm celec-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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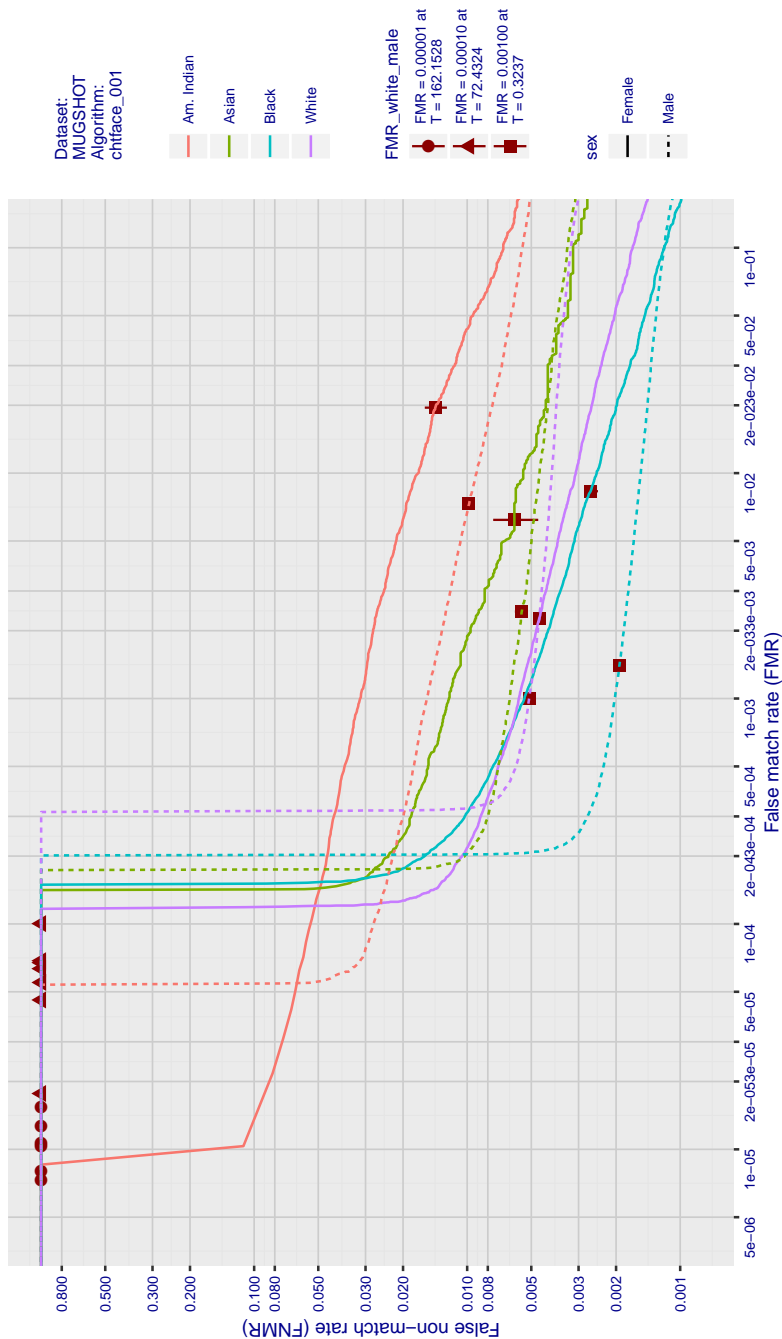


Figure 20: Verification error by sex and race: For algorithm chtface-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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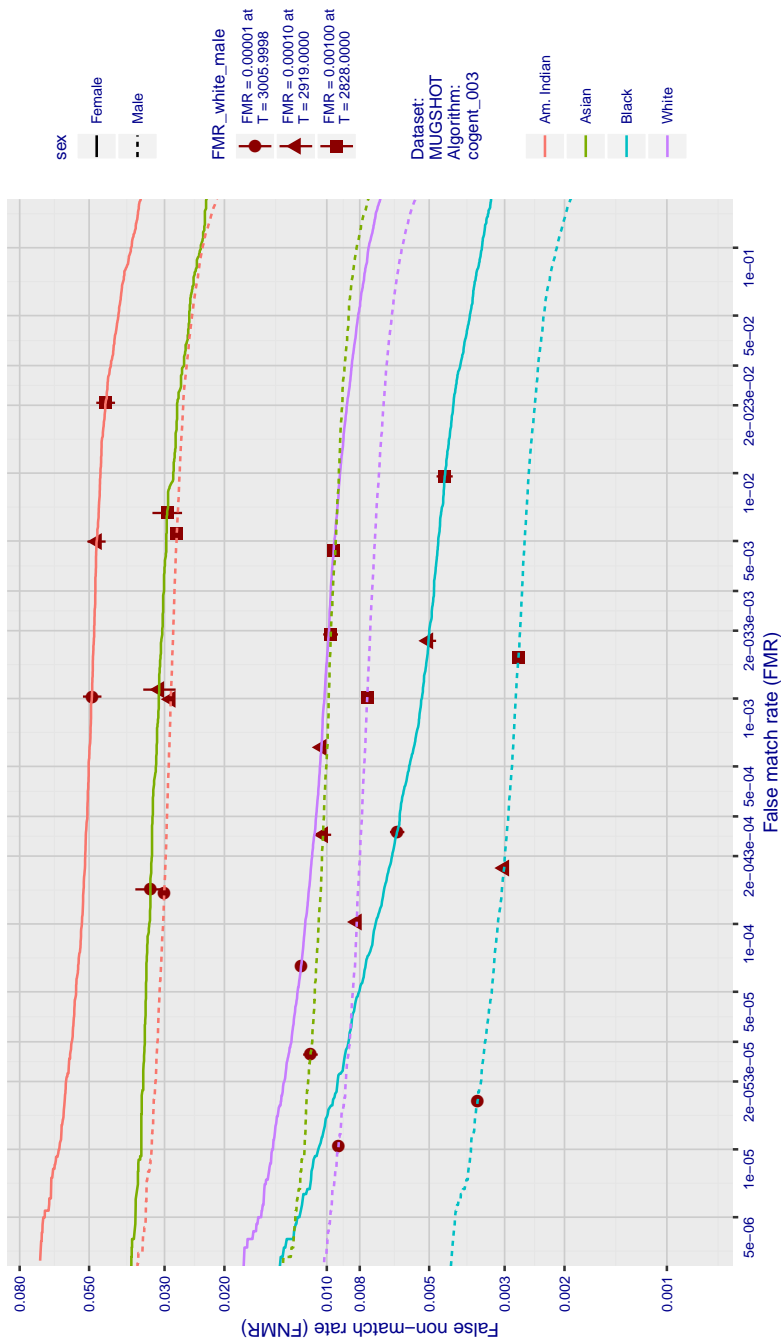


Figure 21: Verification error by sex and race: For algorithm cogent-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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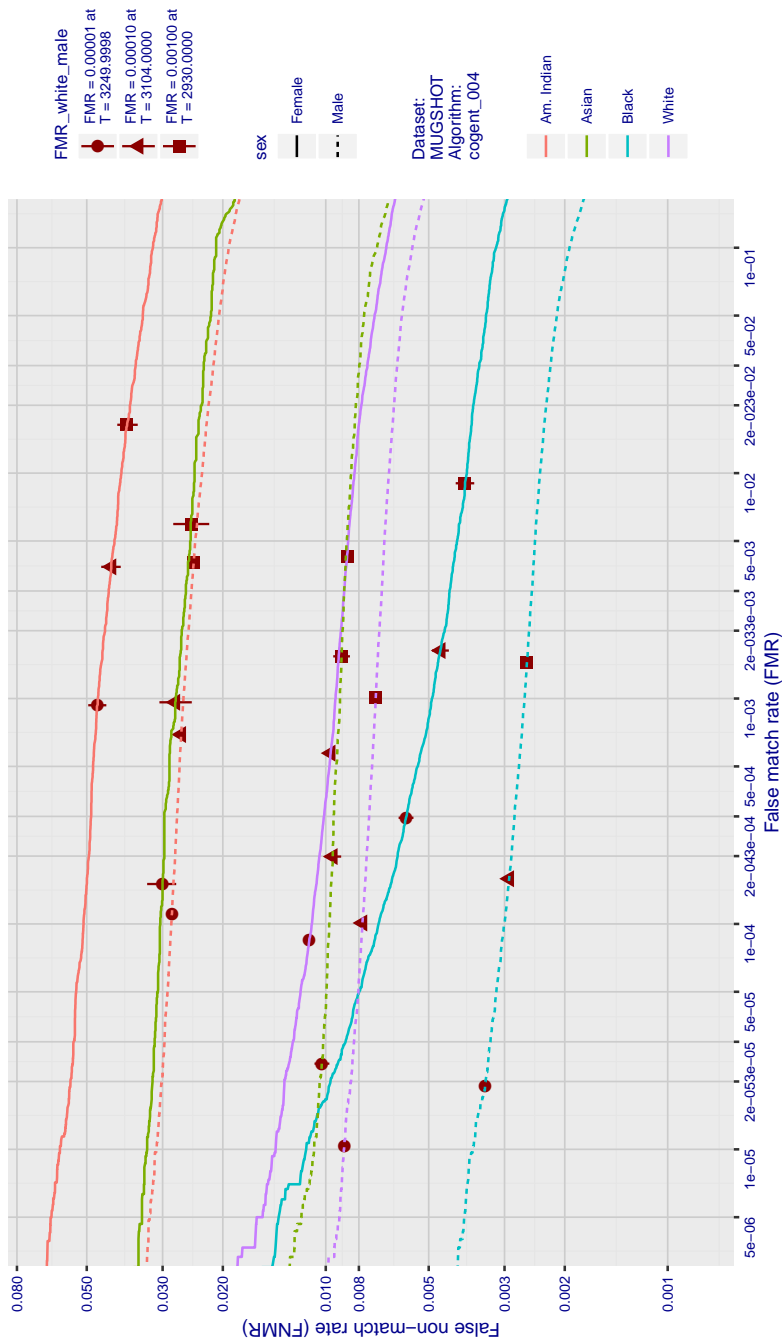


Figure 22: Verification error by sex and race: For algorithm cogent-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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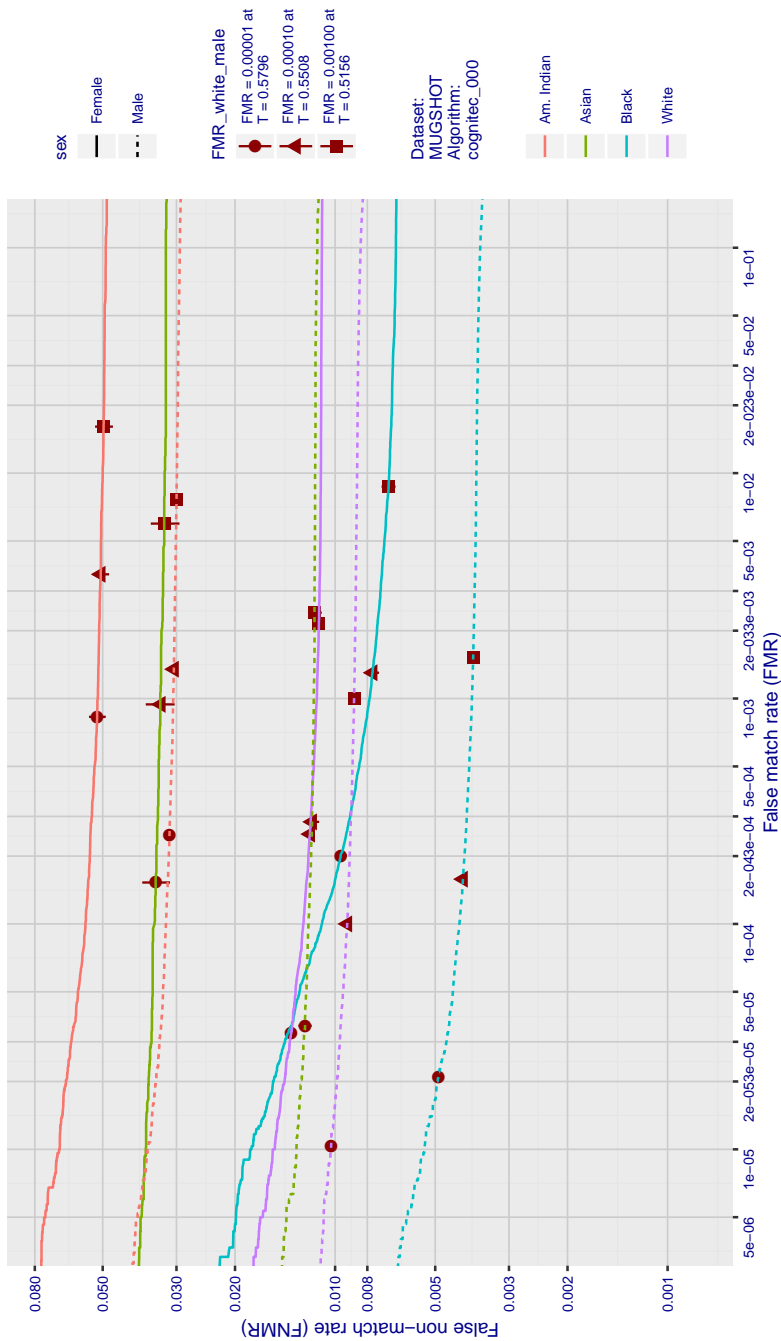


Figure 23: Verification error by sex and race: For algorithm cognitec-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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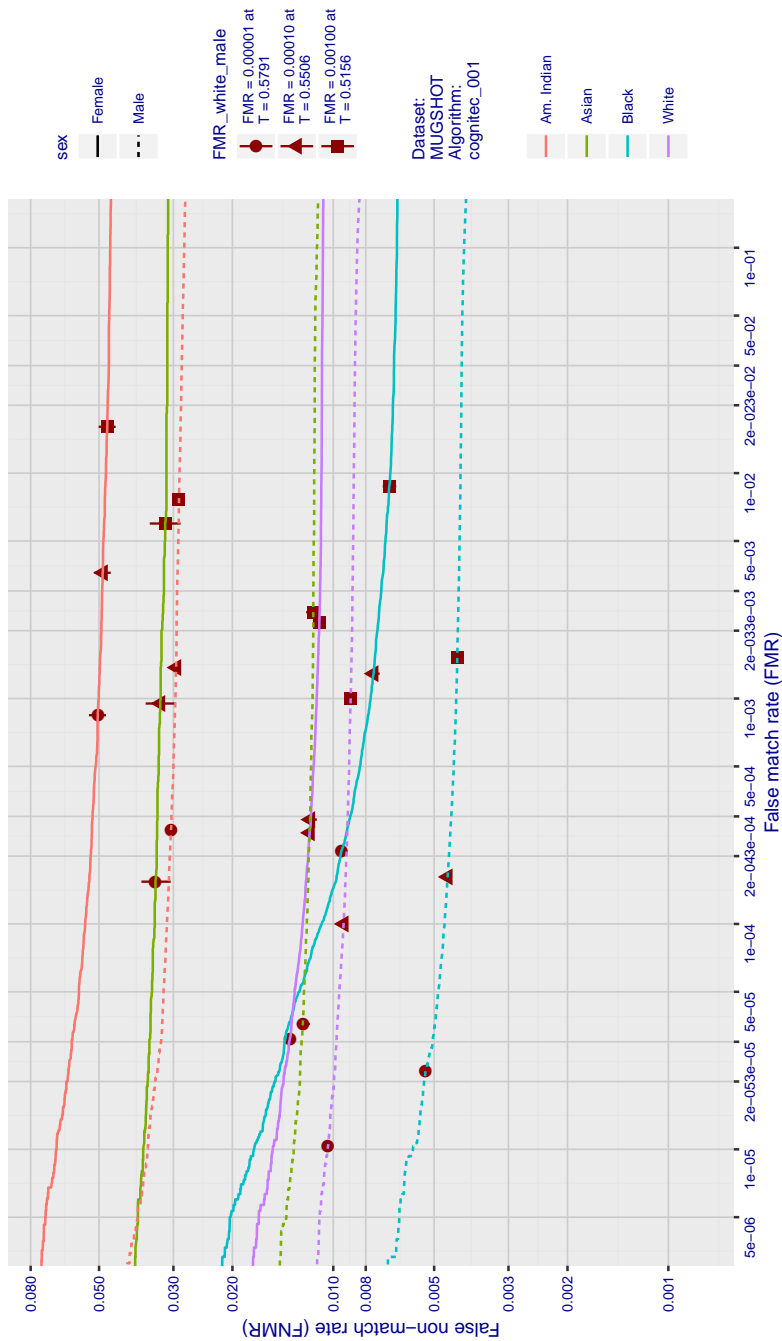


Figure 24: Verification error by sex and race: For algorithm cognitec-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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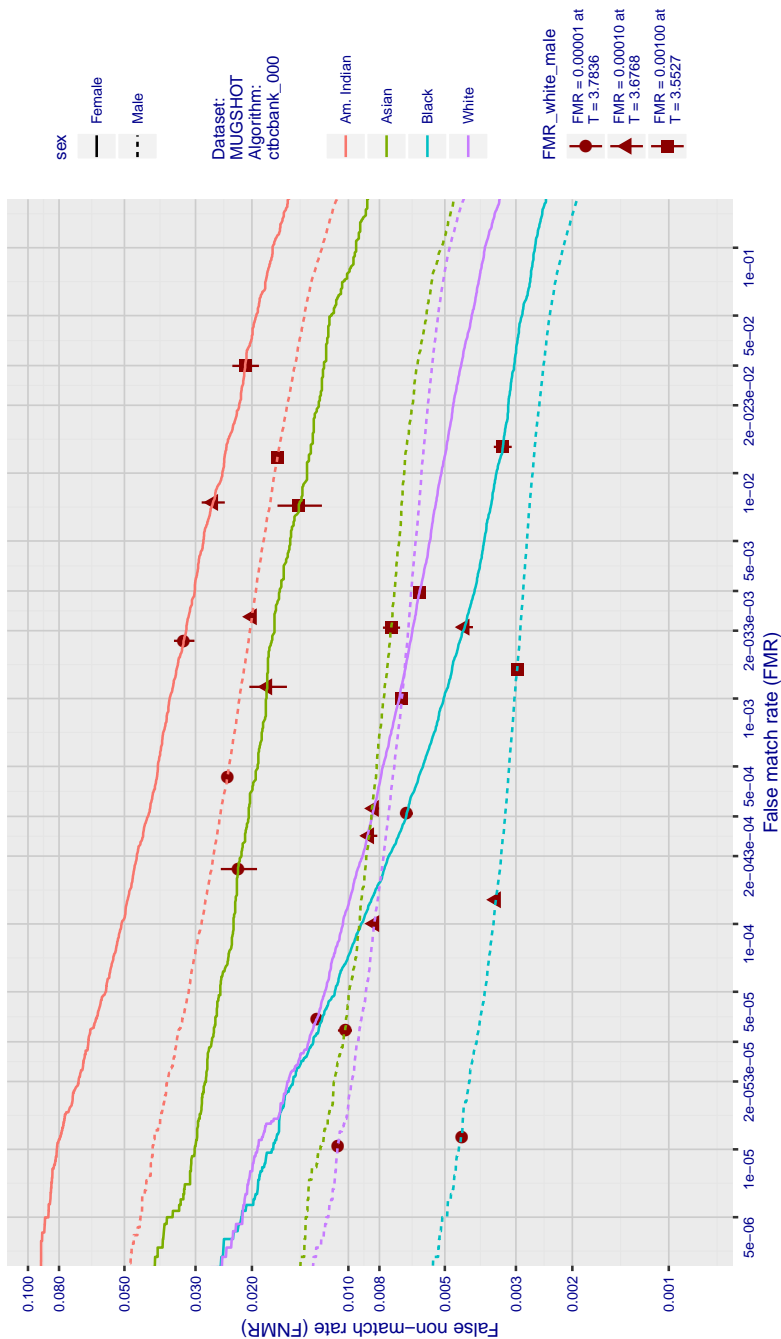


Figure 25: Verification error by sex and race: For algorithm ctcbank-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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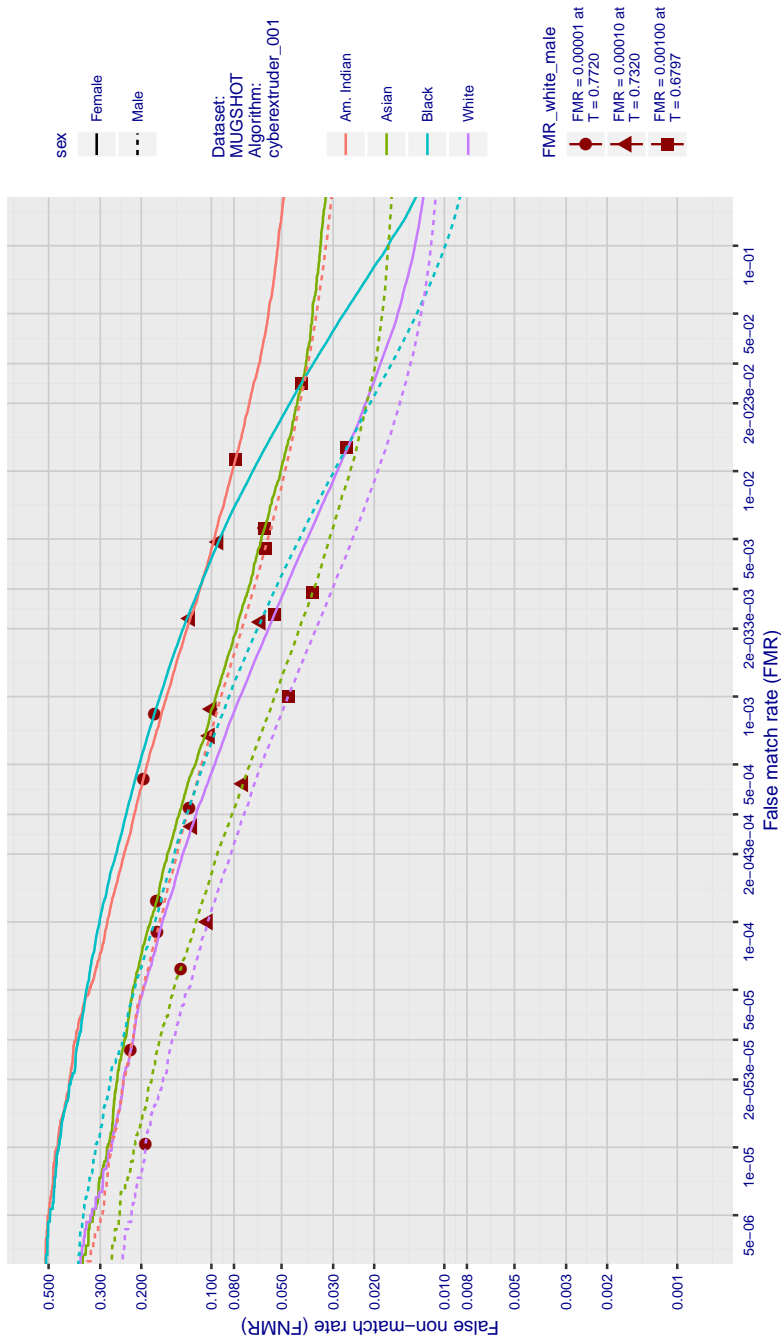


Figure 26: Verification error by sex and race: For algorithm cyberextruder-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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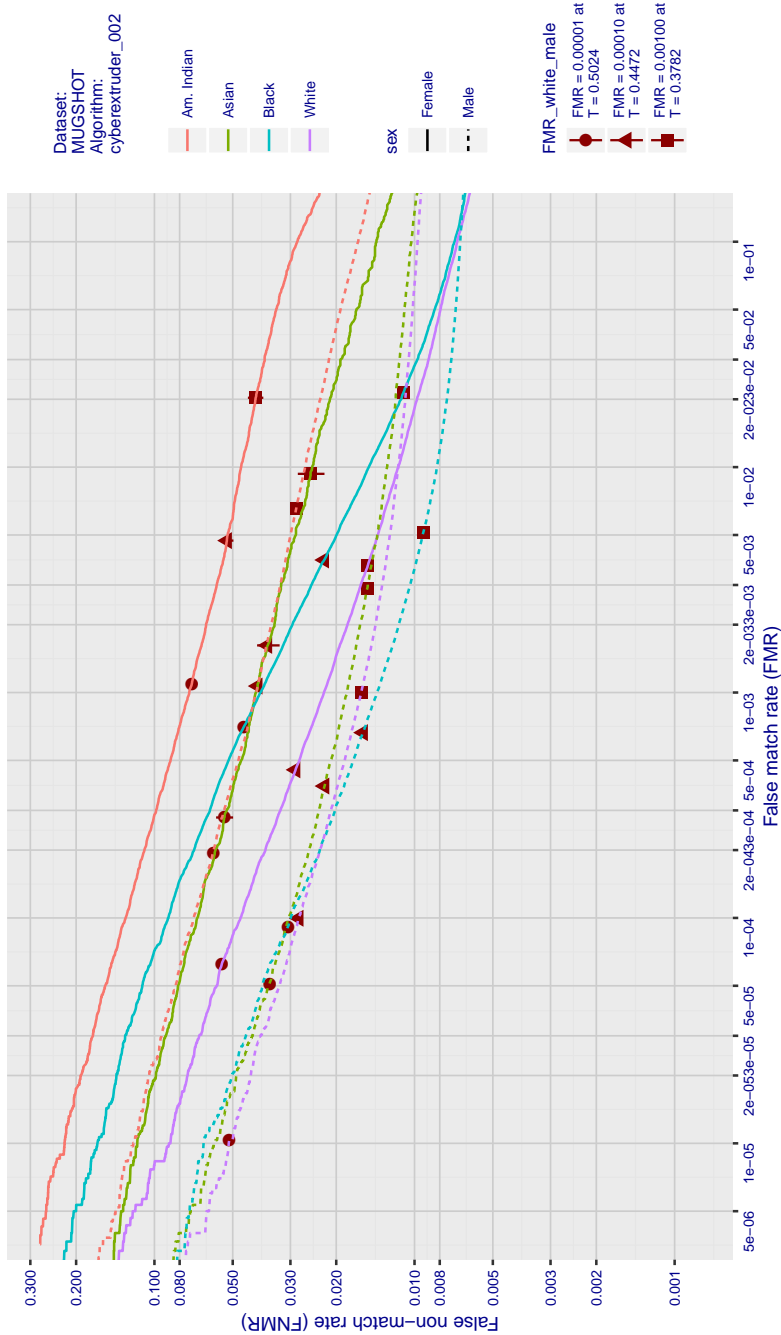


Figure 27: Verification error by sex and race: For algorithm cyberextruder-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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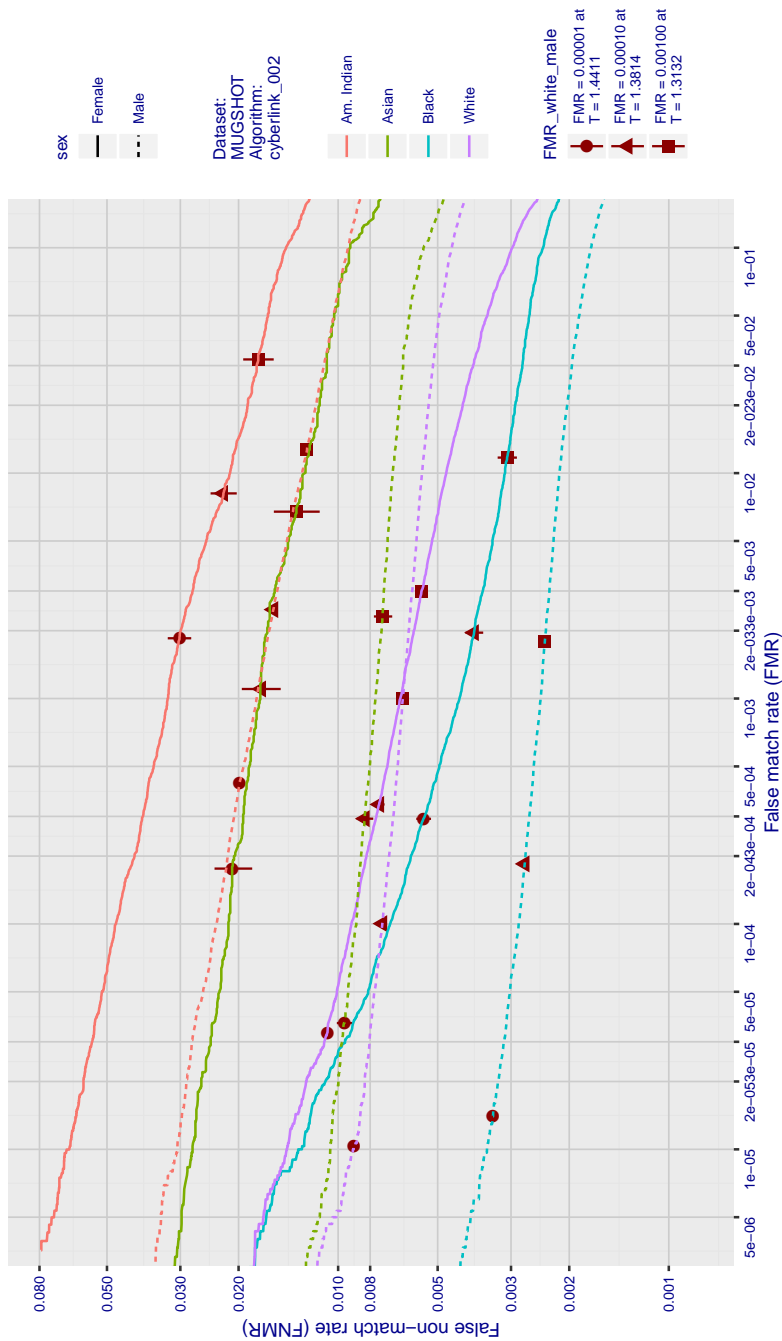


Figure 28: Verification error by sex and race: For algorithm cyberlink-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

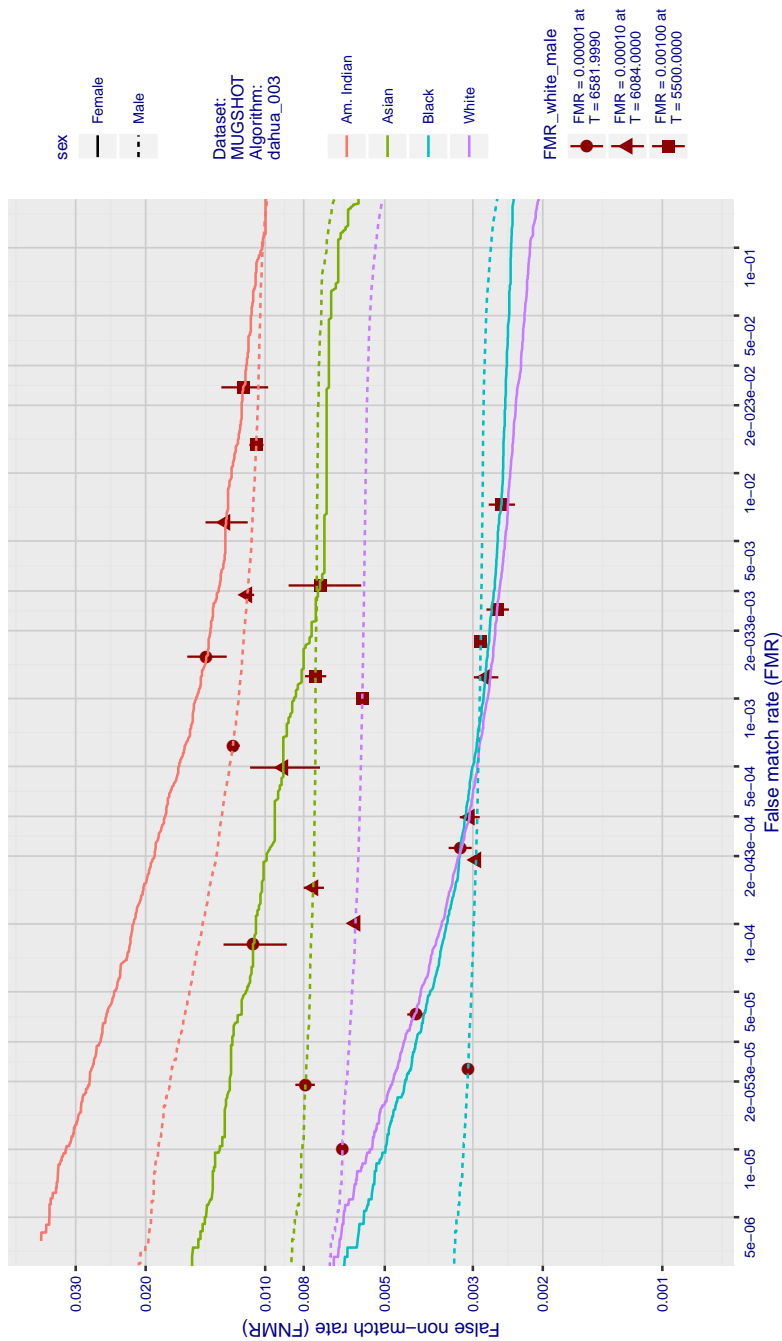


Figure 29: Verification error by sex and race: For algorithm dahua-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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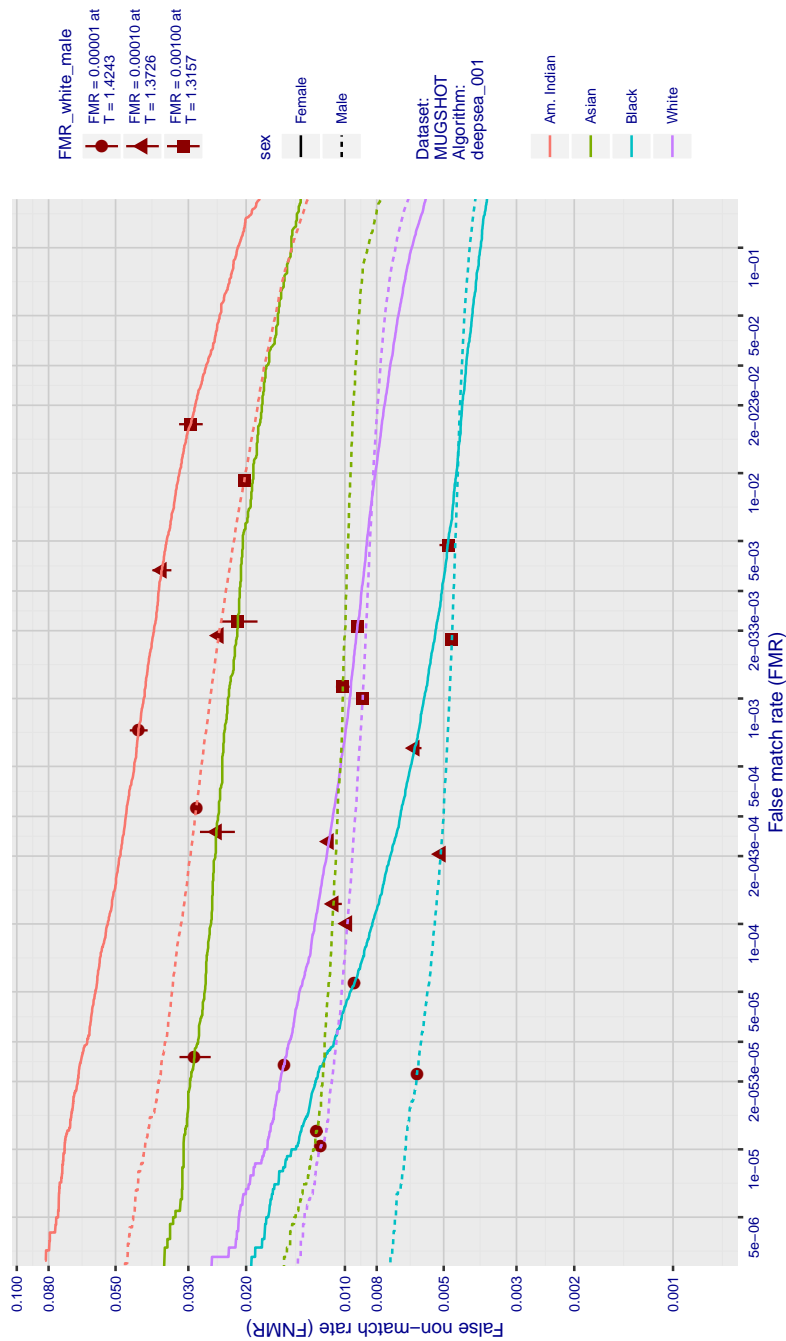


Figure 30: Verification error by sex and race: For algorithm deepsea-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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reports/11/figures/fig\_for\_fmrdets/df\_001.pdf

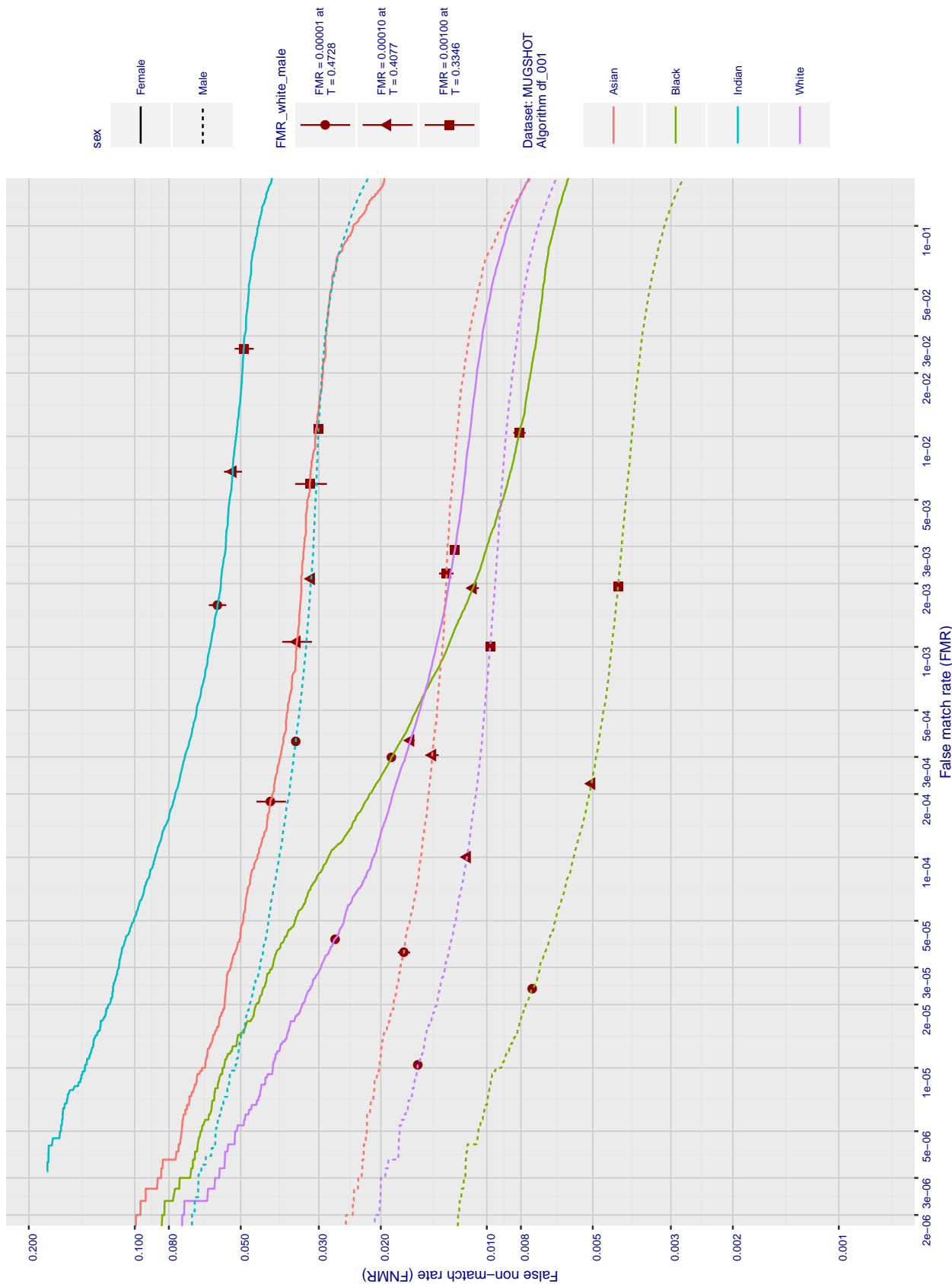


Figure 31: Verification error by sex and race: For algorithm df-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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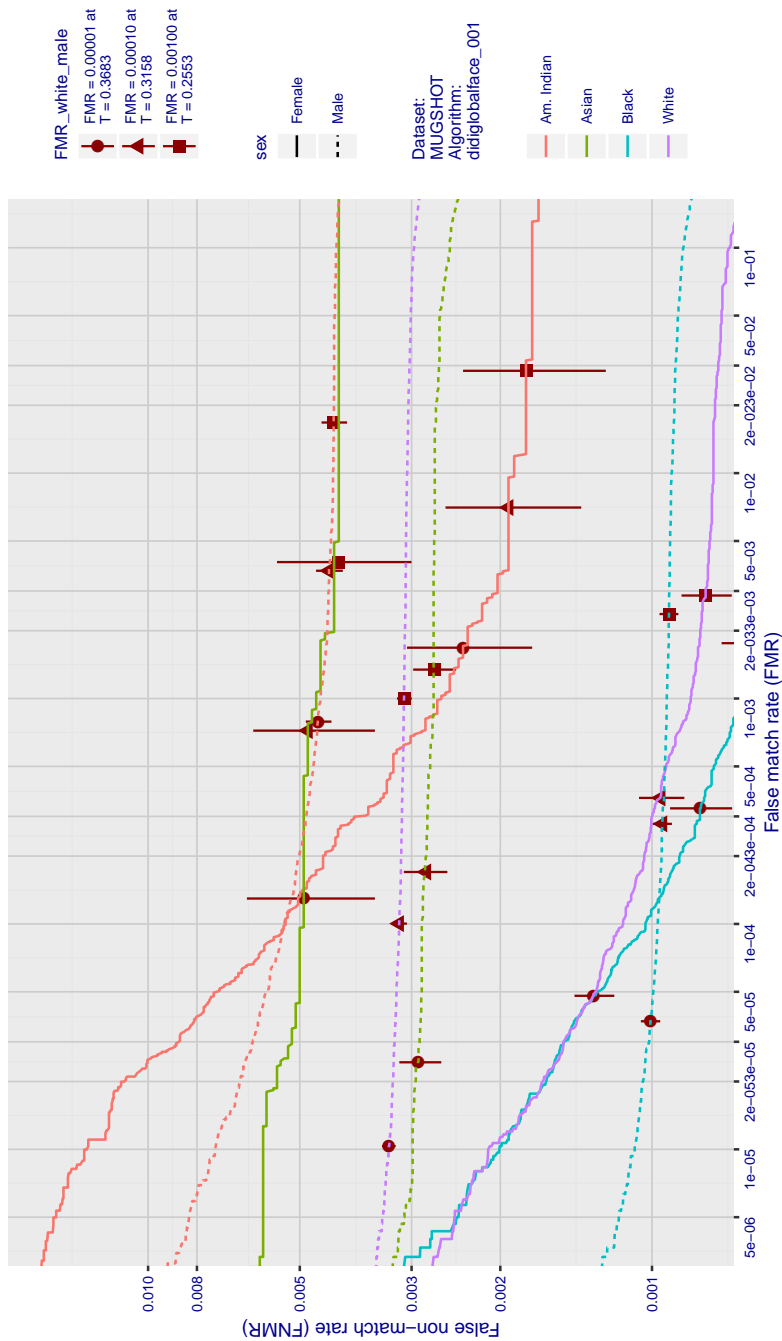


Figure 32: Verification error by sex and race: For algorithm didiglobalface-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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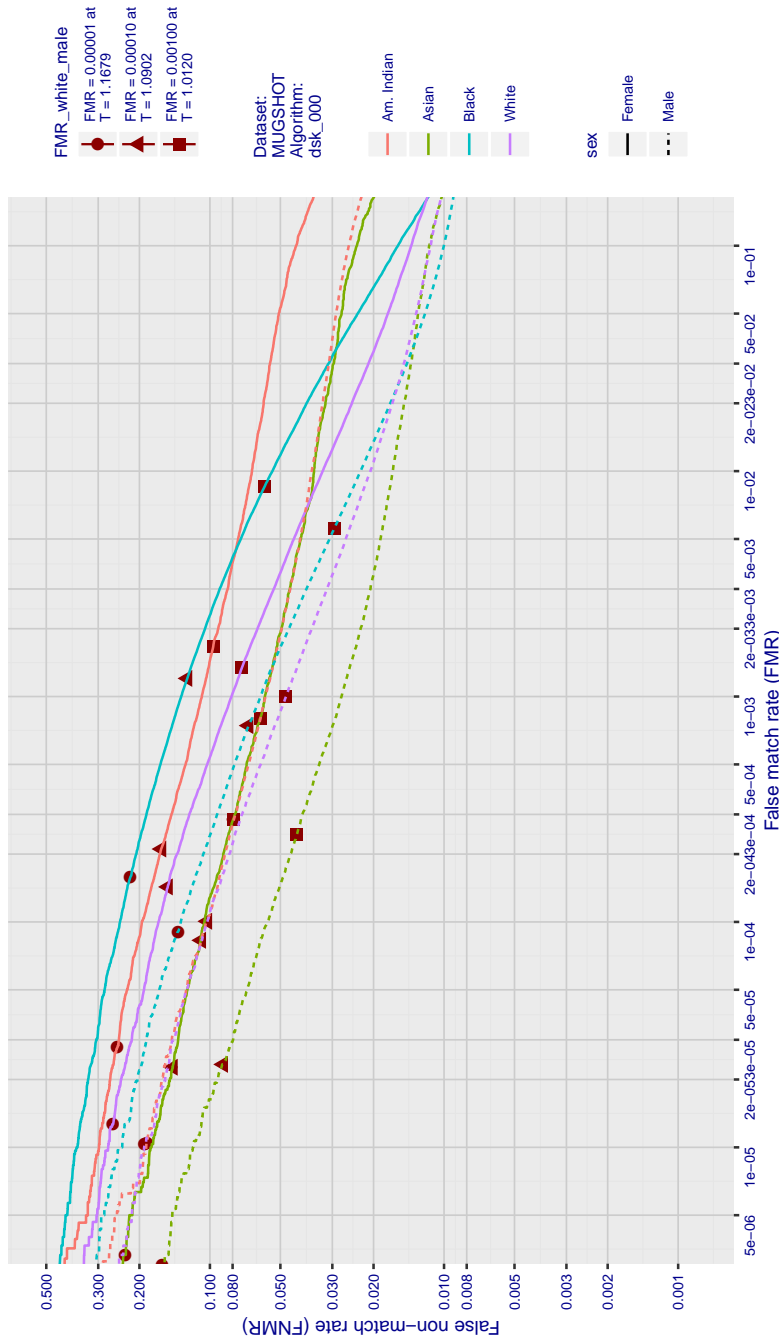


Figure 33: Verification error by sex and race: For algorithm dsk-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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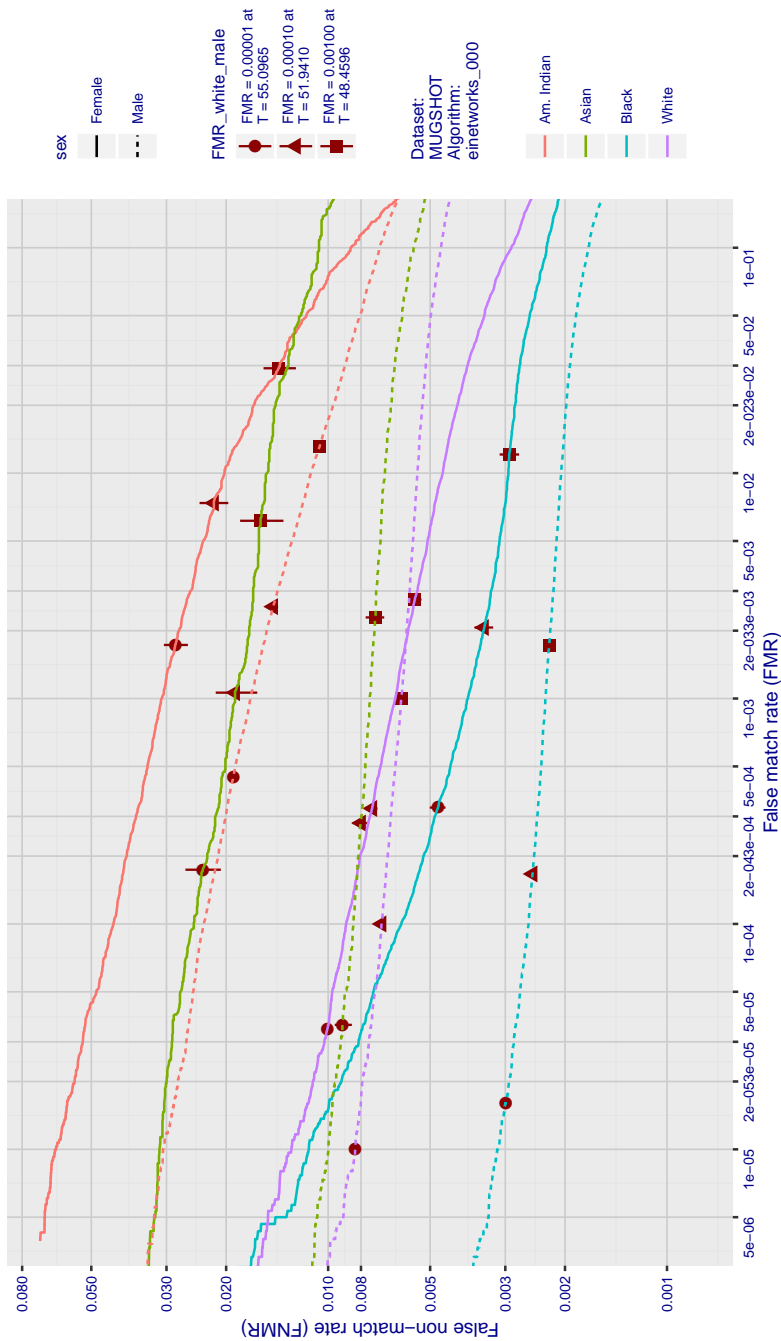


Figure 34: Verification error by sex and race: For algorithm einetworks-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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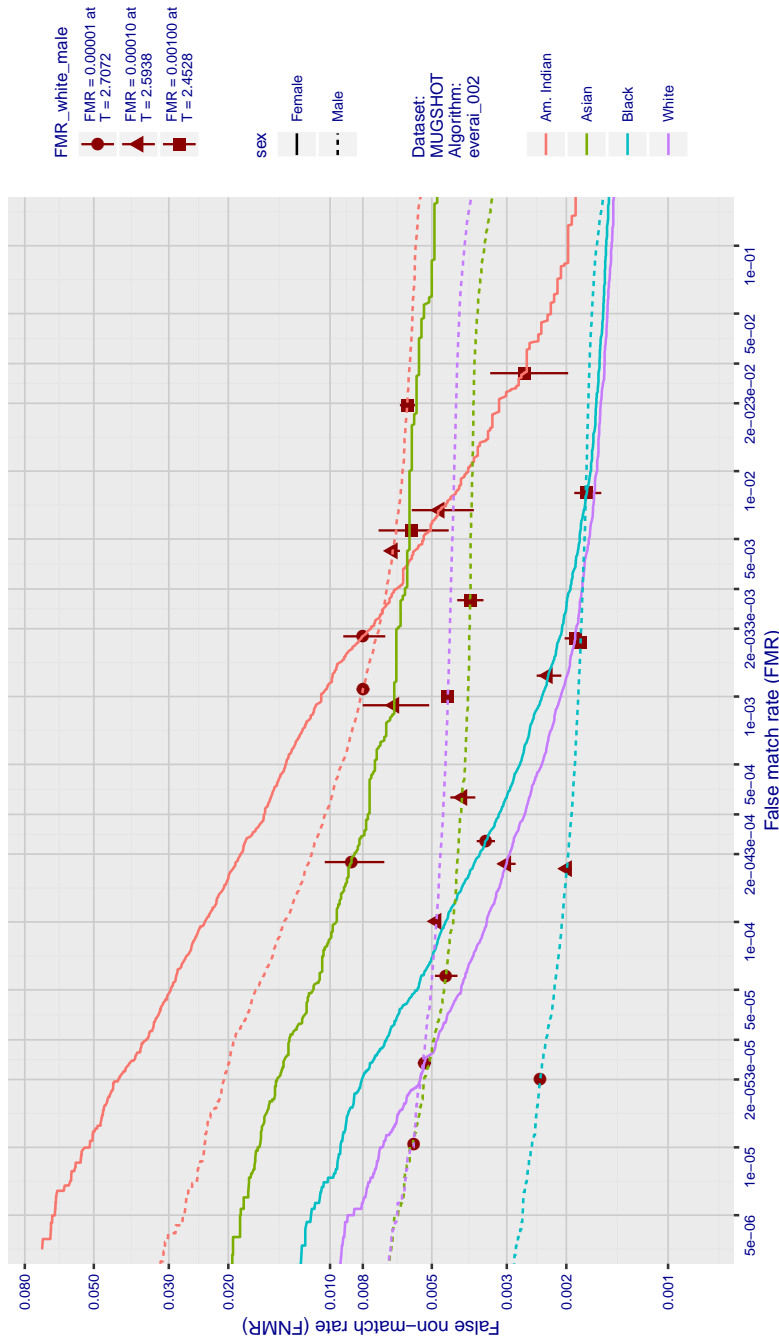


Figure 35: Verification error by sex and race: For algorithm everai-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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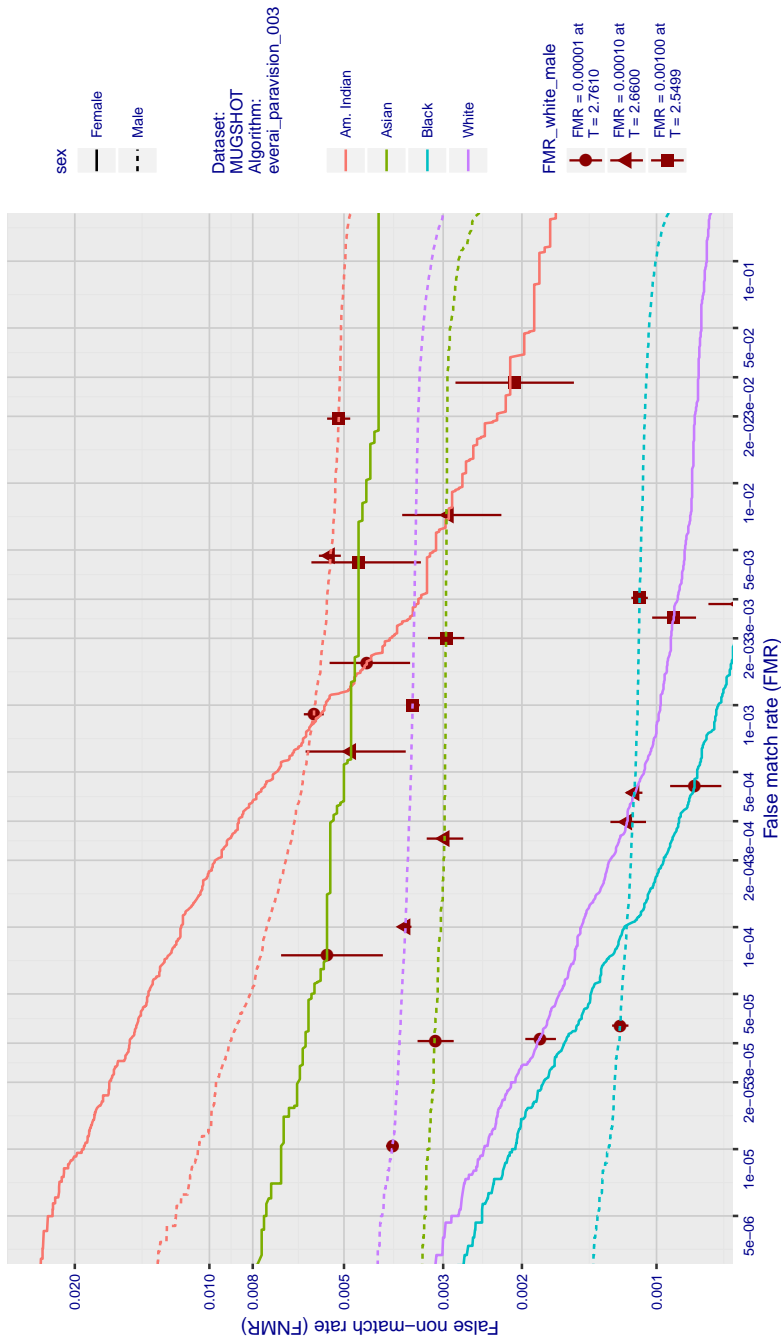


Figure 36: Verification error by sex and race: For algorithm everai-paravision-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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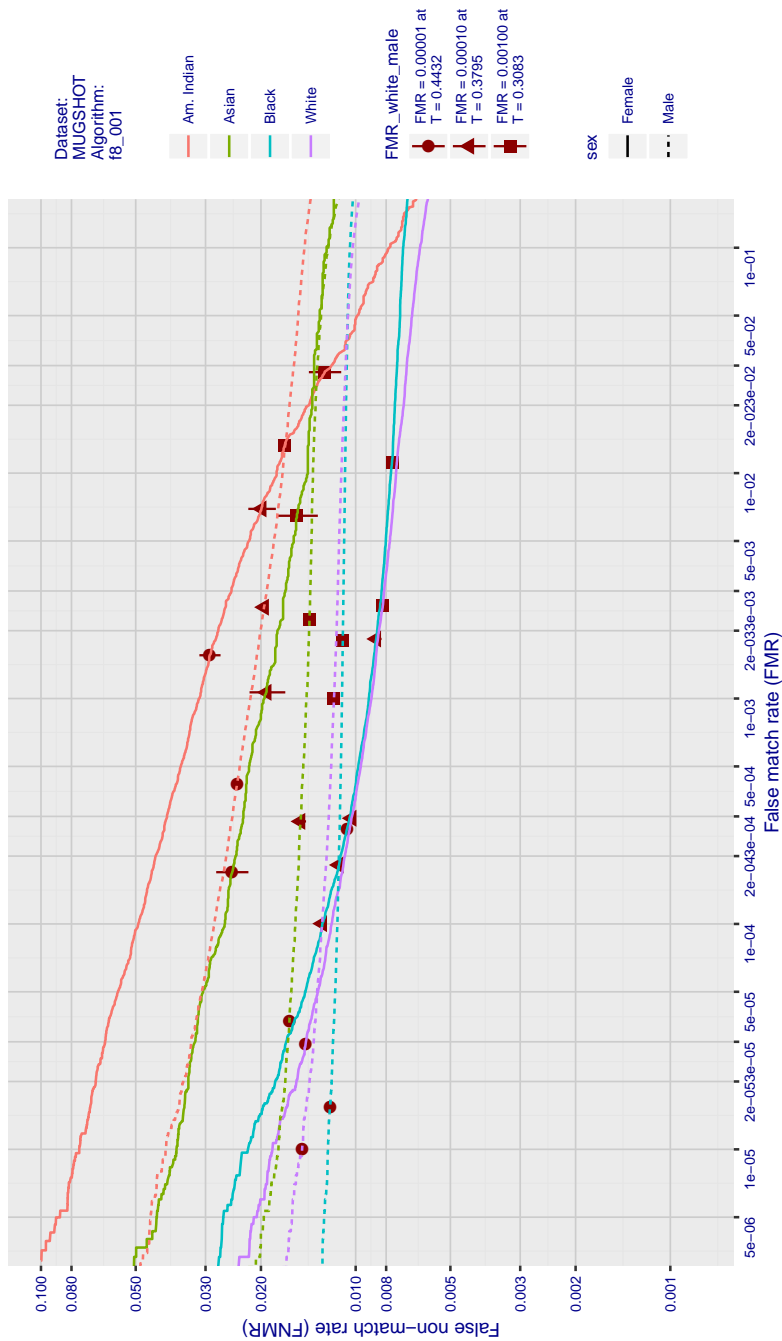


Figure 37: Verification error by sex and race: For algorithm f8-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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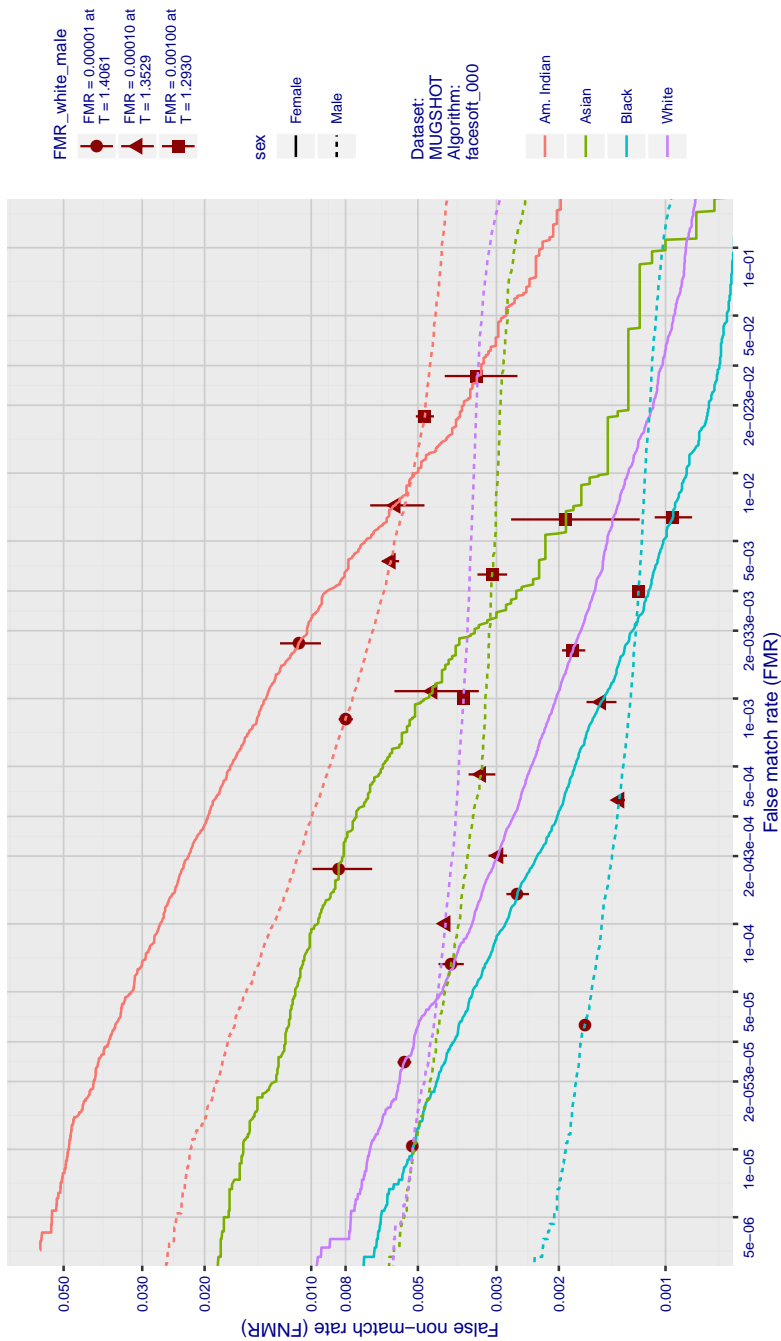


Figure 38: Verification error by sex and race: For algorithm facesoft-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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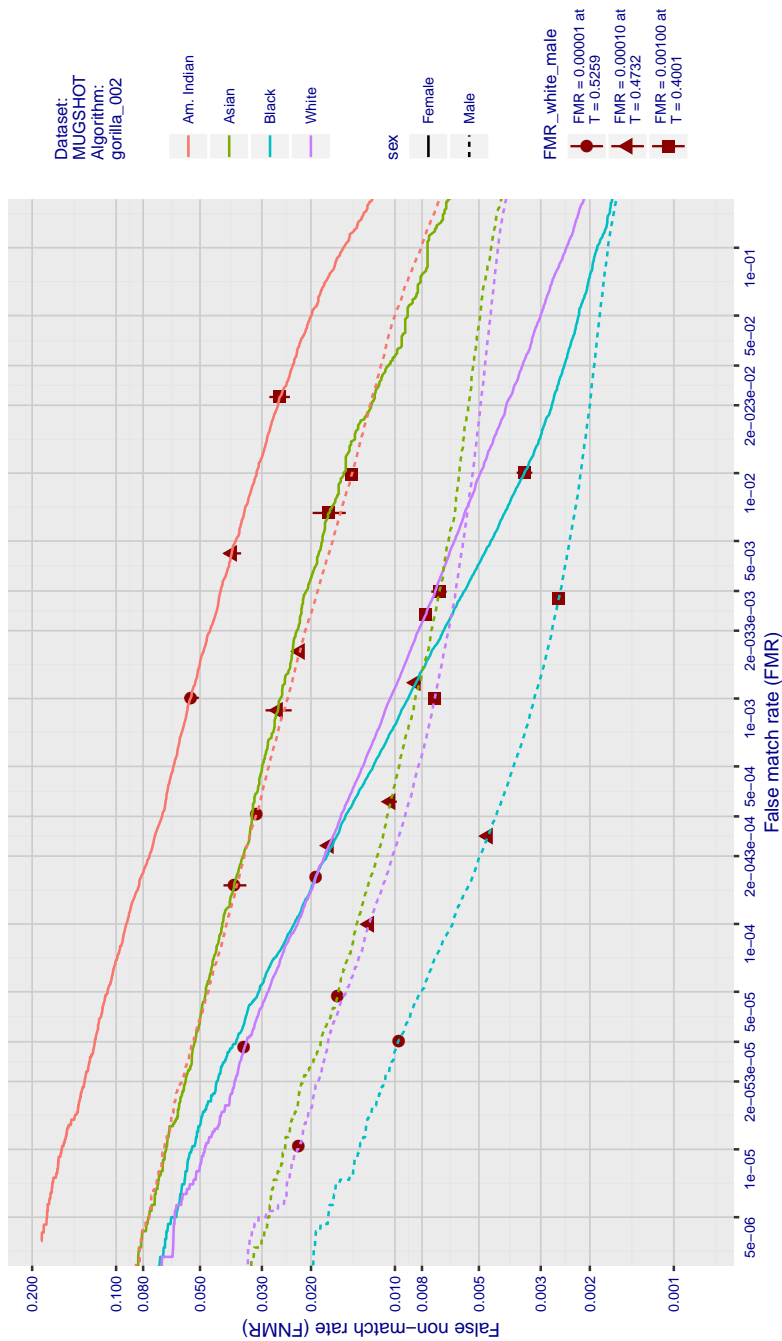


Figure 39: Verification error by sex and race: For algorithm gorilla-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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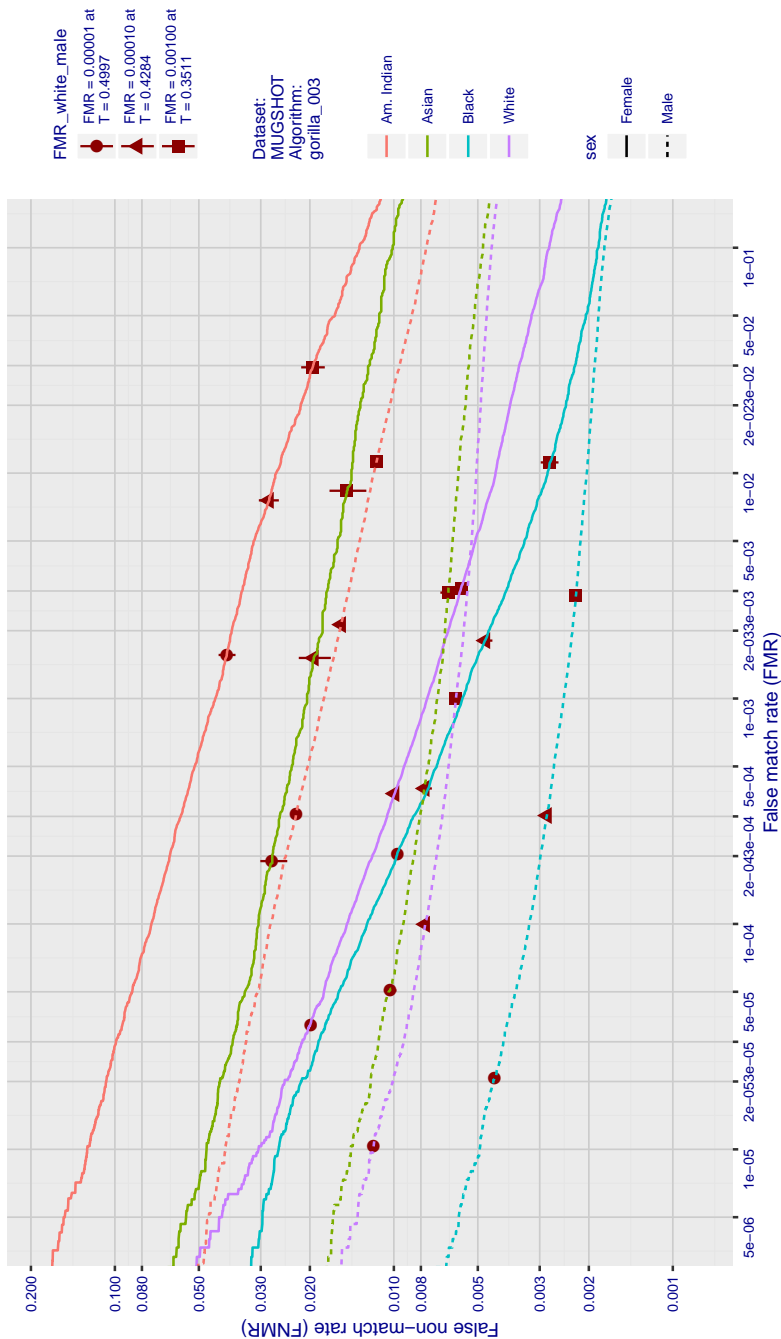


Figure 40: Verification error by sex and race: For algorithm gorilla-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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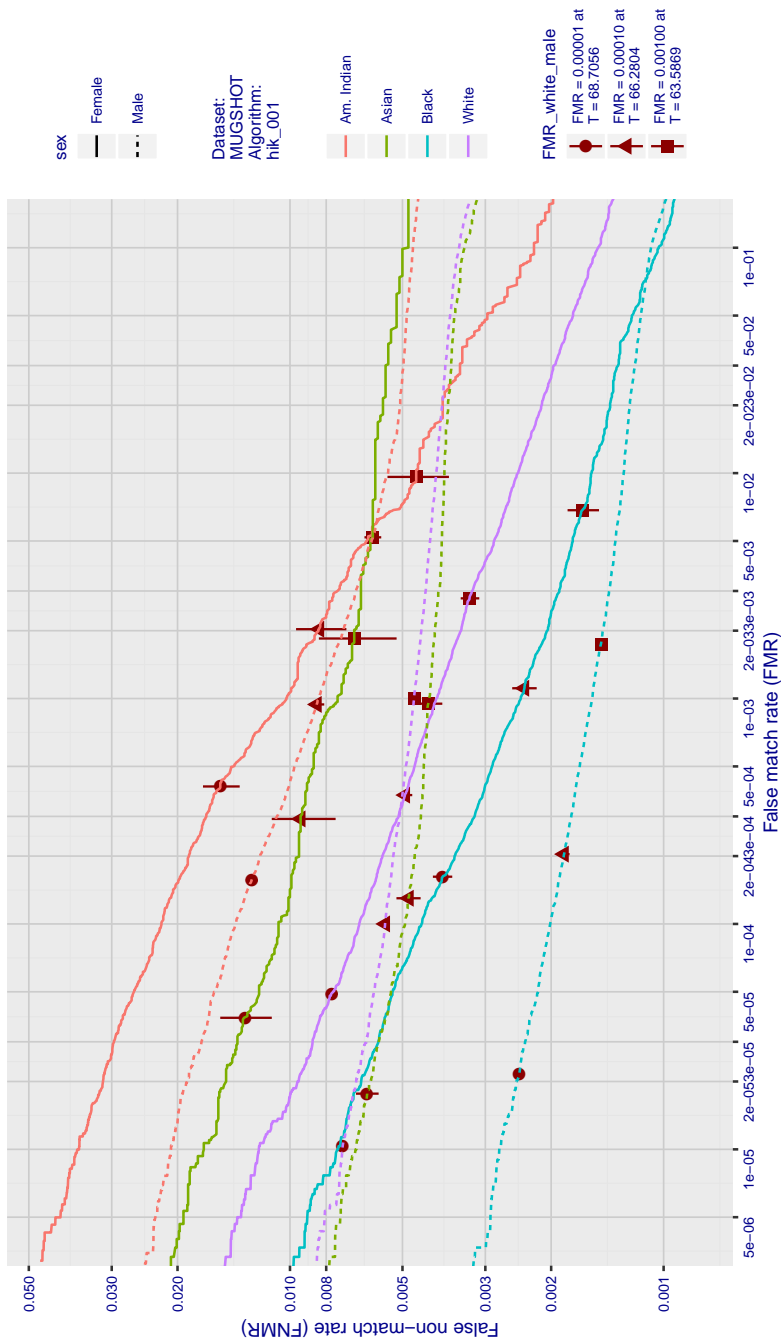


Figure 41: Verification error by sex and race: For algorithm hik-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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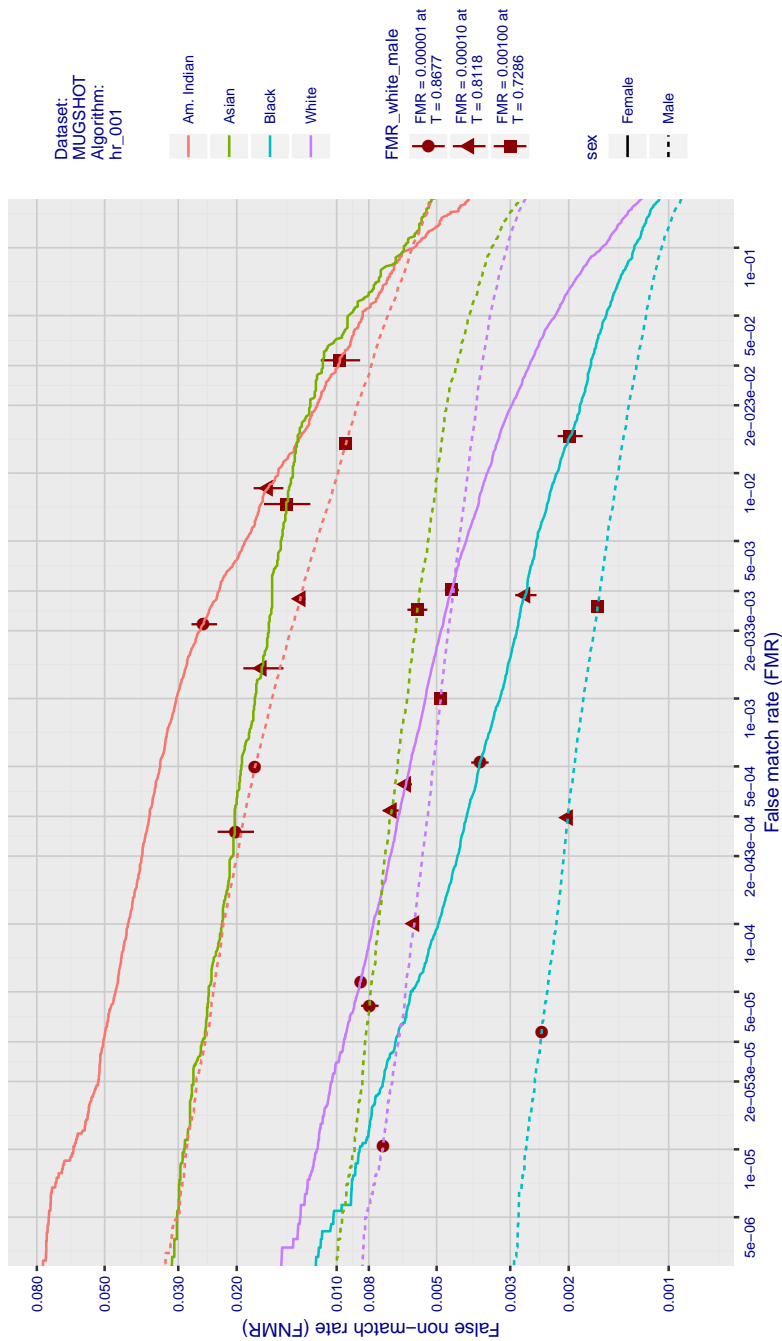


Figure 42: Verification error by sex and race: For algorithm hr-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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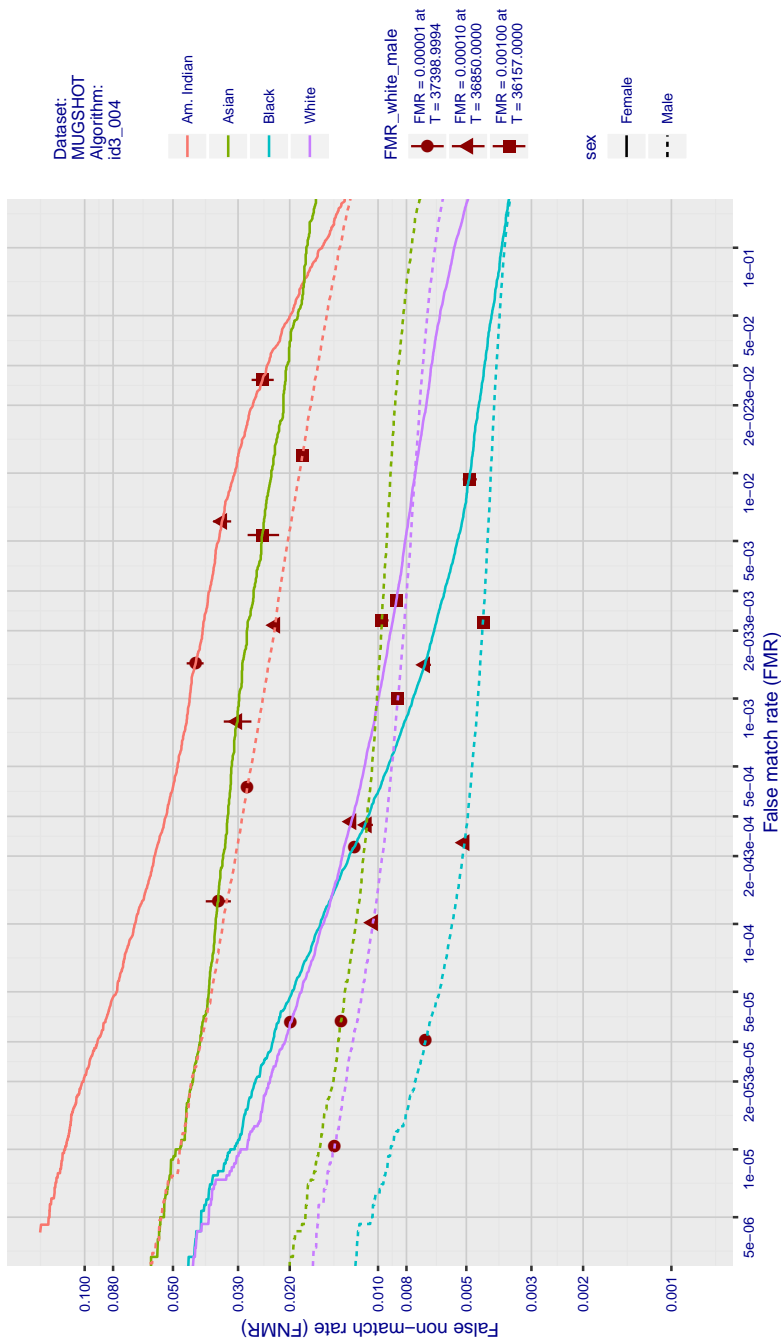


Figure 43: Verification error by sex and race: For algorithm id3-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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reports/11/figures/fig\_for\_fmrdets/identia\_003.pdf

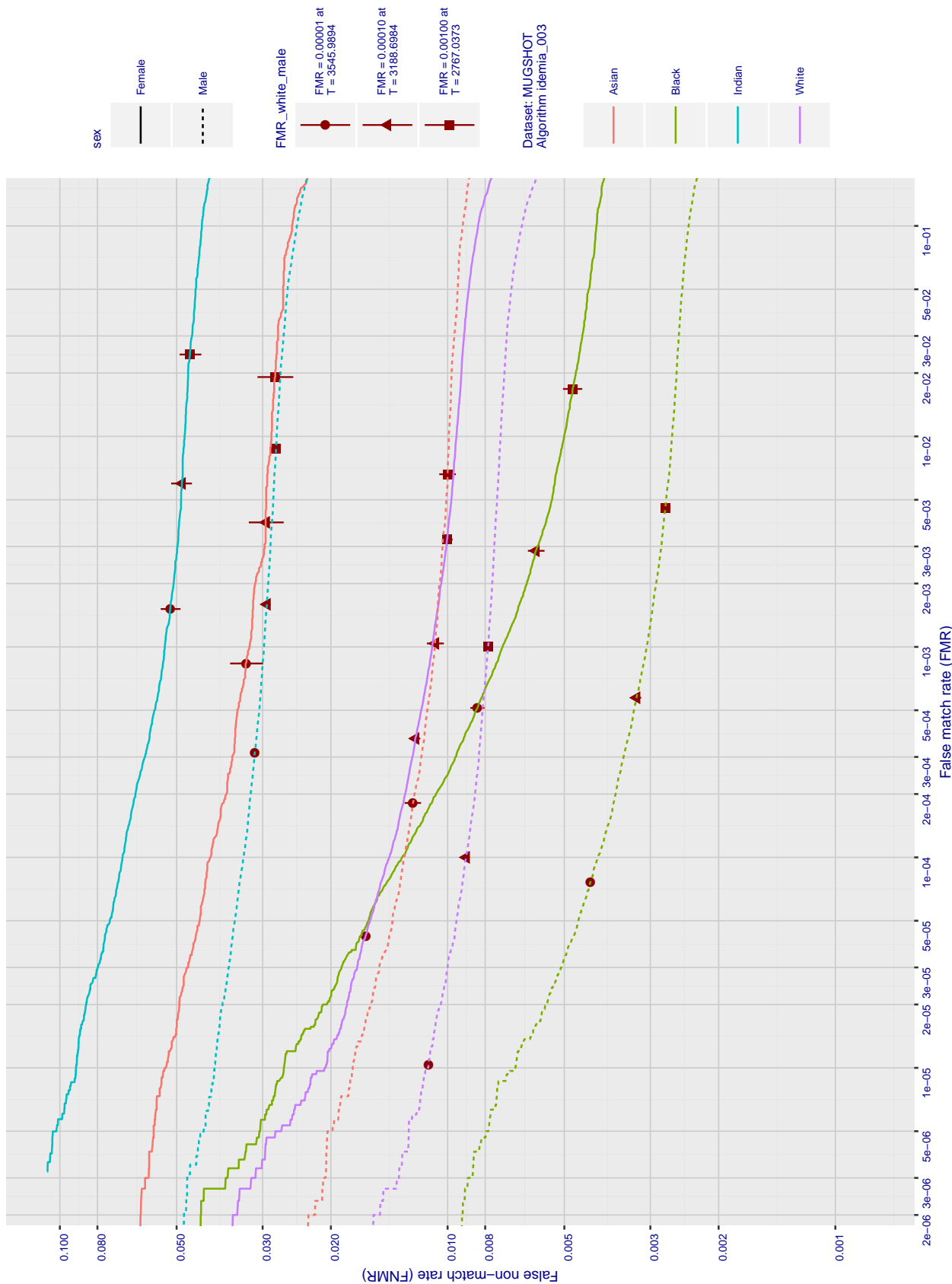


Figure 44: Verification error by sex and race: For algorithm identia-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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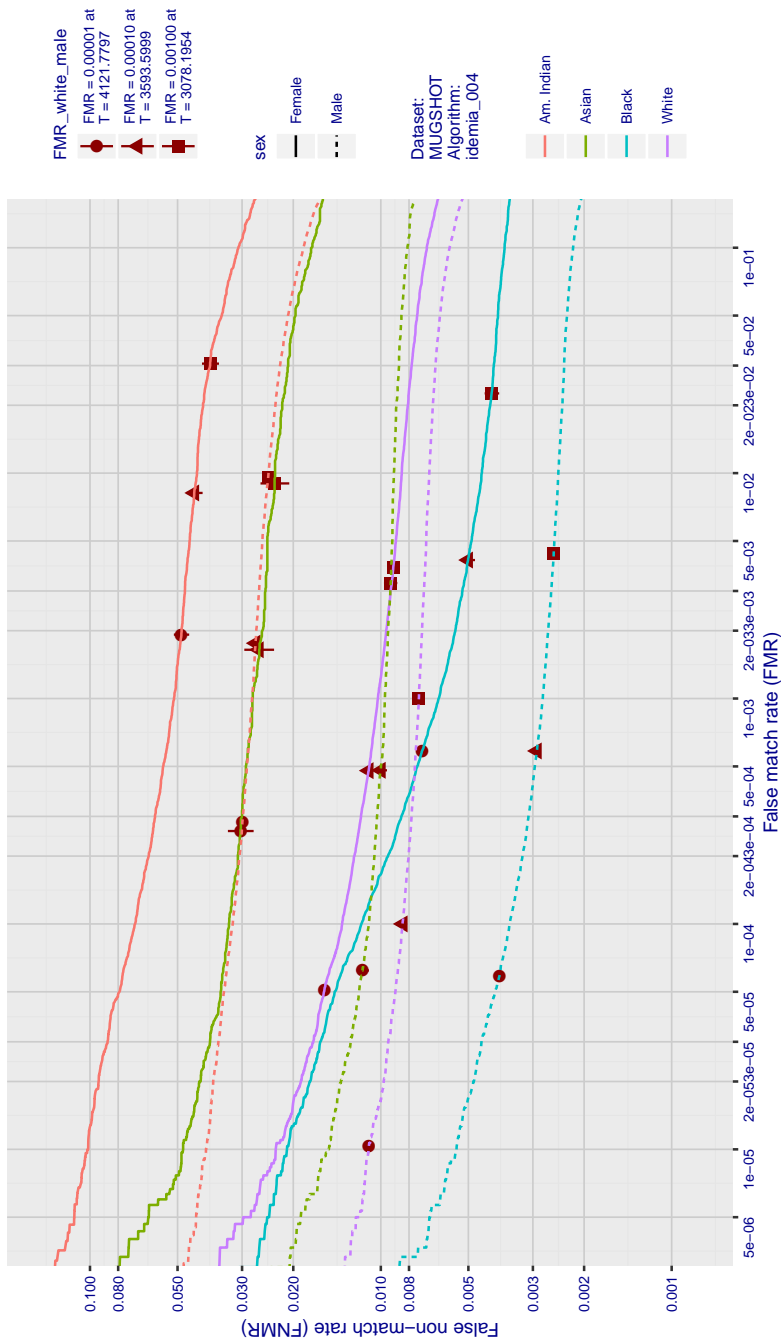


Figure 45: Verification error by sex and race: For algorithm idemia-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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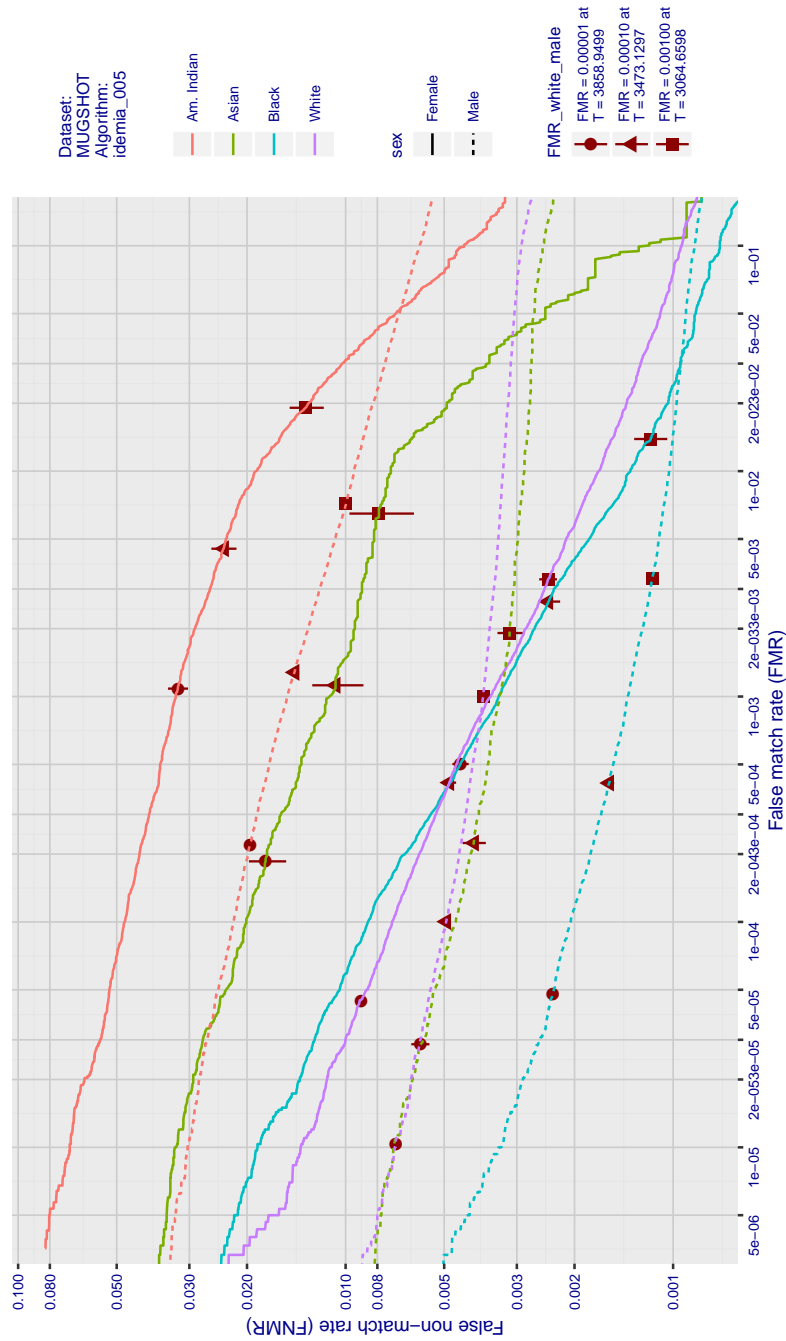


Figure 46: Verification error by sex and race: For algorithm idemia-005 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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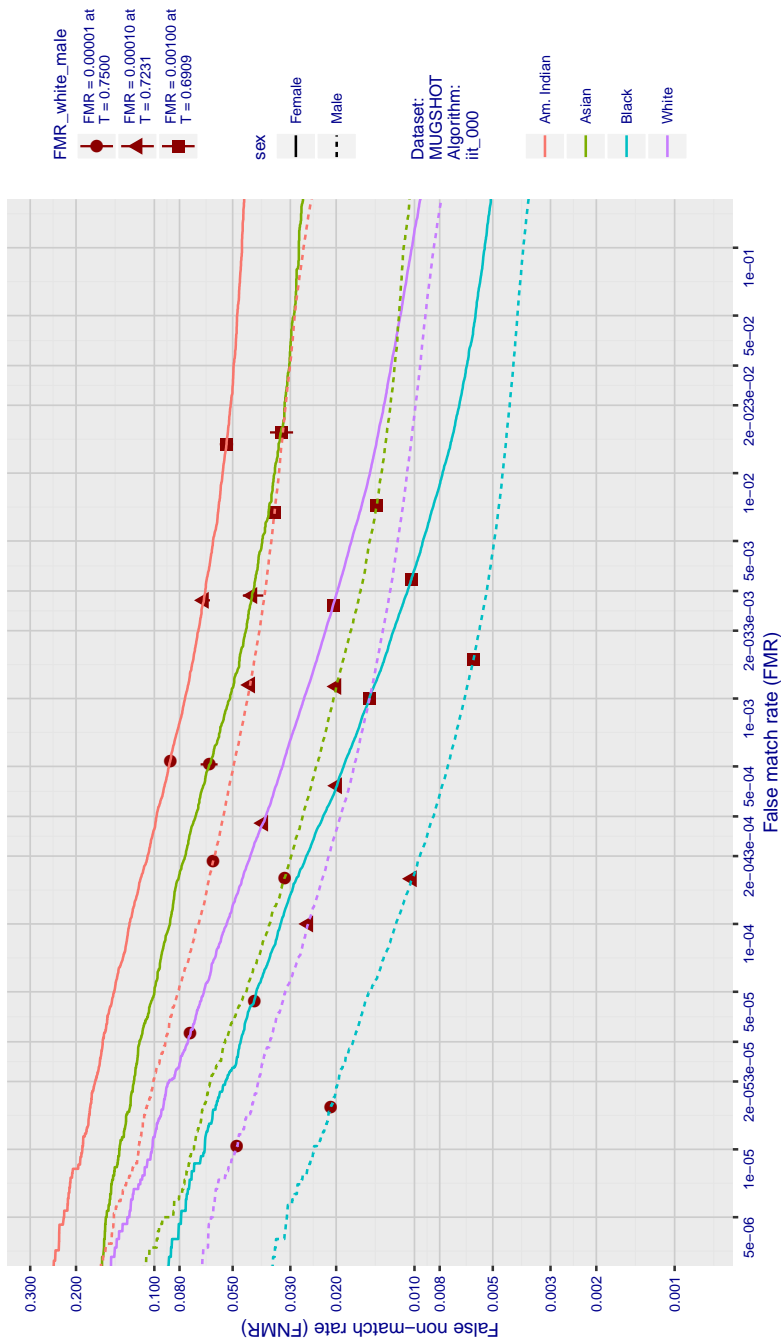


Figure 47: Verification error by sex and race: For algorithm it-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

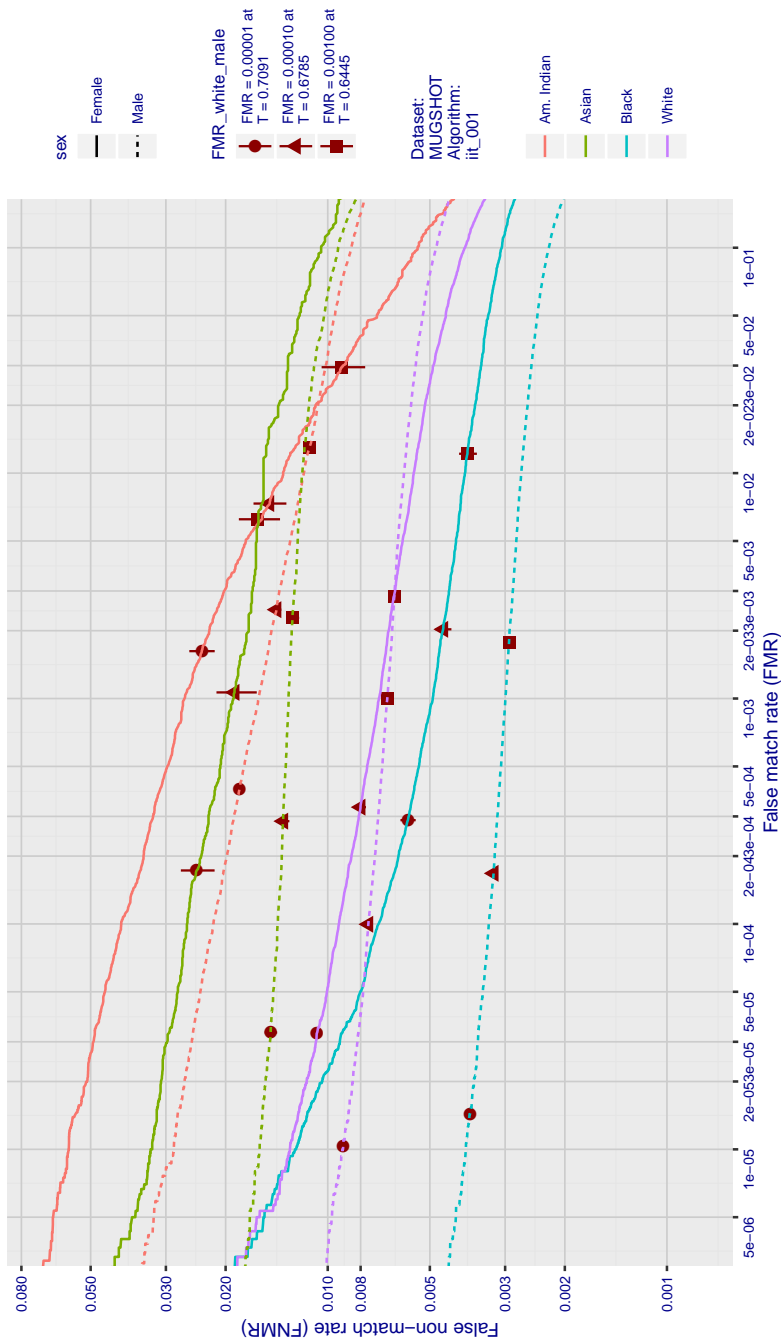


Figure 48: Verification error by sex and race: For algorithm iit-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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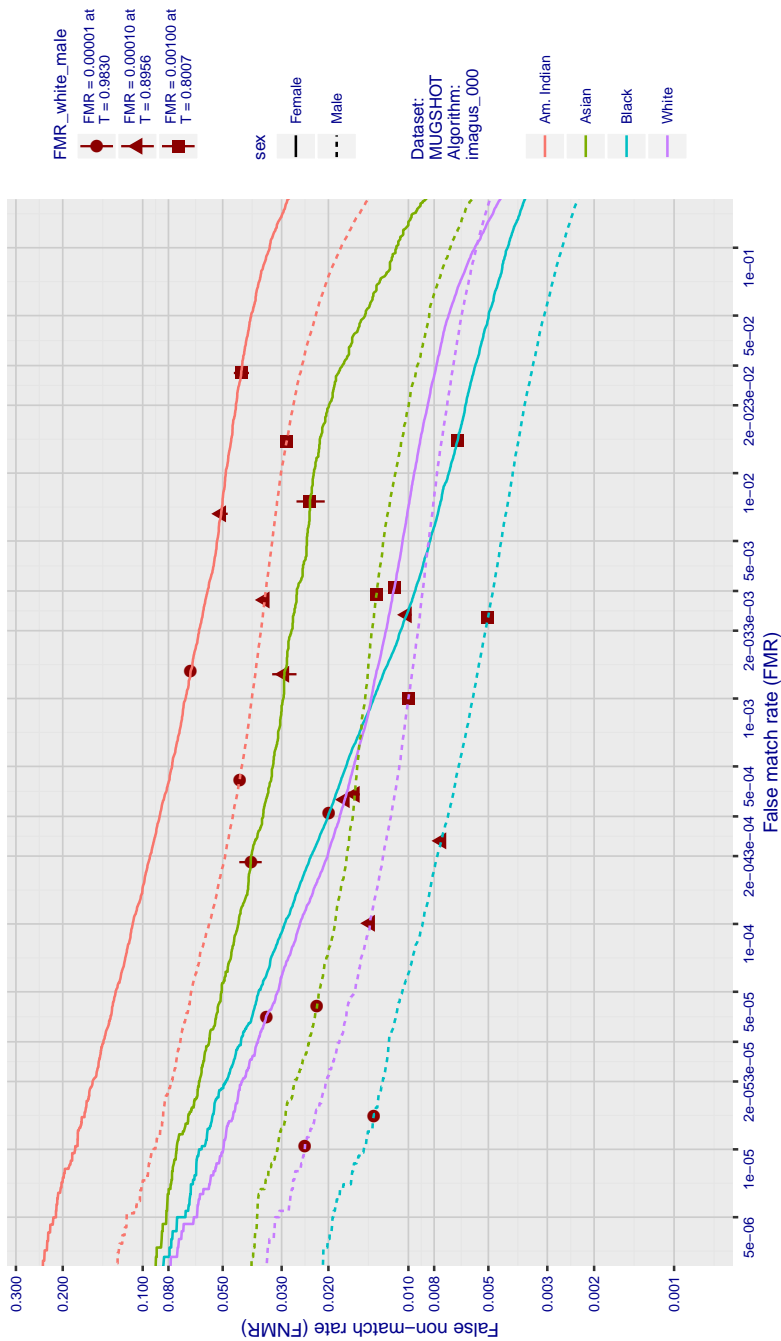


Figure 49: Verification error by sex and race: For algorithm imagus-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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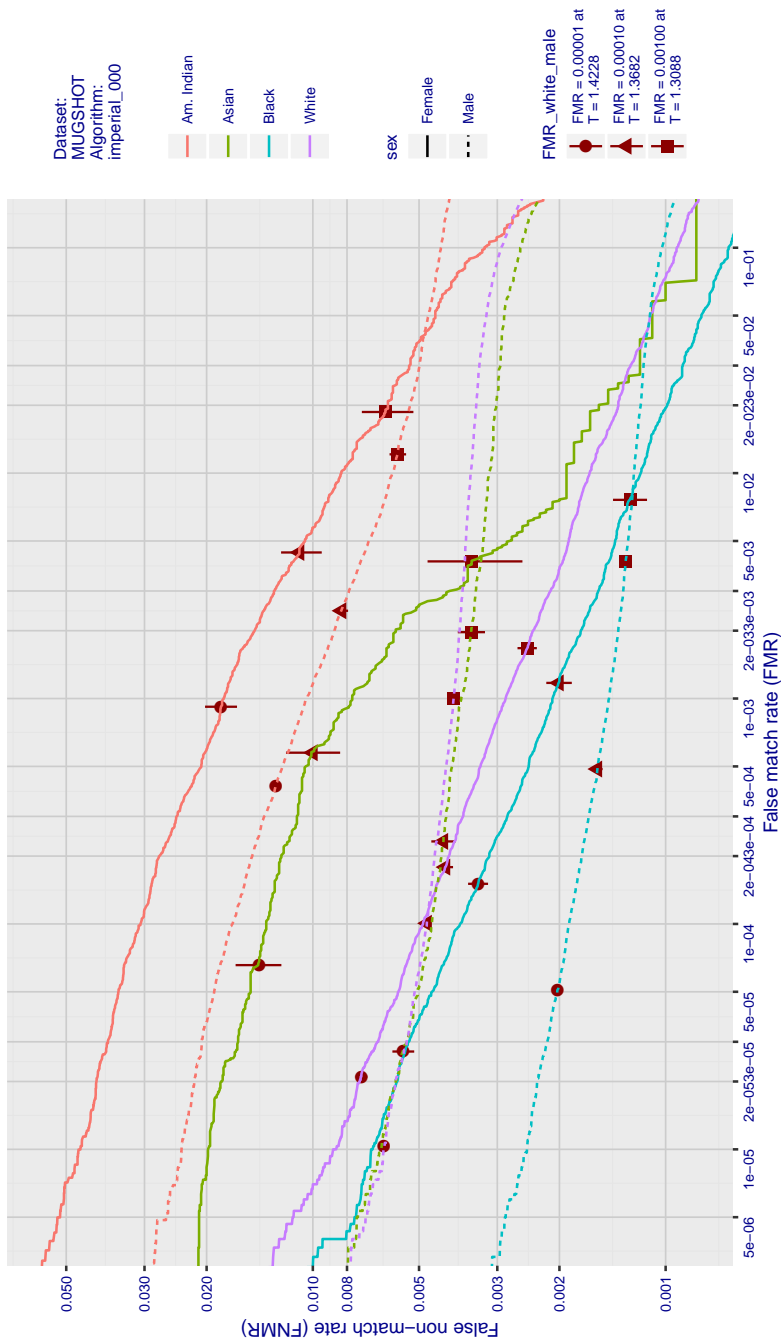


Figure 50: Verification error by sex and race: For algorithm imperial-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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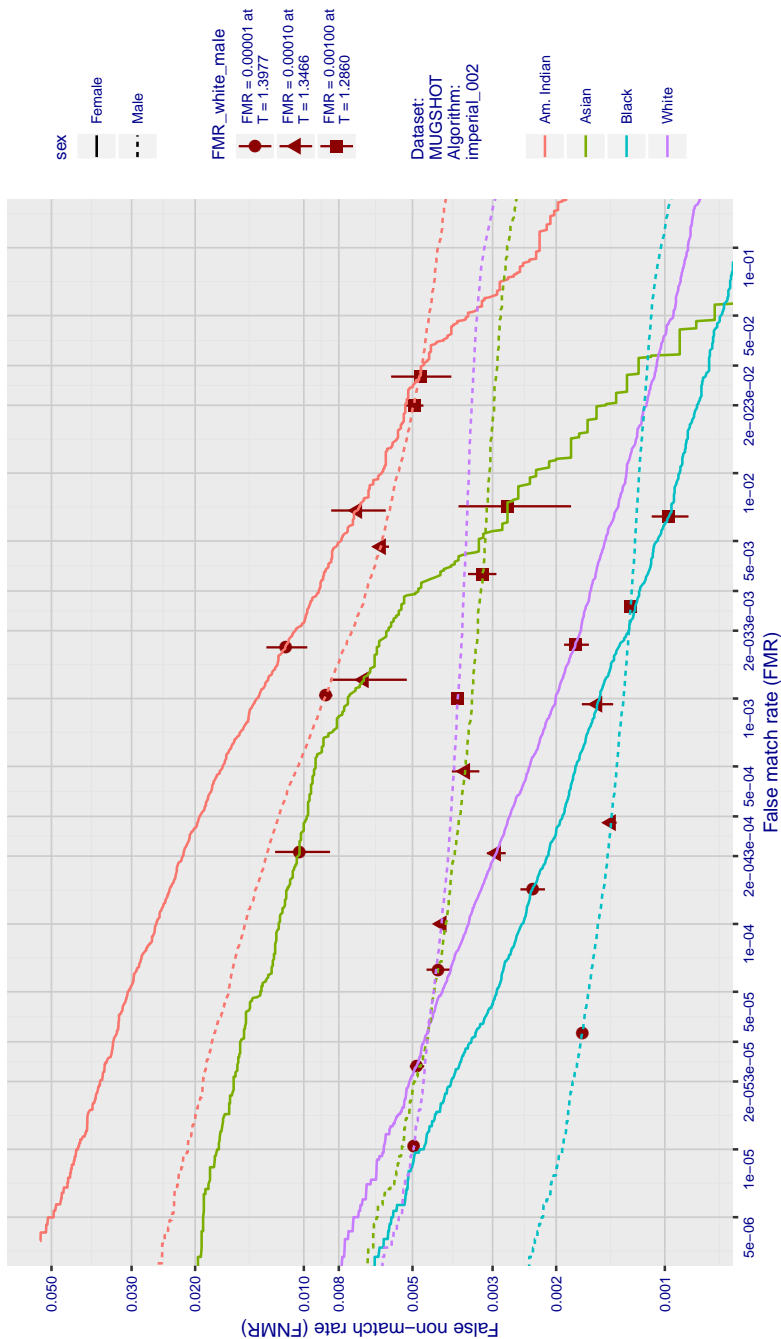


Figure 51: Verification error by sex and race: For algorithm imperial-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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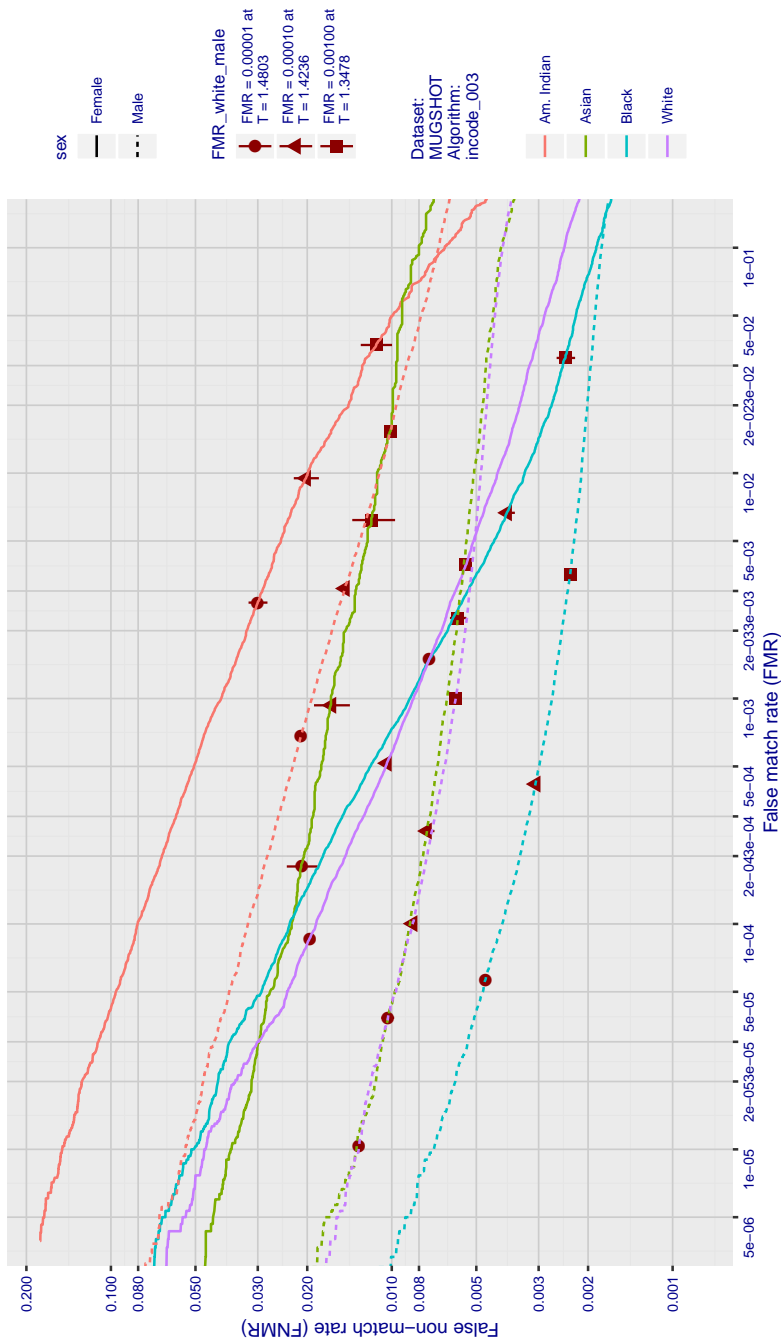


Figure 52: Verification error by sex and race: For algorithm incode-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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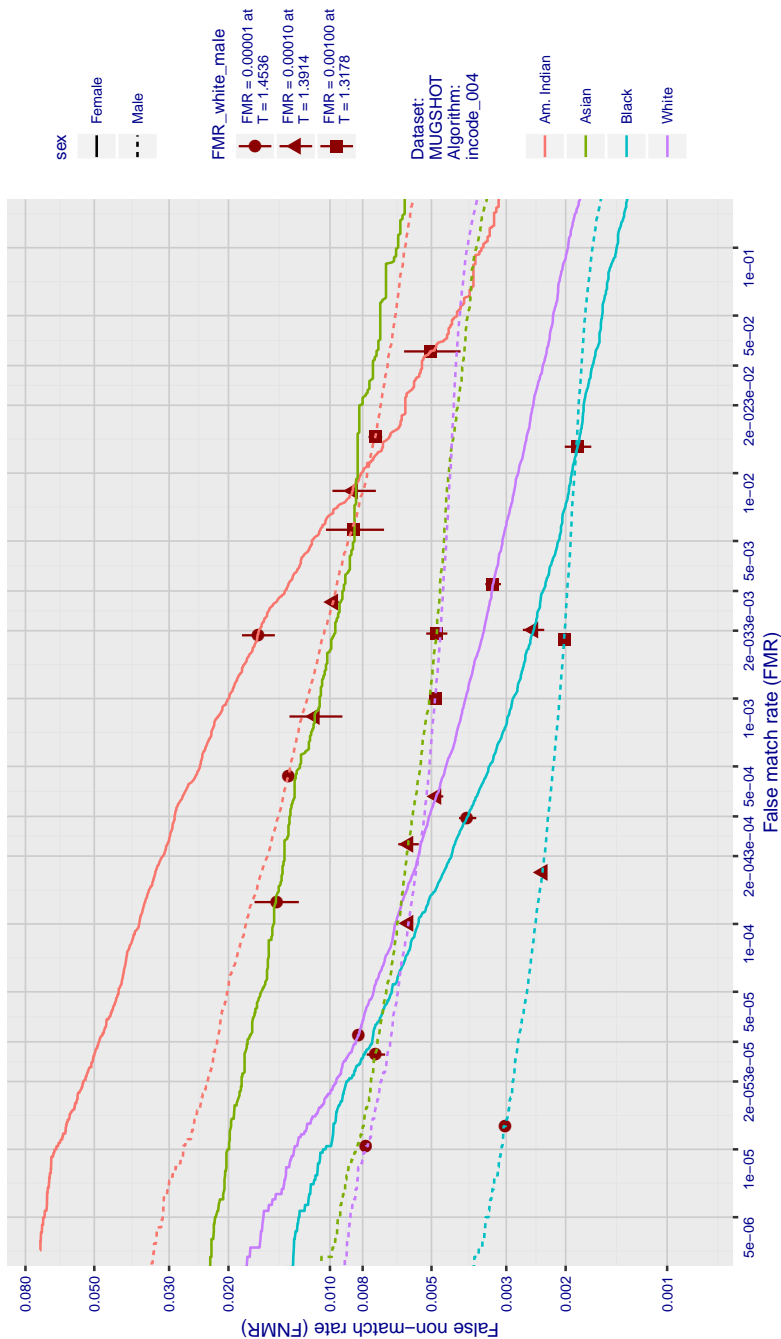


Figure 53: Verification error by sex and race: For algorithm incode-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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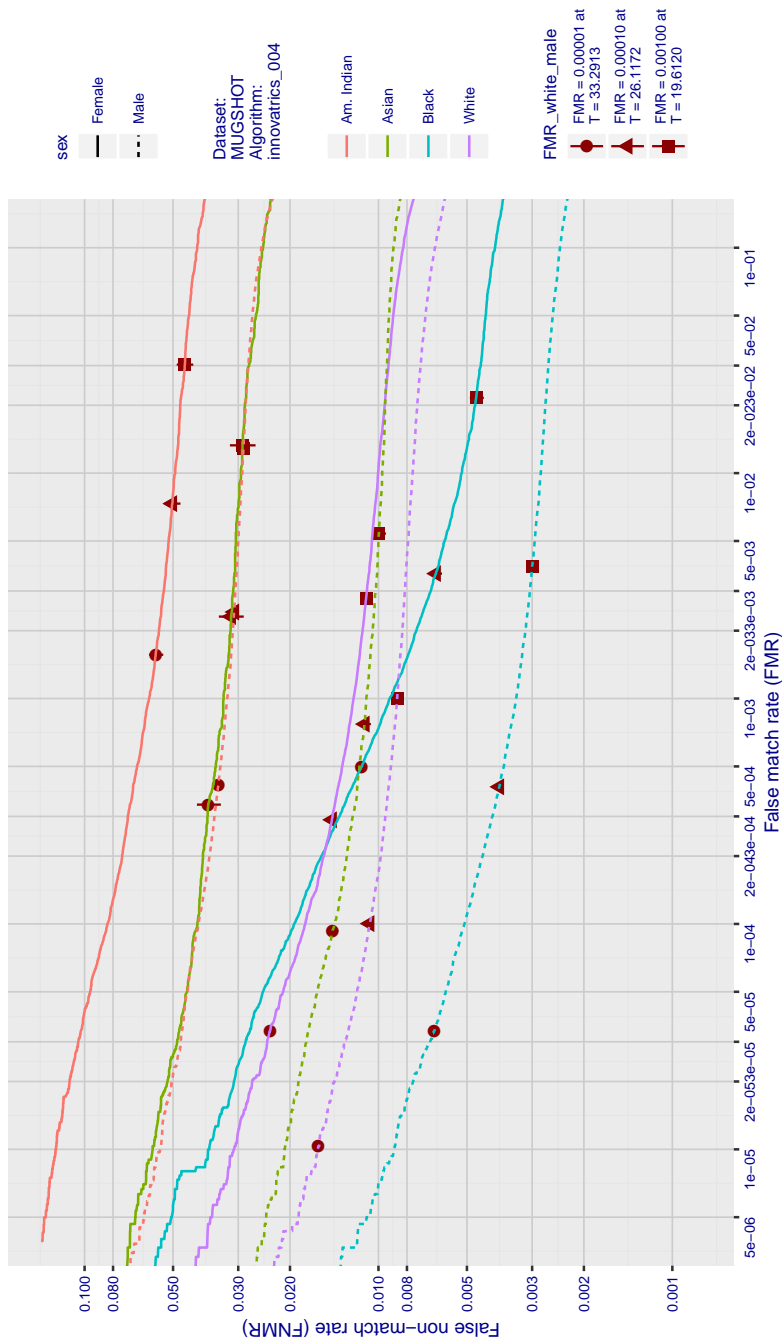


Figure 54: Verification error by sex and race: For algorithm innovatrics-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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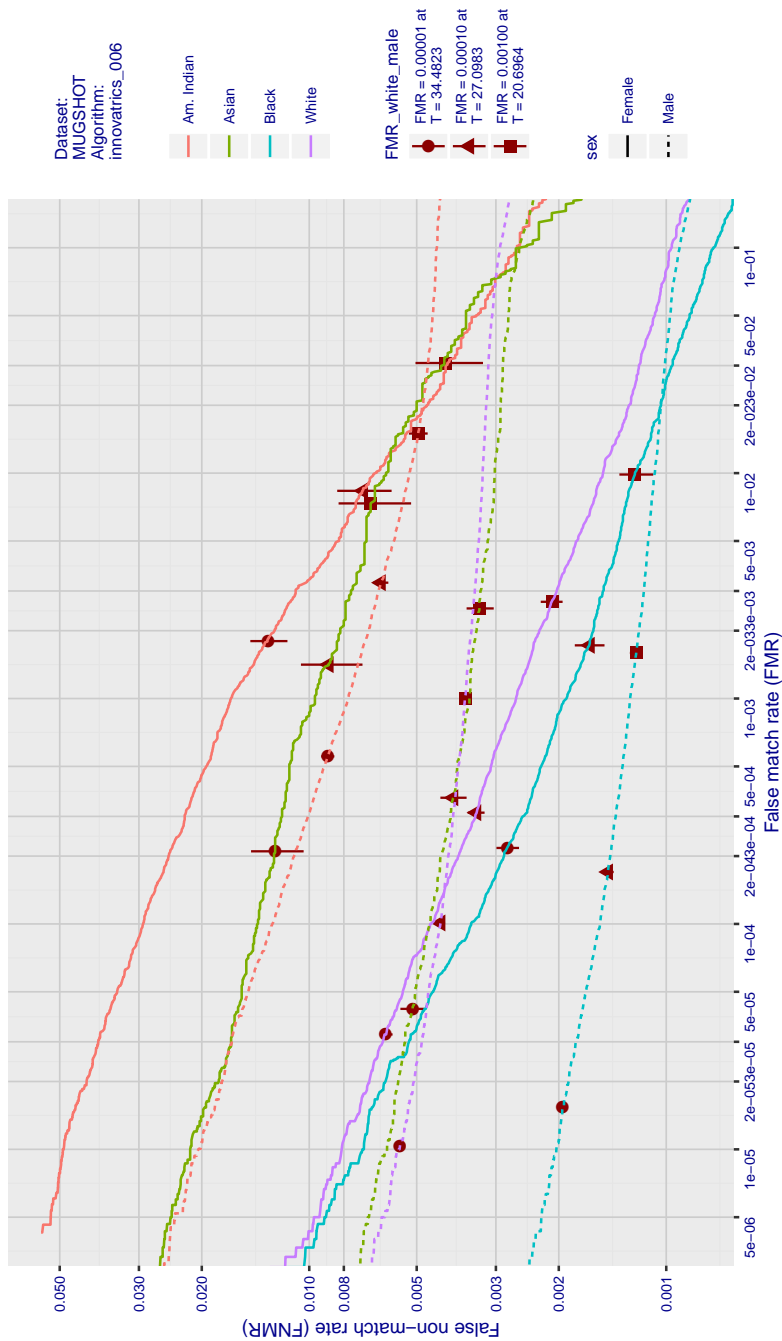


Figure 55: Verification error by sex and race: For algorithm innovatrics-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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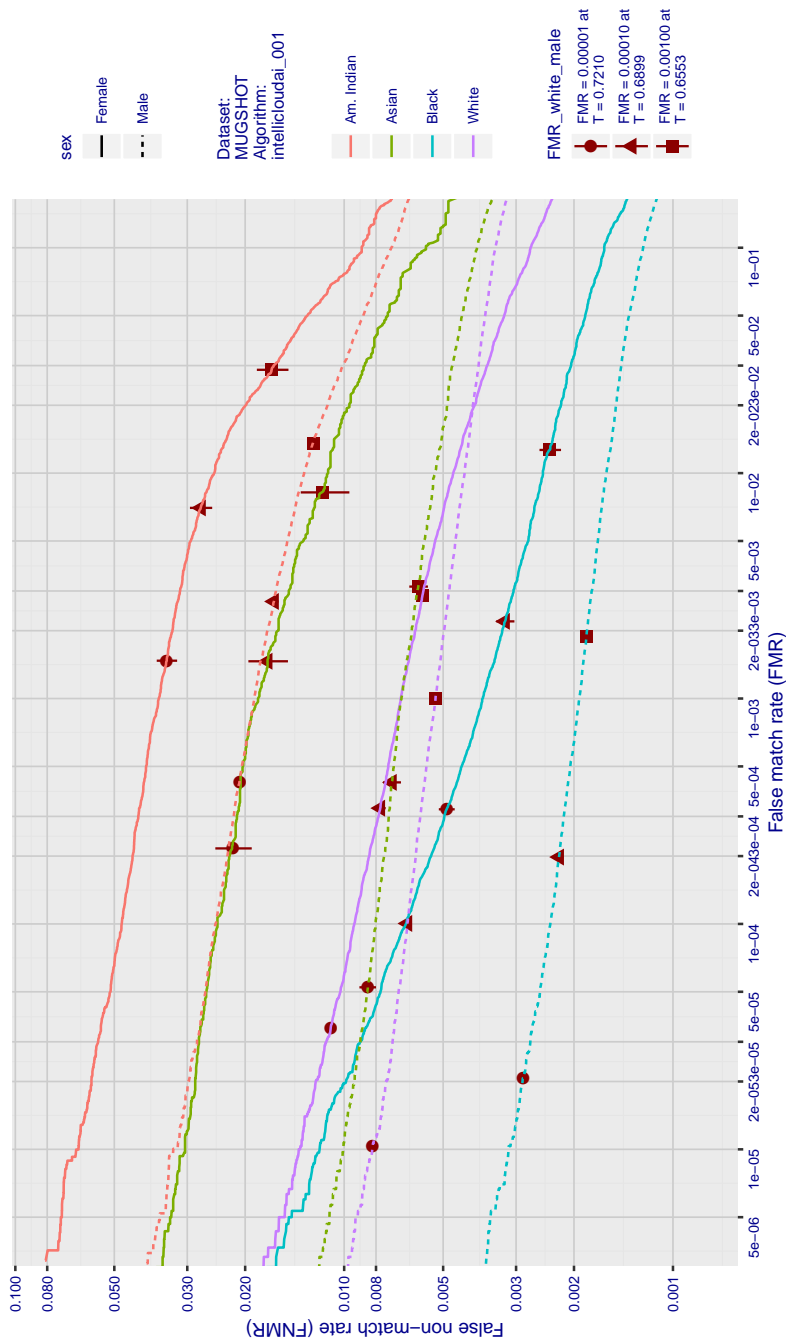


Figure 56: Verification error by sex and race: For algorithm intellicloudai-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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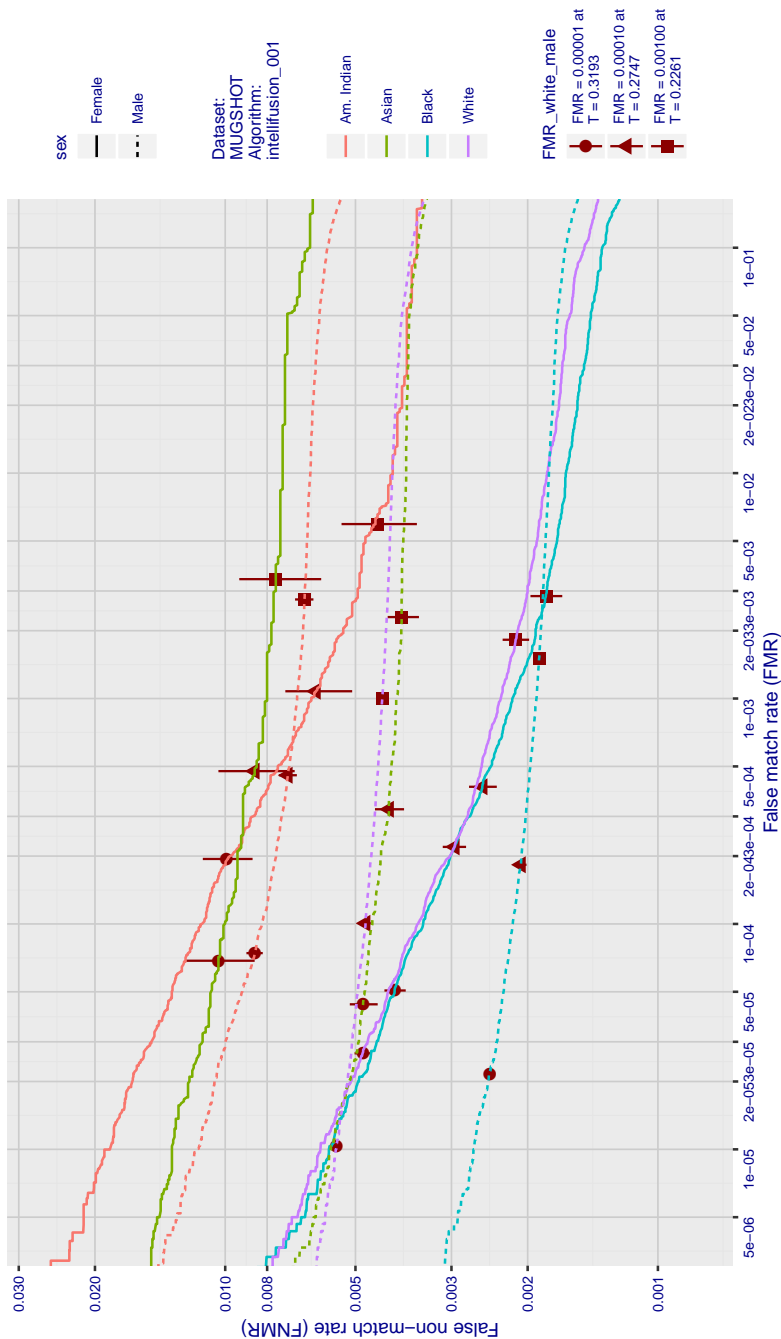


Figure 57: Verification error by sex and race: For algorithm intellifusion-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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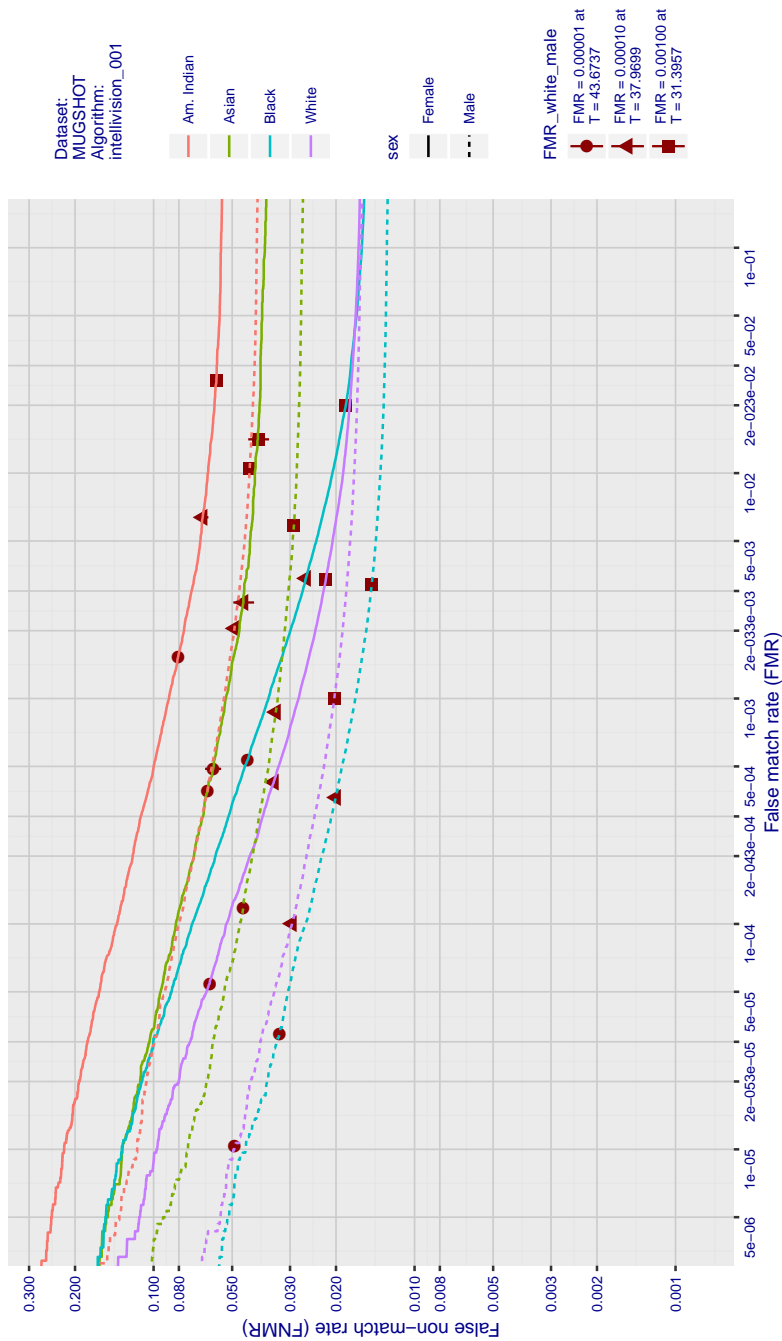


Figure 58: Verification error by sex and race: For algorithm intellivision-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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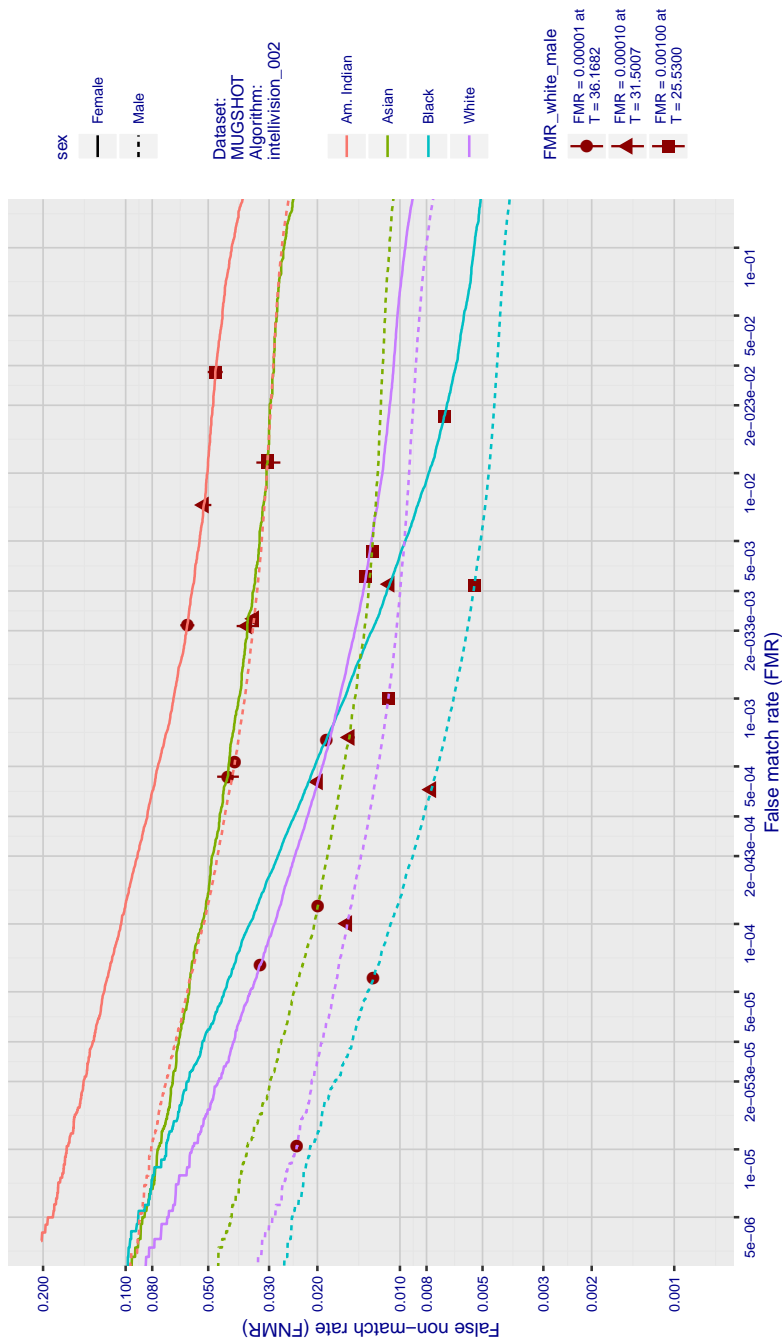


Figure 59: Verification error by sex and race: For algorithm intellivision-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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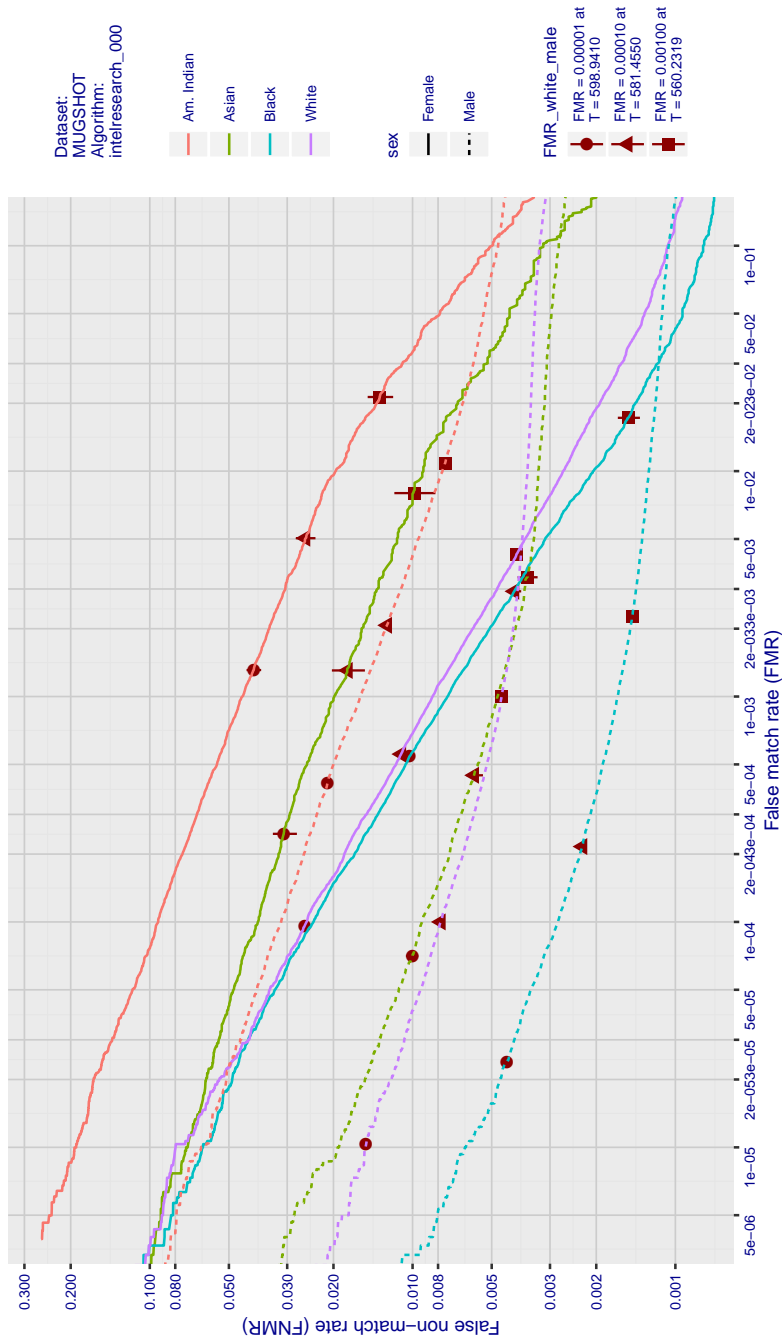


Figure 60: Verification error by sex and race: For algorithm intelresearch-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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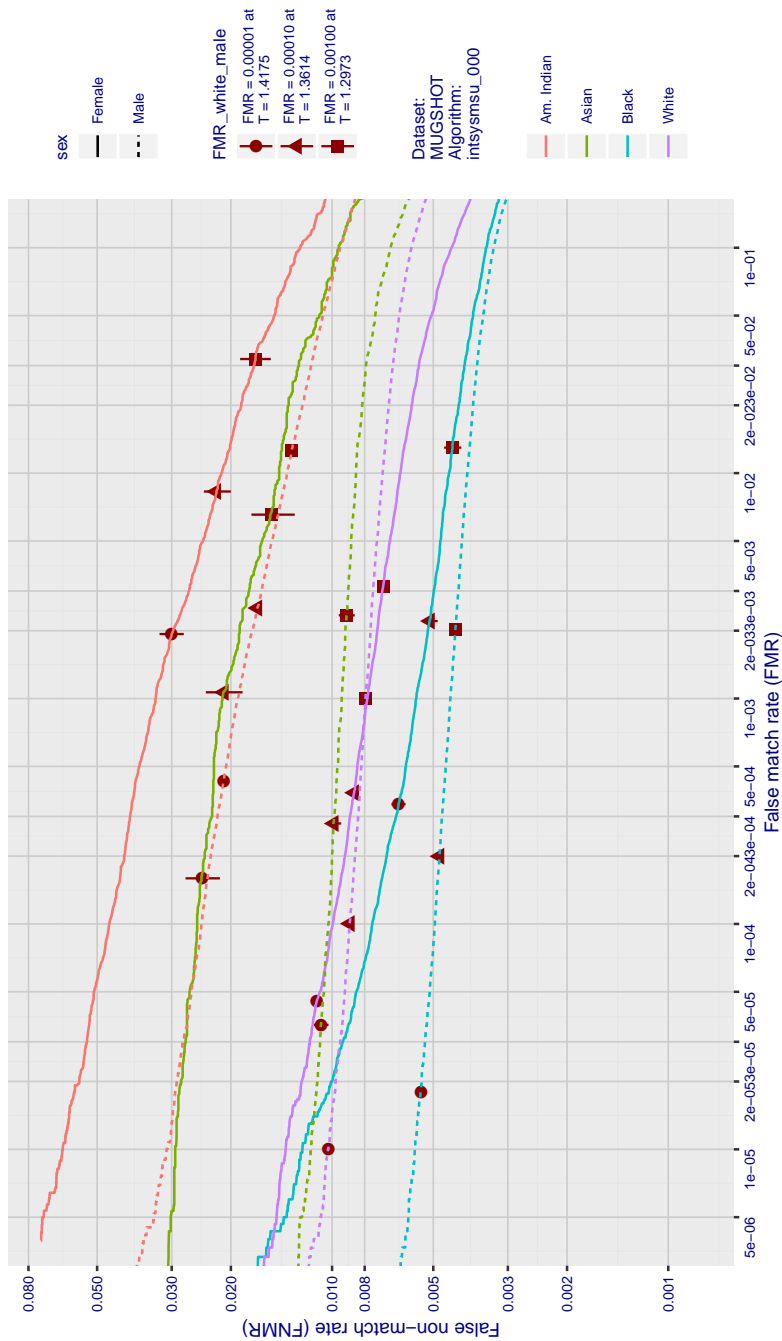


Figure 61: Verification error by sex and race: For algorithm intsysmsu-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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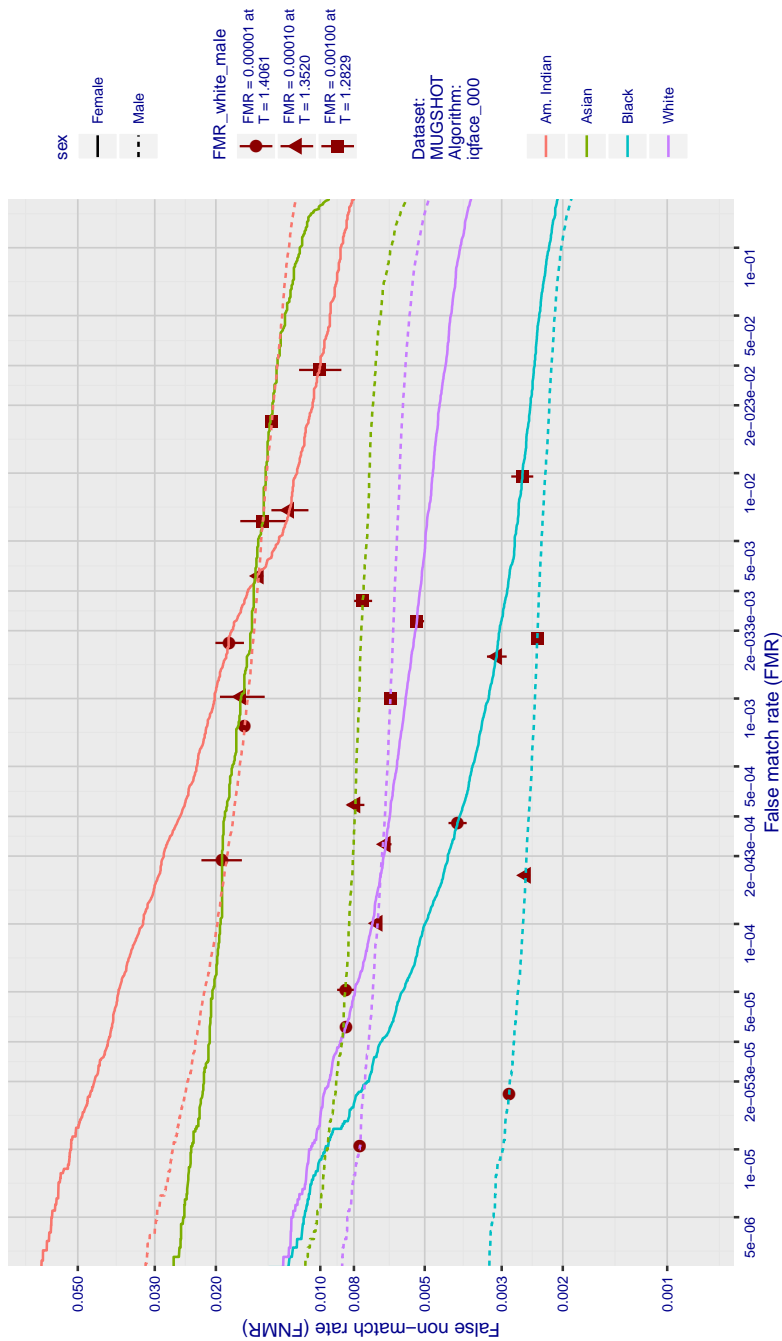


Figure 62: Verification error by sex and race: For algorithm iqface-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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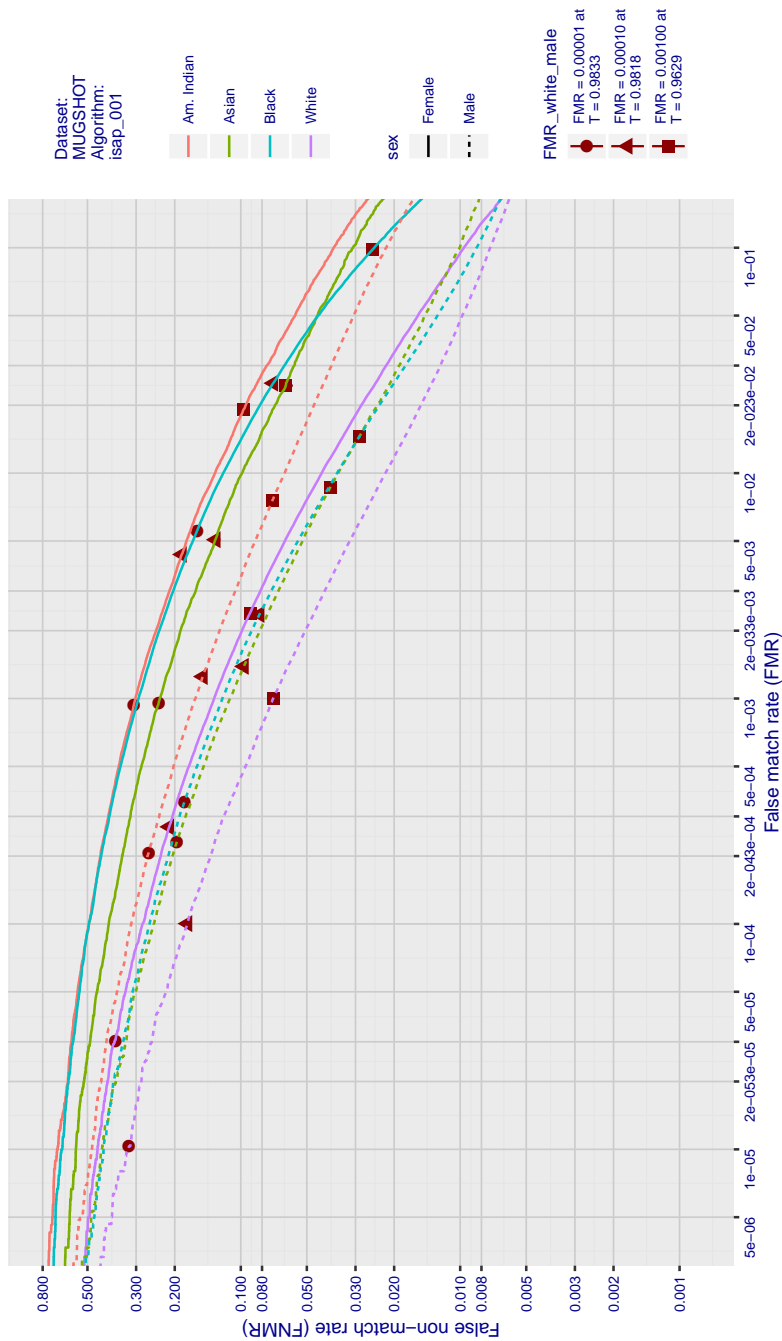


Figure 63: Verification error by sex and race: For algorithm isap-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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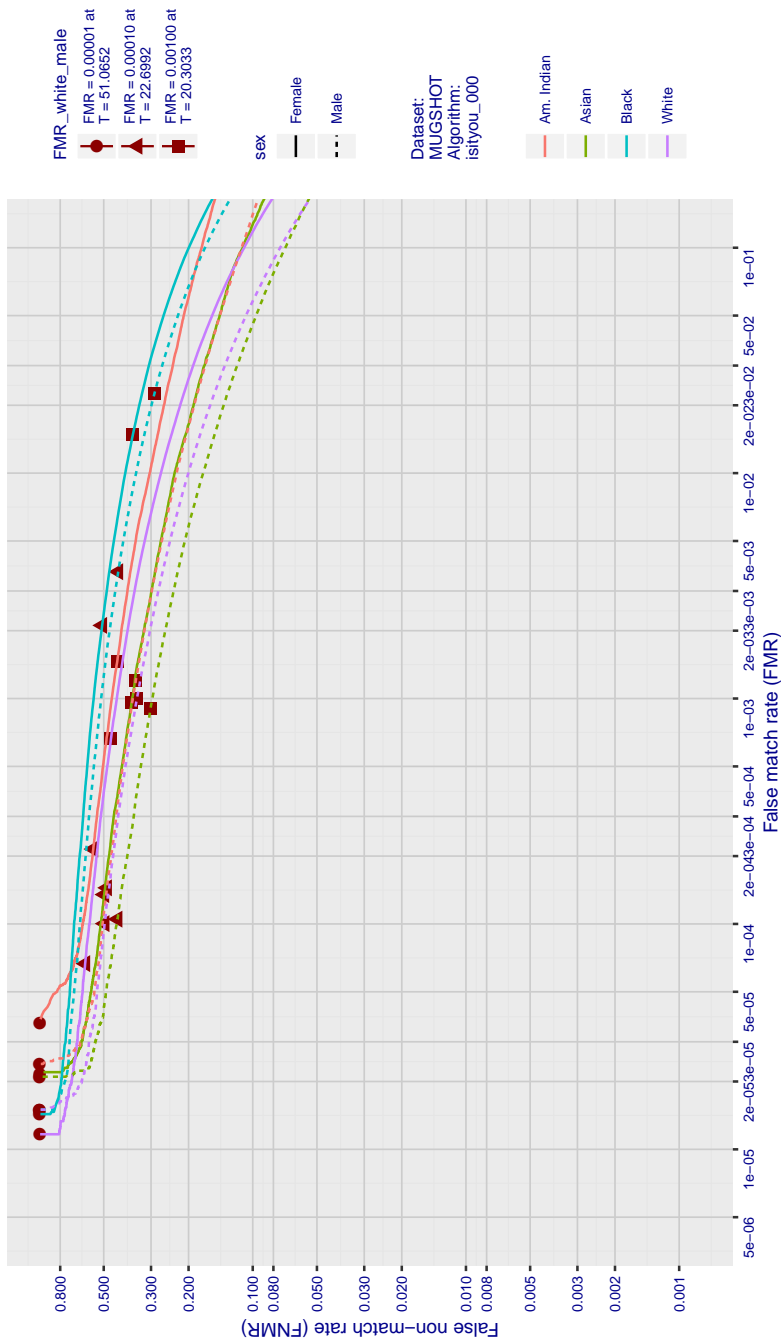


Figure 64: Verification error by sex and race: For algorithm isityou-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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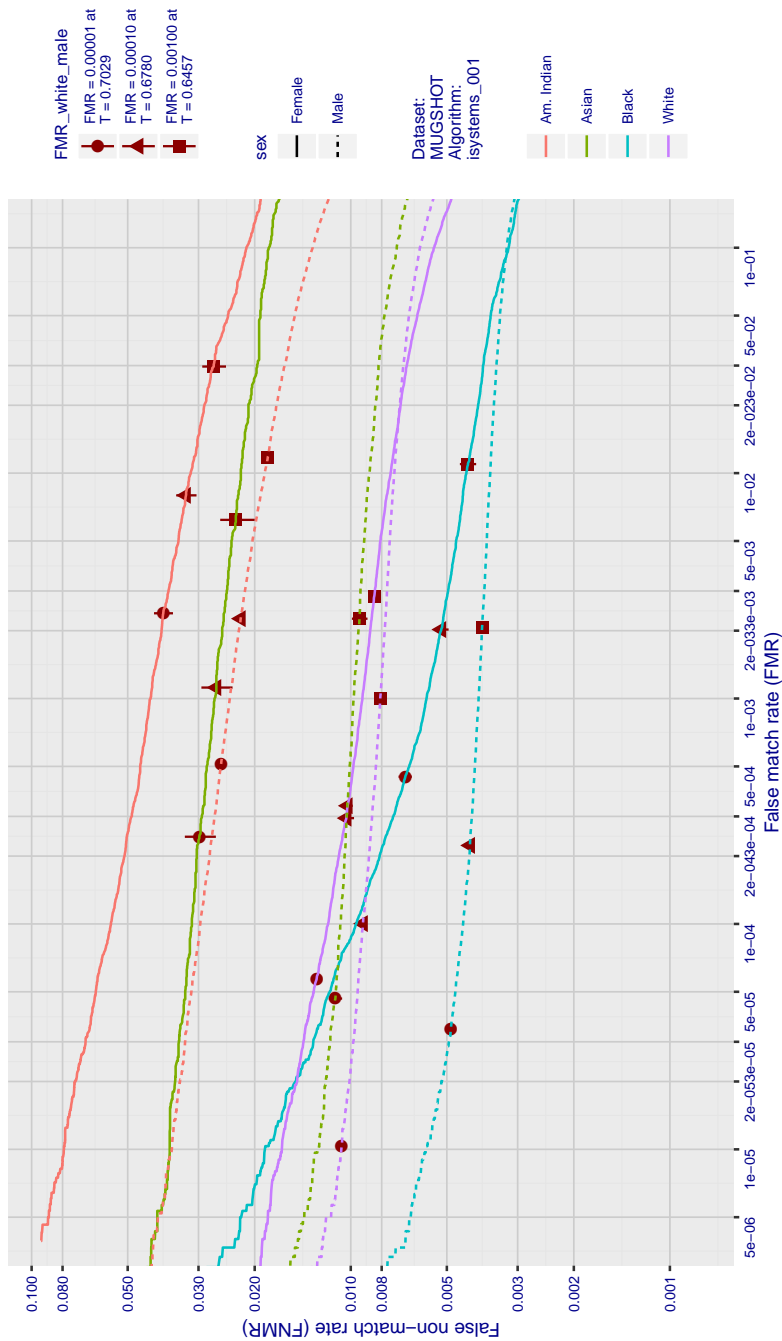


Figure 65: Verification error by sex and race: For algorithm isystems-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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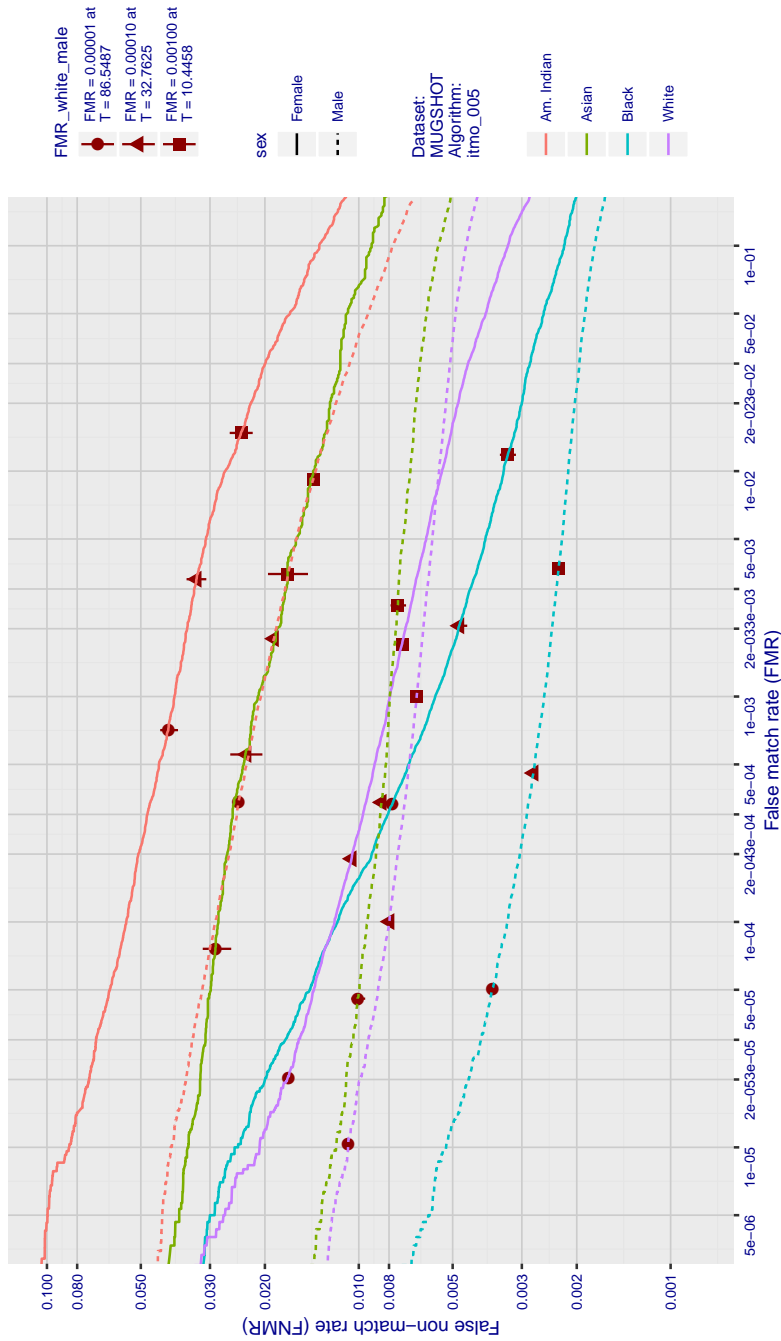


Figure 66: Verification error by sex and race: For algorithm itmo-005 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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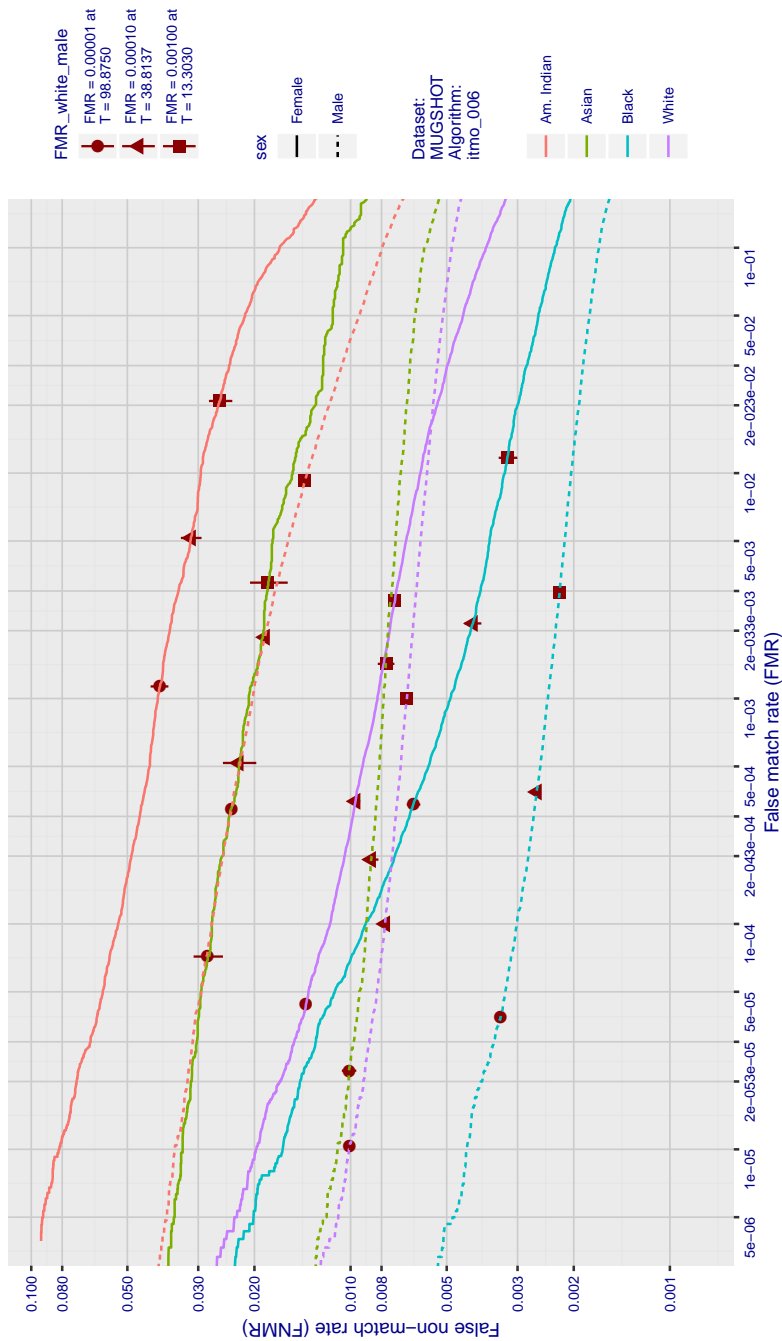


Figure 67: Verification error by sex and race: For algorithm itmo-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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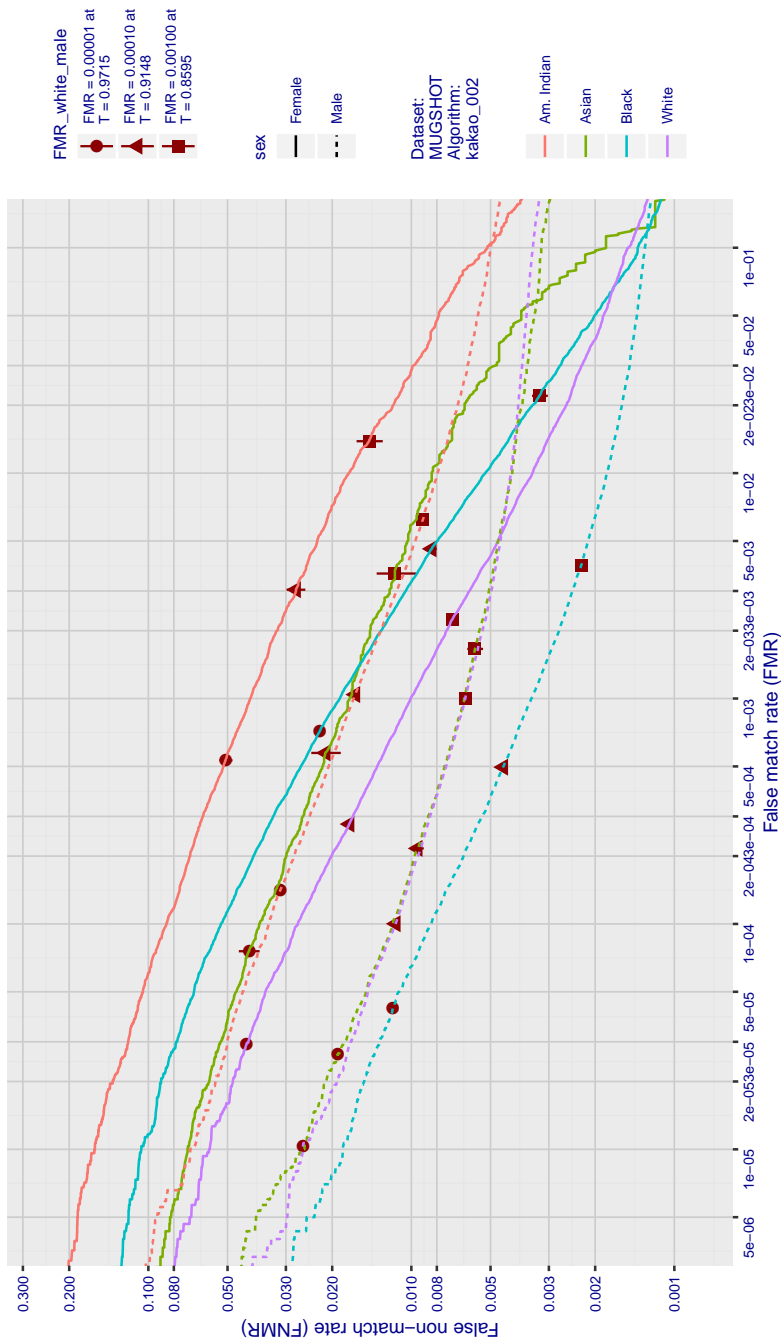


Figure 68: Verification error by sex and race: For algorithm kakao-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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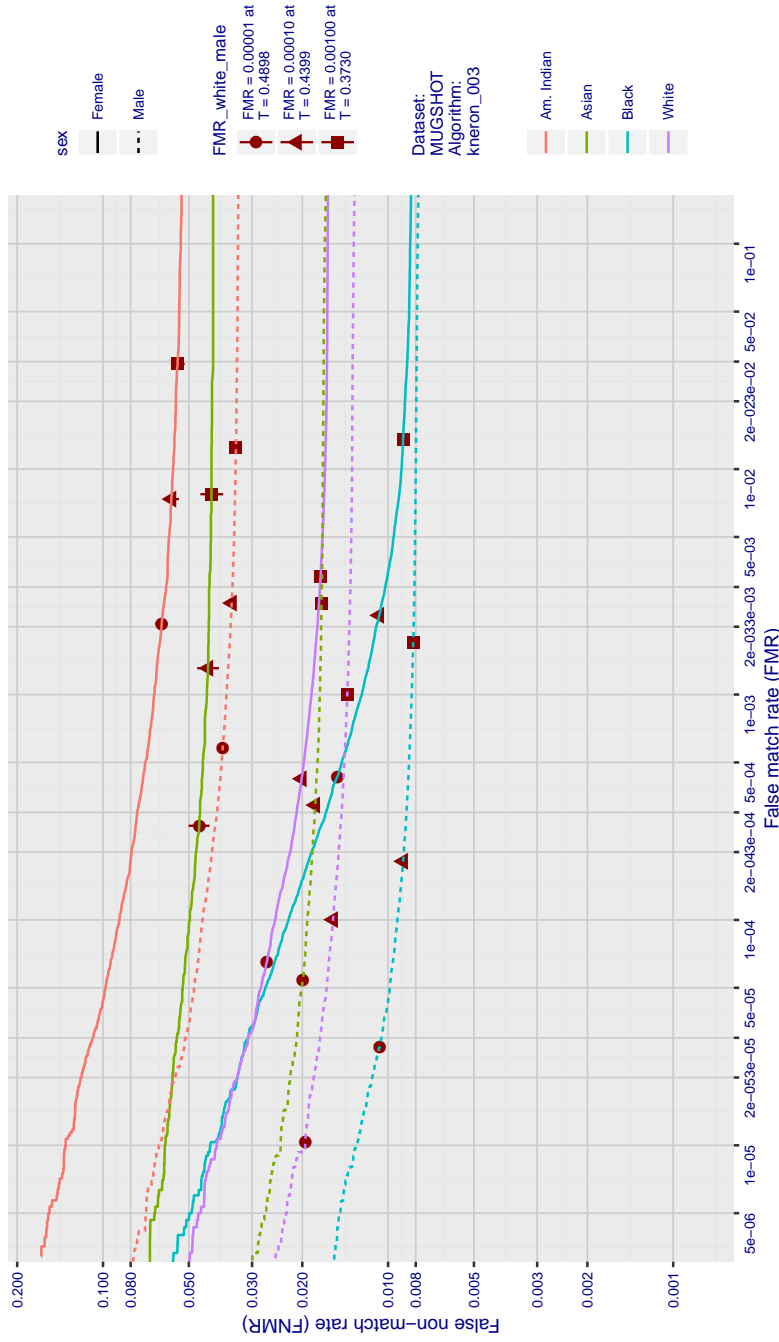


Figure 69: Verification error by sex and race: For algorithm kneron-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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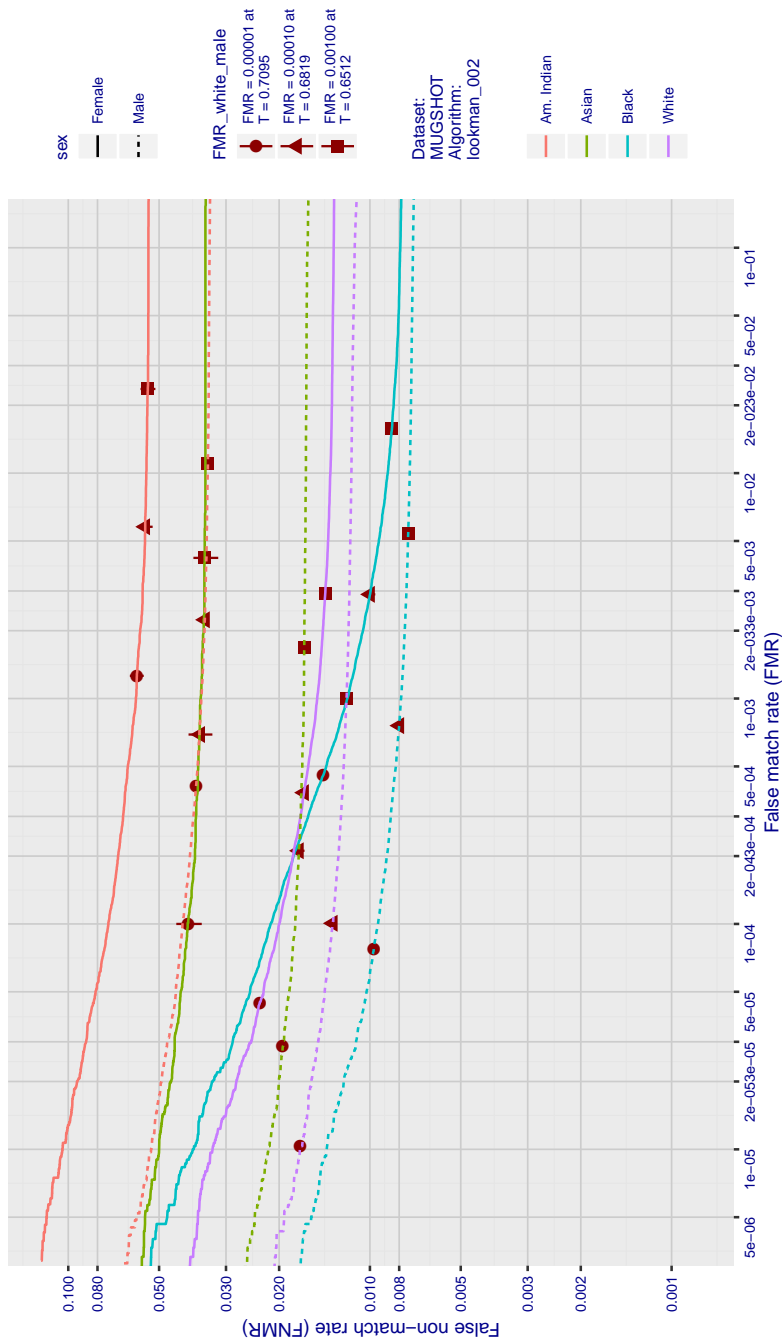


Figure 70: Verification error by sex and race: For algorithm lookman-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



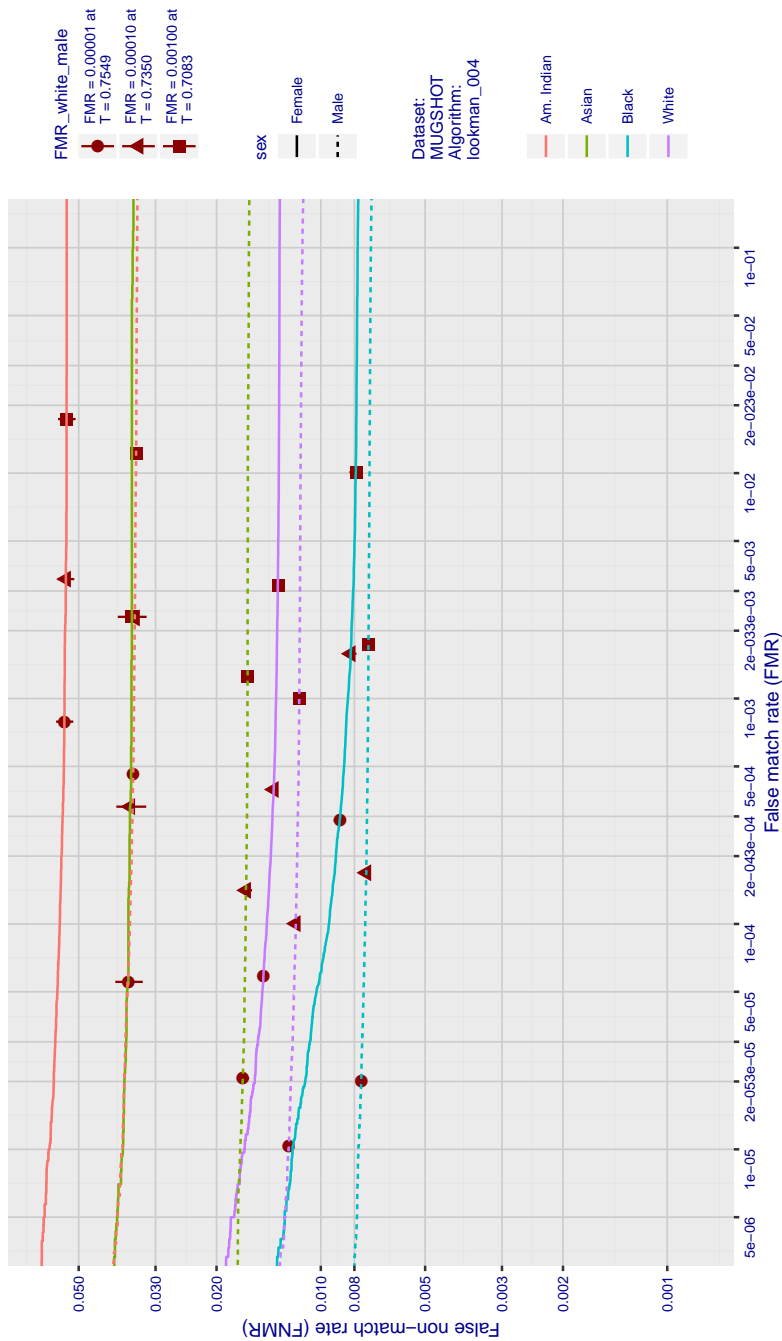


Figure 71: Verification error by sex and race: For algorithm lookman-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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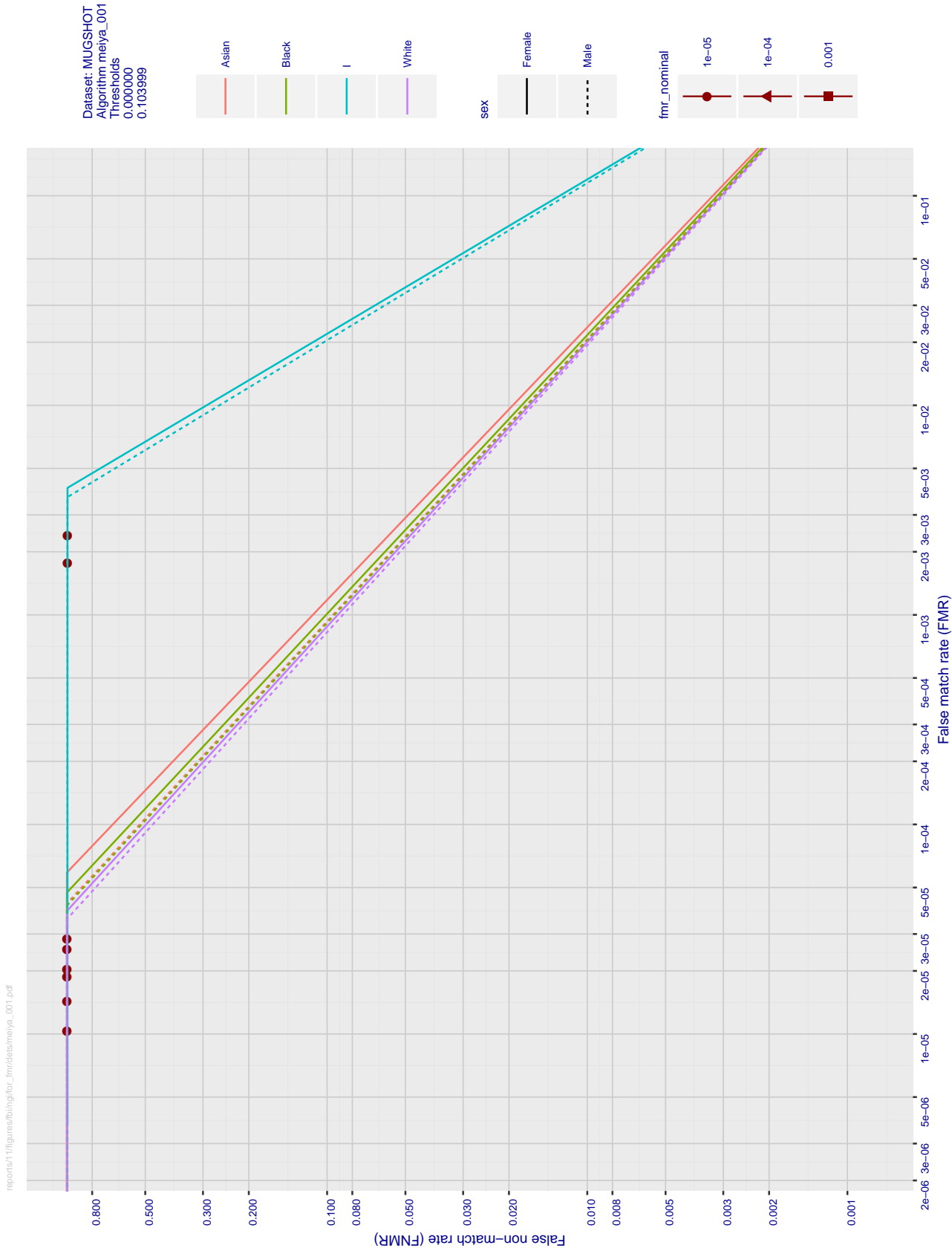


Figure 72: Verification error by sex and race. For algorithm meiya-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0$

$\rightarrow$  FMR, FPIR  $\rightarrow$  0  
 $\rightarrow$  FNMR, FNIR  $\rightarrow$  1

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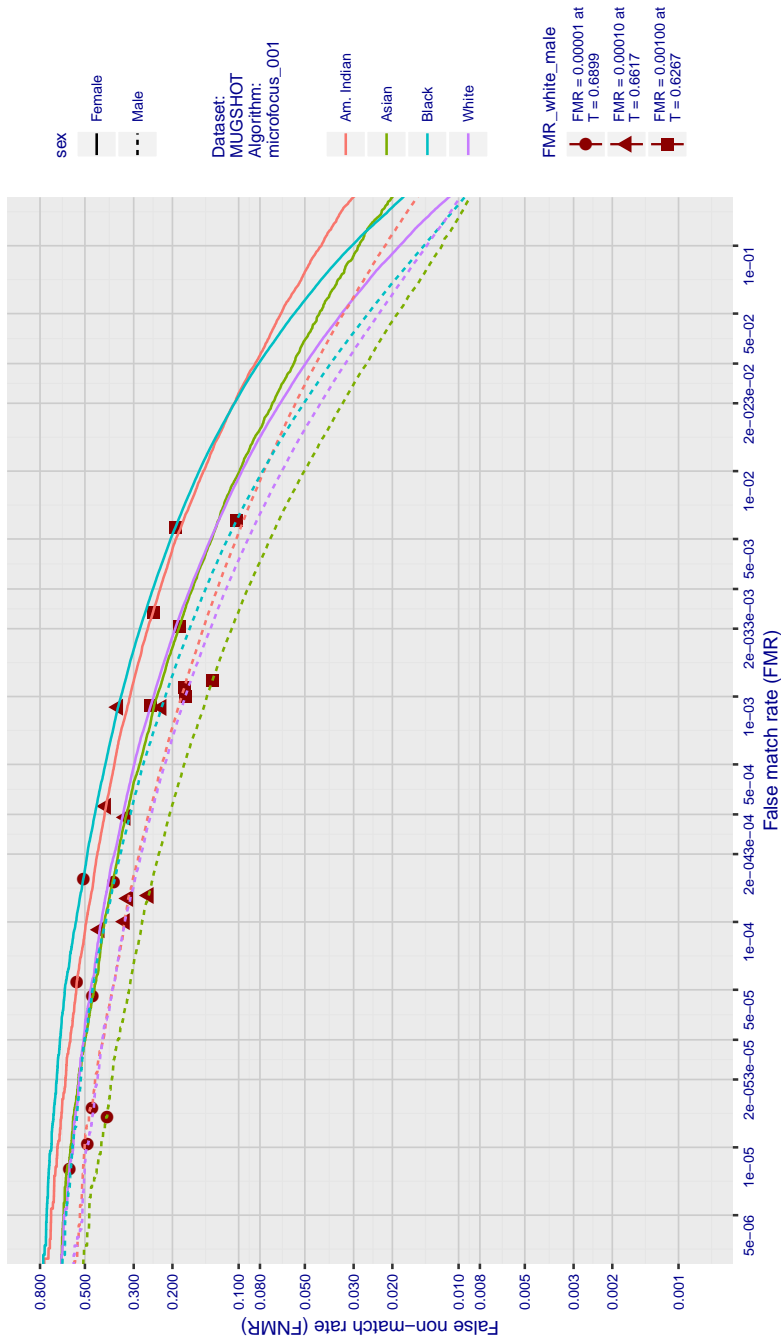


Figure 73: Verification error by sex and race: For algorithm microfocus-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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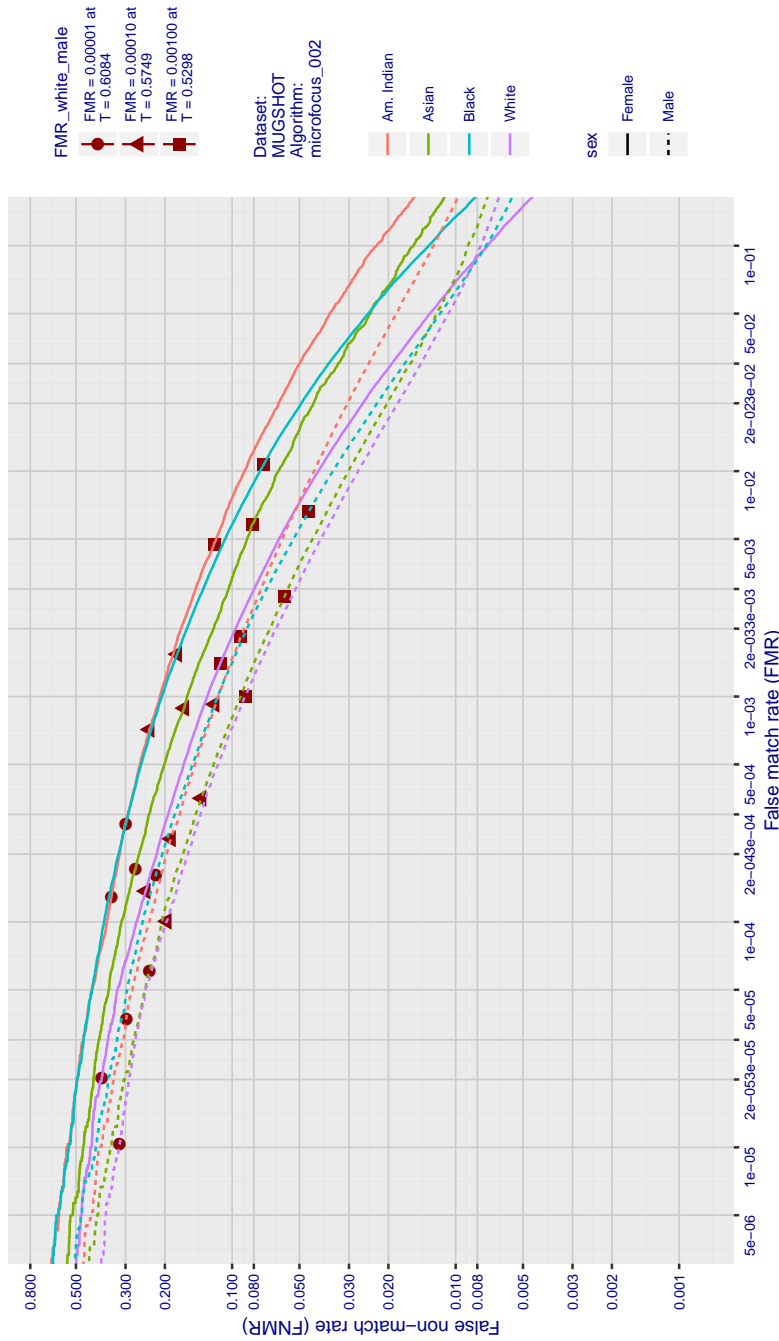


Figure 74: Verification error by sex and race: For algorithm microfocus-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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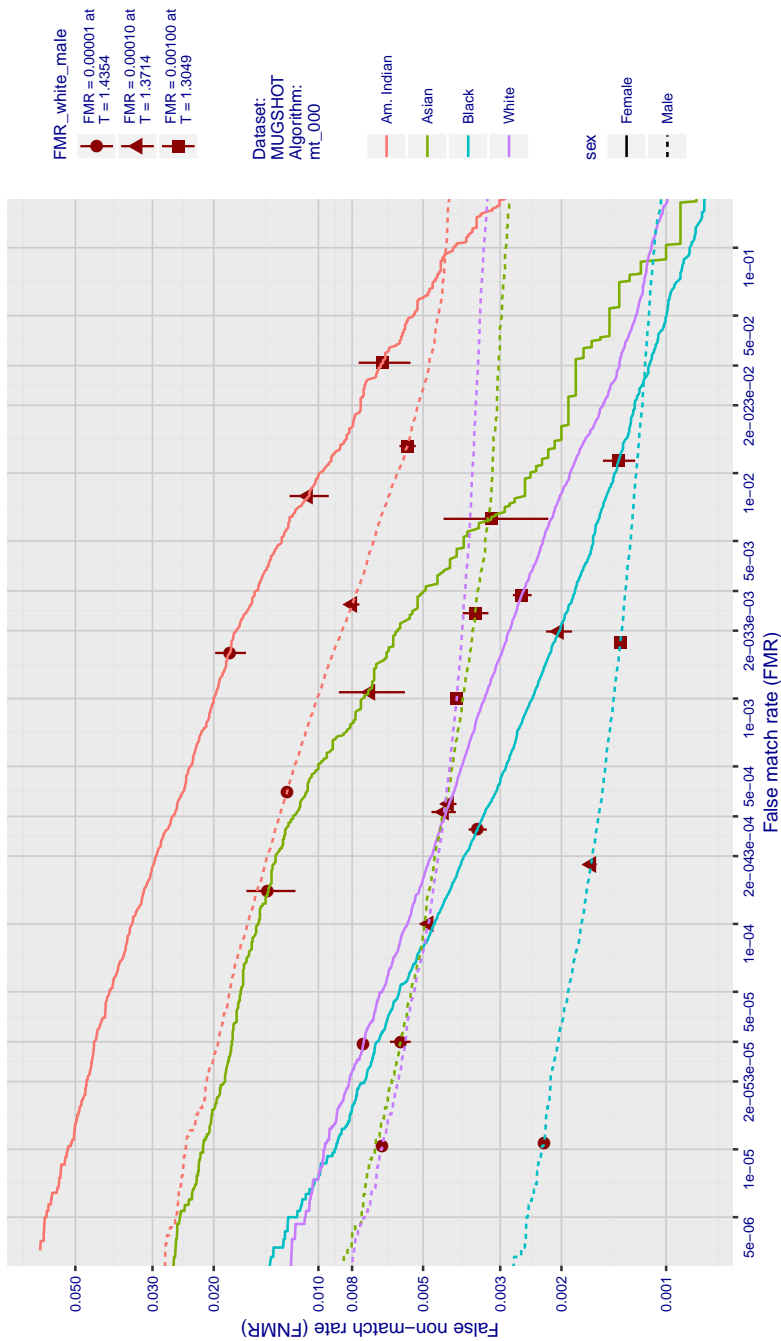


Figure 75: Verification error by sex and race: For algorithm mt-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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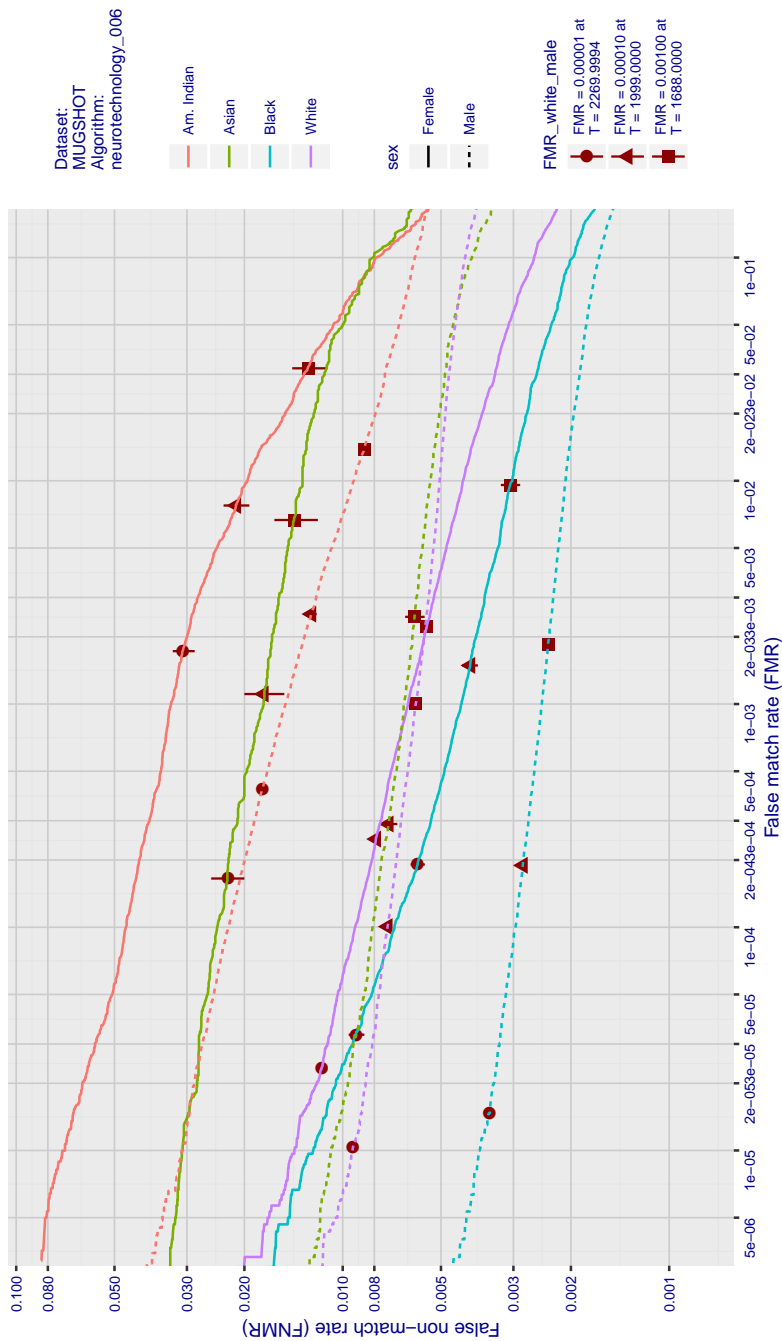


Figure 76: Verification error by sex and race: For algorithm neurotechnology-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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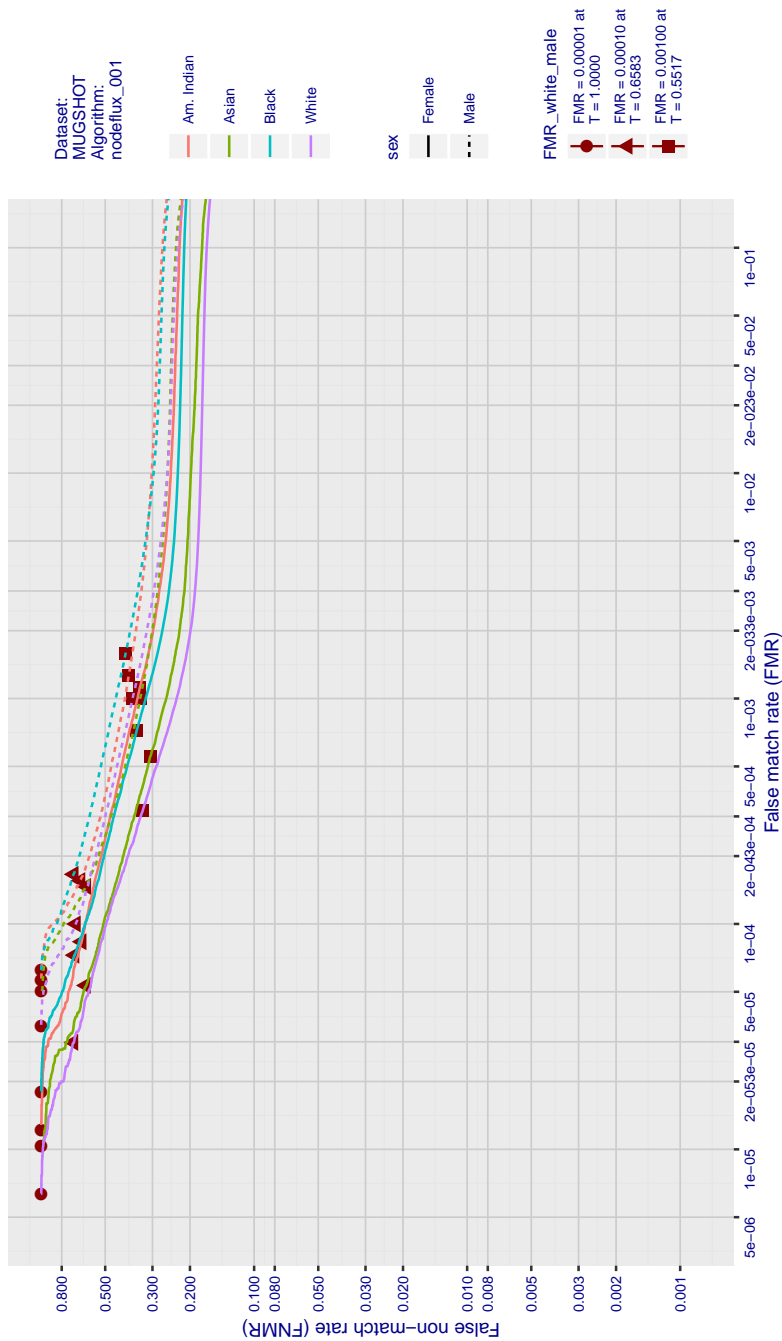


Figure 77: Verification error by sex and race: For algorithm nodeflux-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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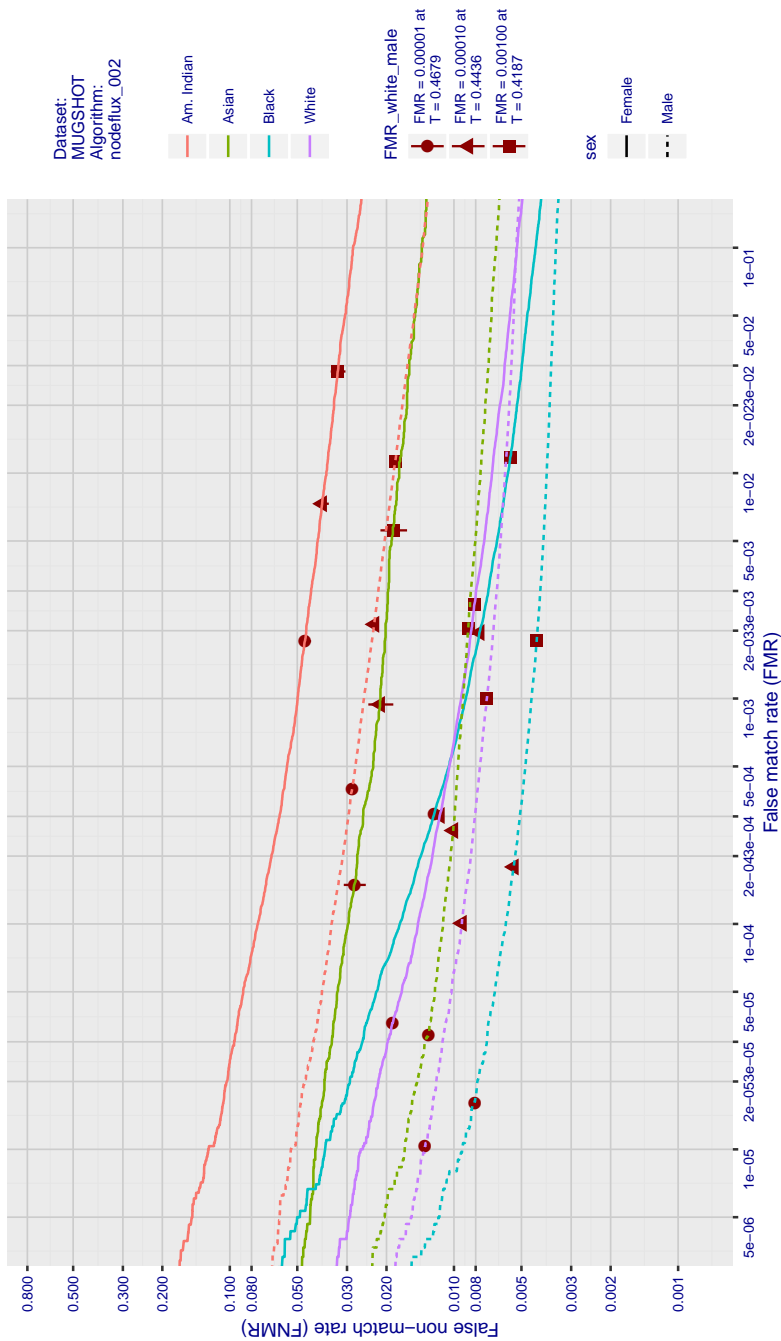


Figure 78: Verification error by sex and race: For algorithm nodeflux-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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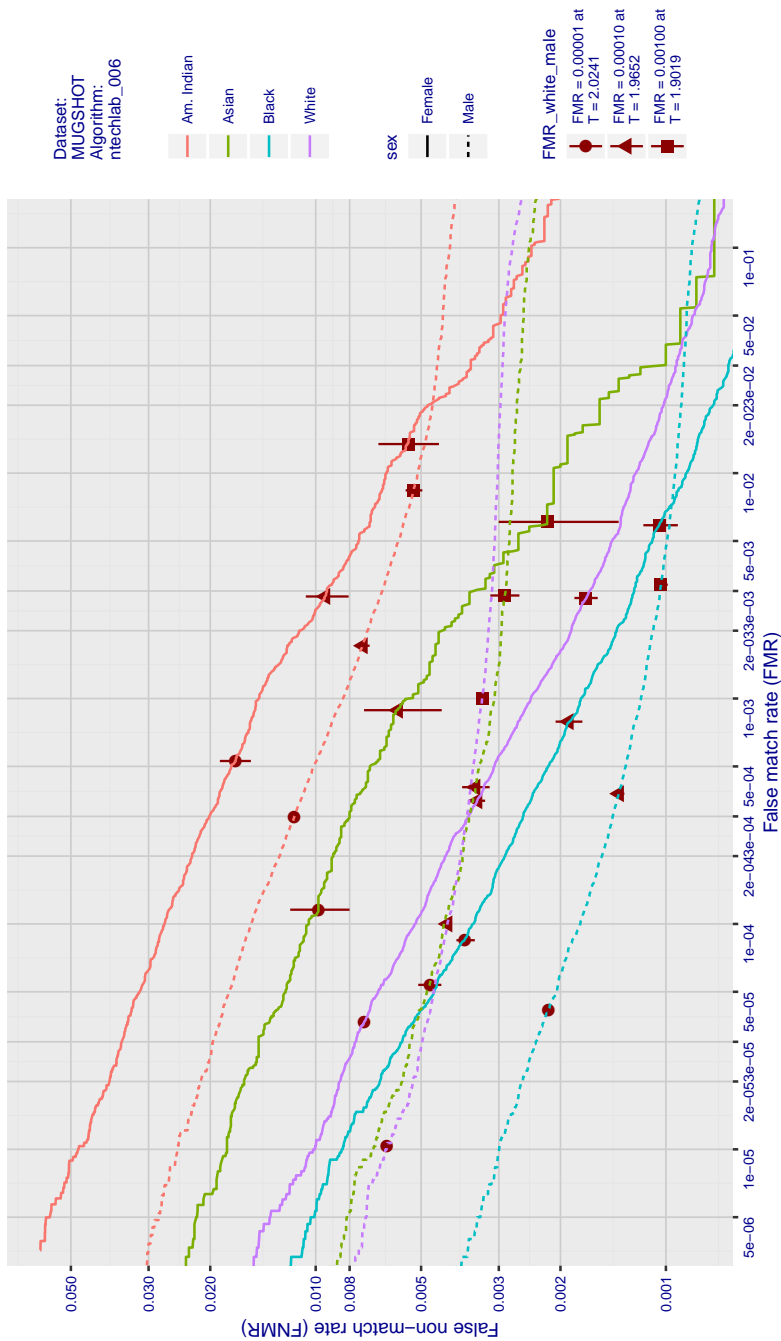


Figure 79: Verification error by sex and race: For algorithm ntechlab-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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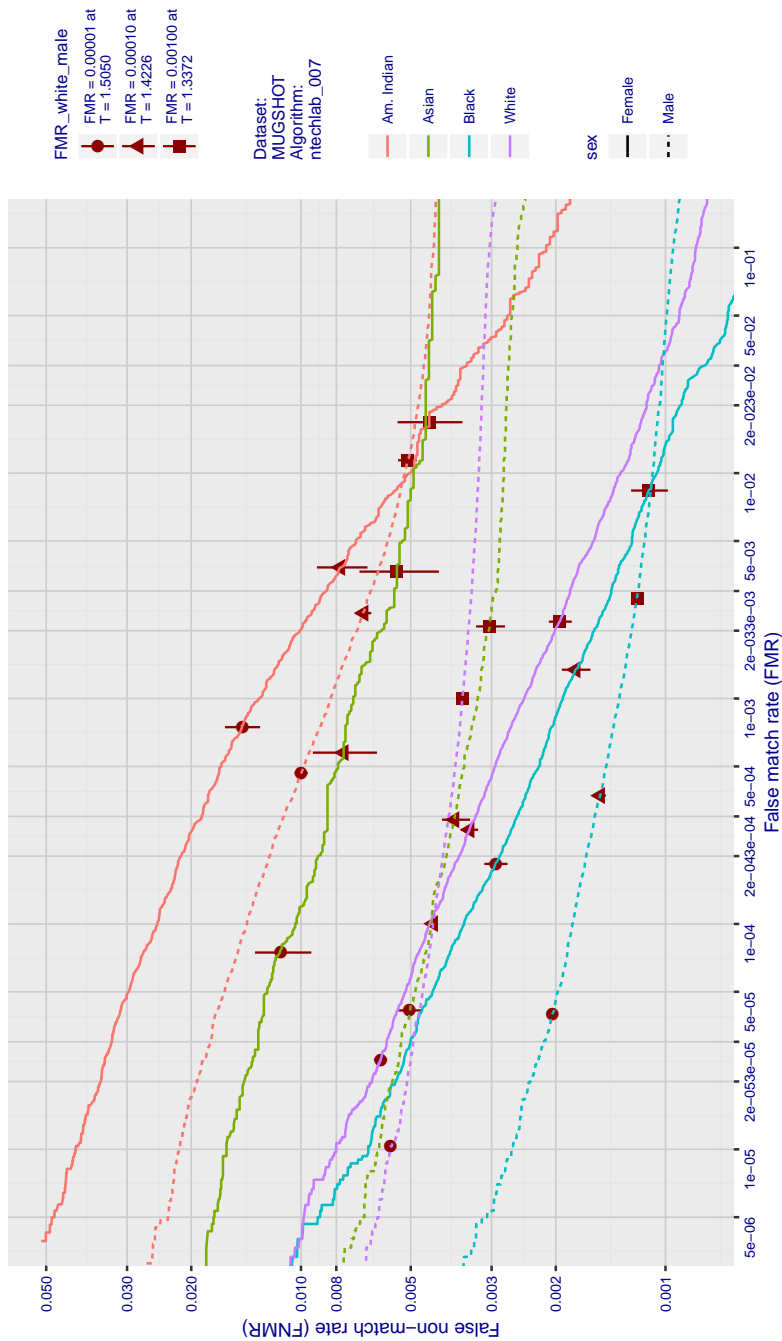


Figure 80: Verification error by sex and race: For algorithm ntechlab-007 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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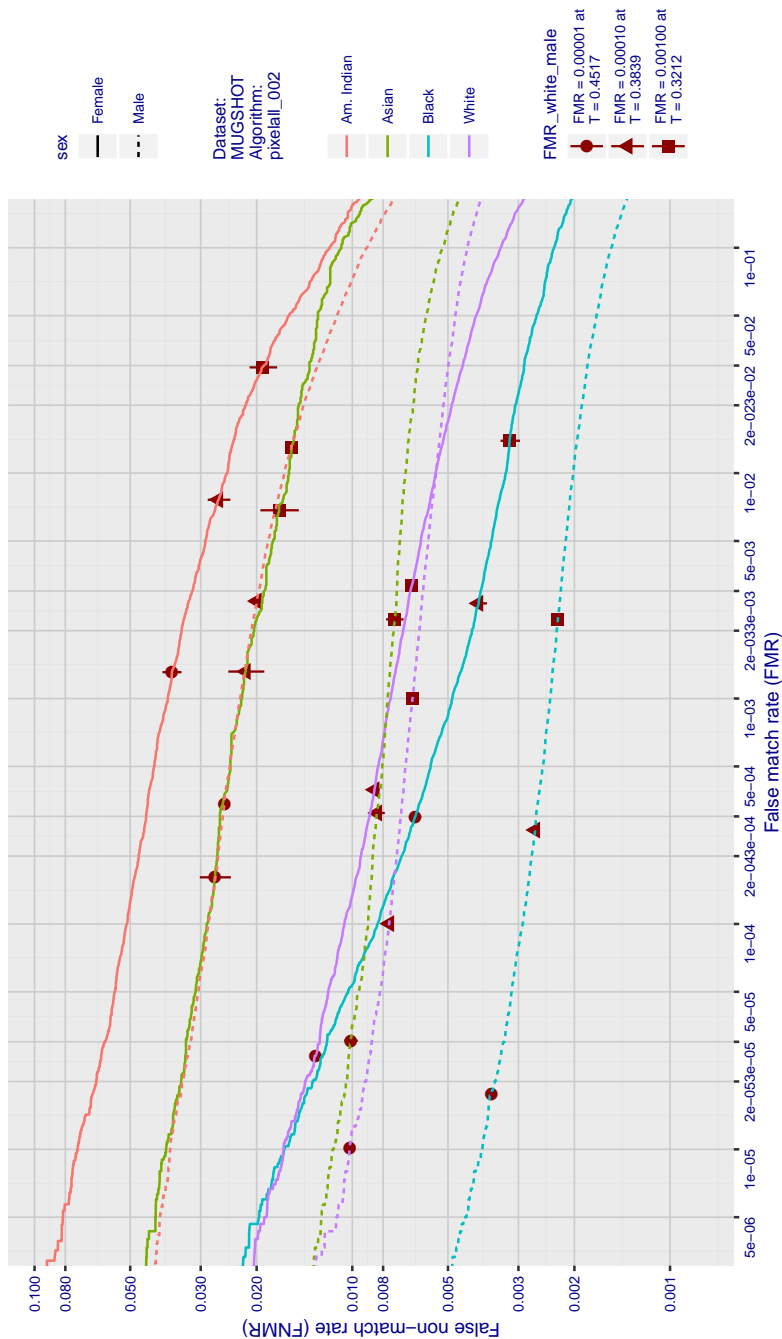


Figure 81: Verification error by sex and race: For algorithm pixelall-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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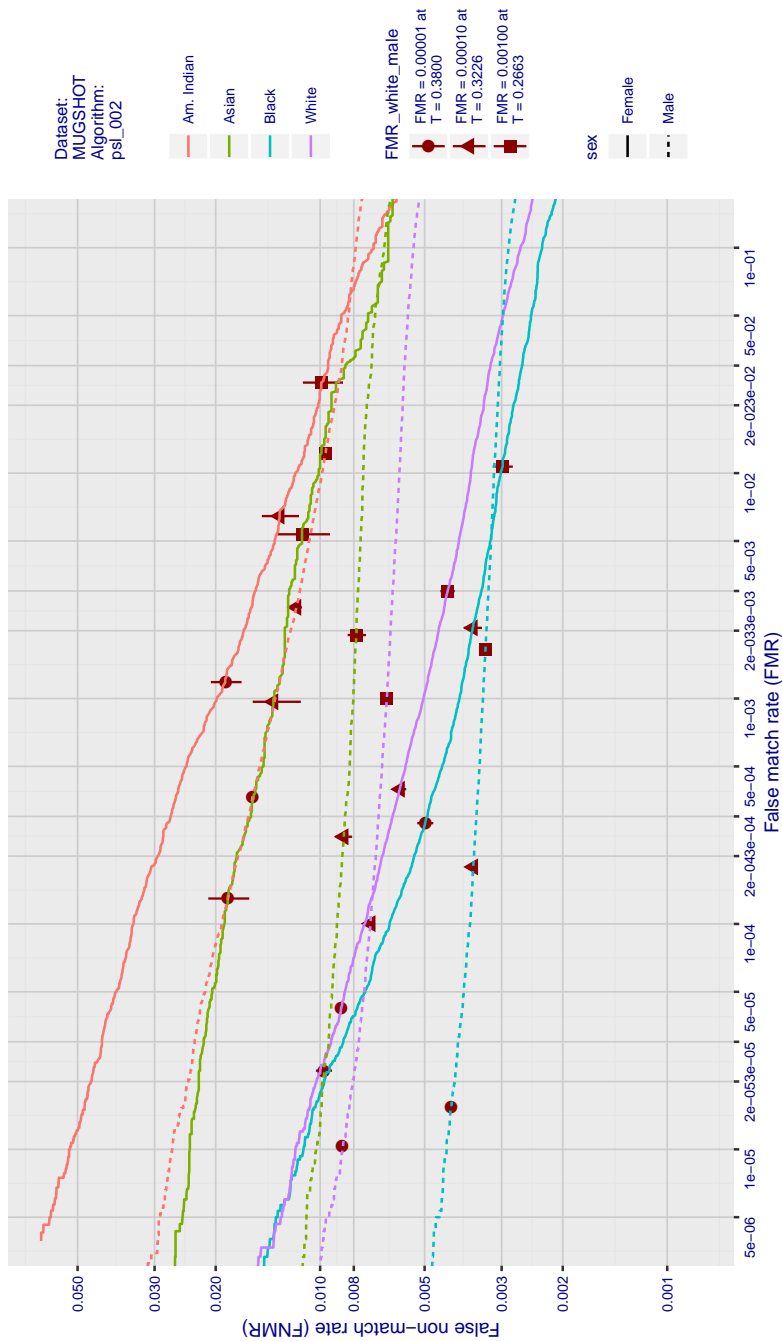


Figure 82: Verification error by sex and race: For algorithm psl-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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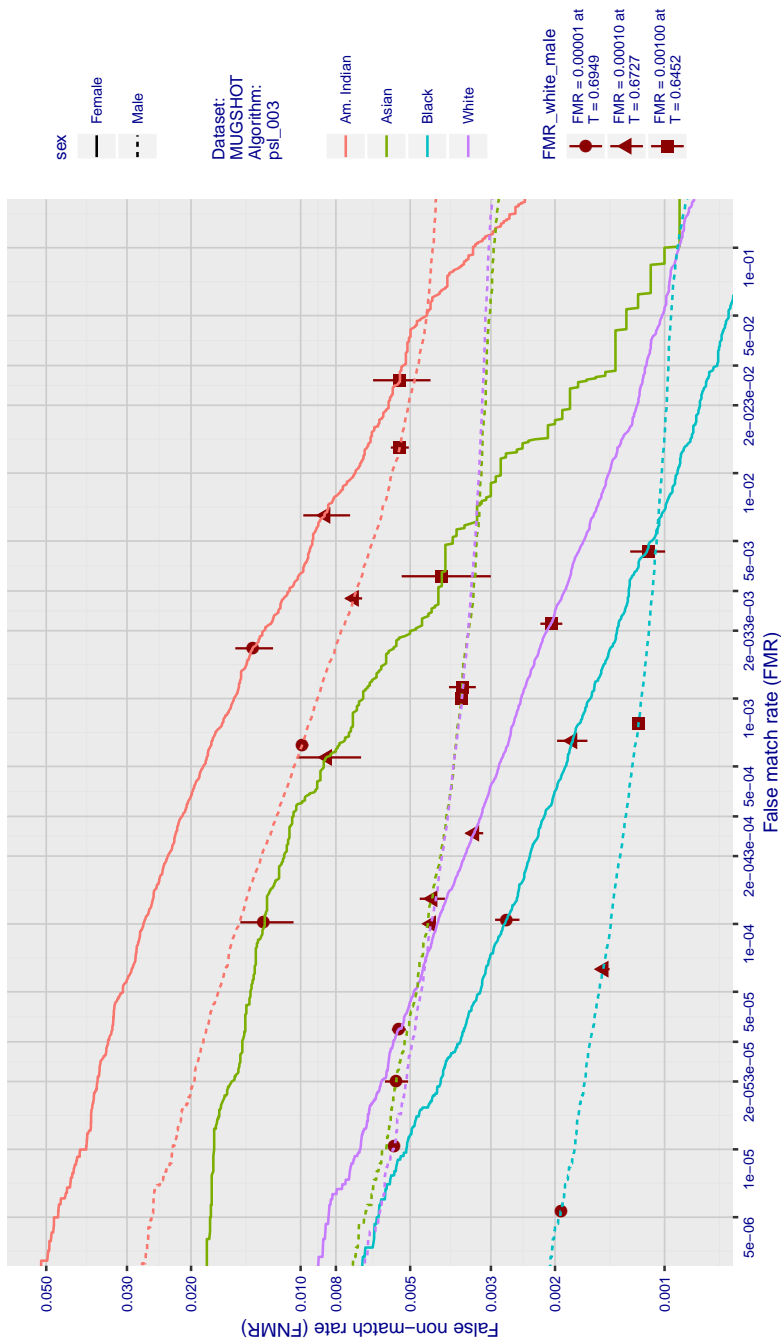


Figure 83: Verification error by sex and race: For algorithm psl-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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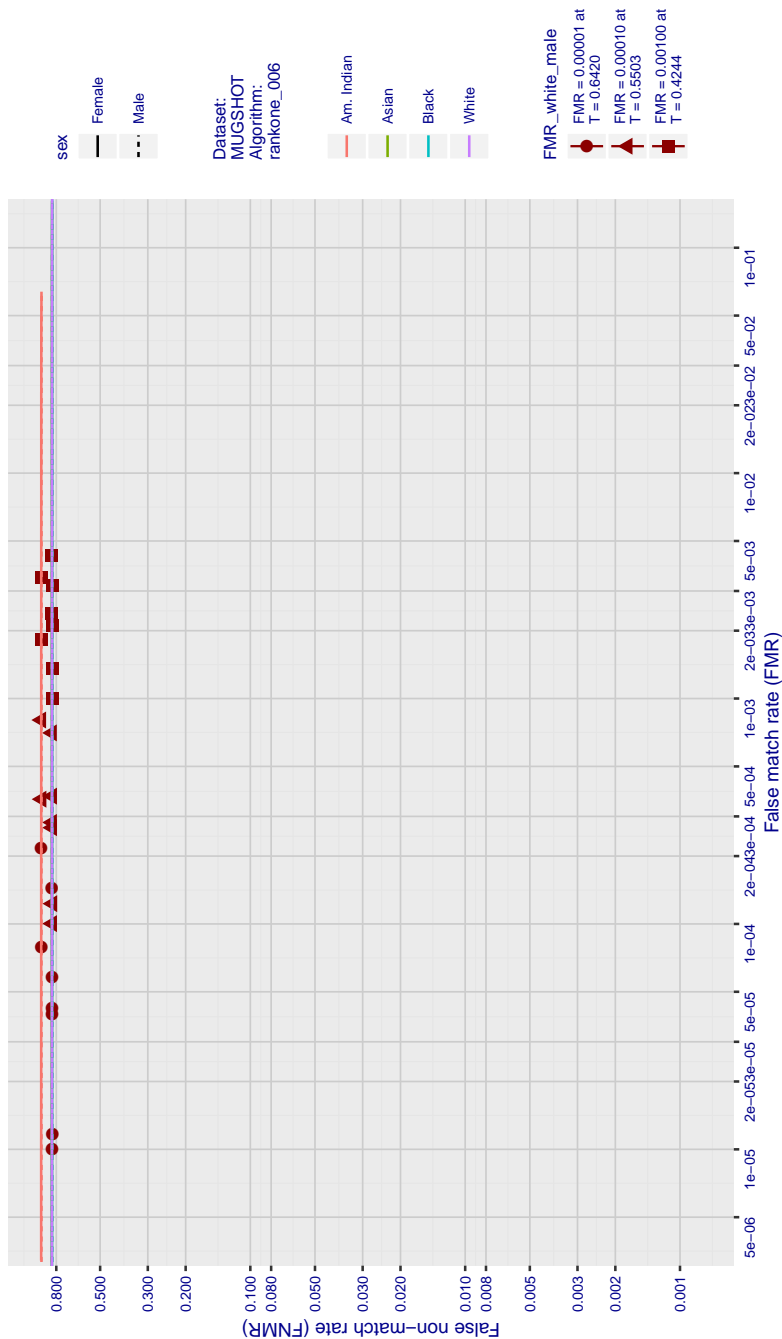


Figure 84: Verification error by sex and race: For algorithm rankone-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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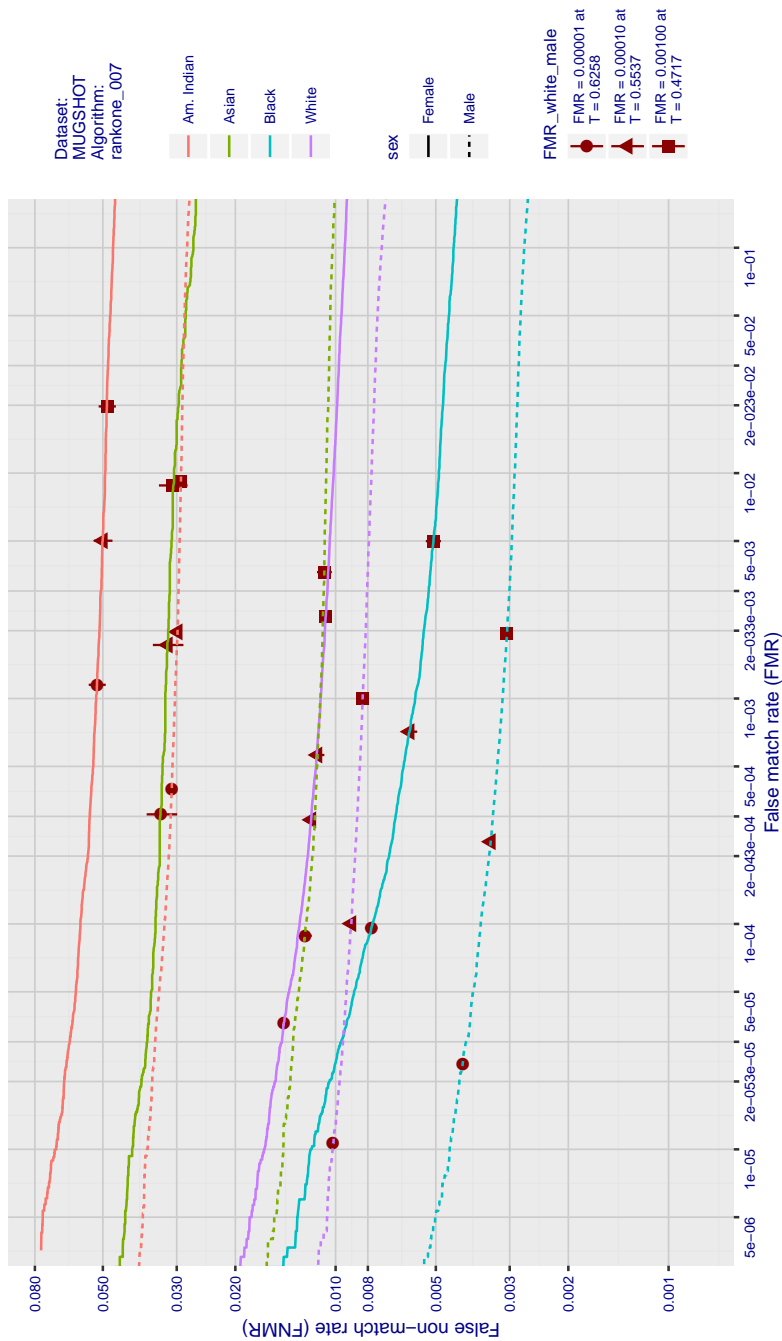


Figure 85: Verification error by sex and race: For algorithm rankone-007 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

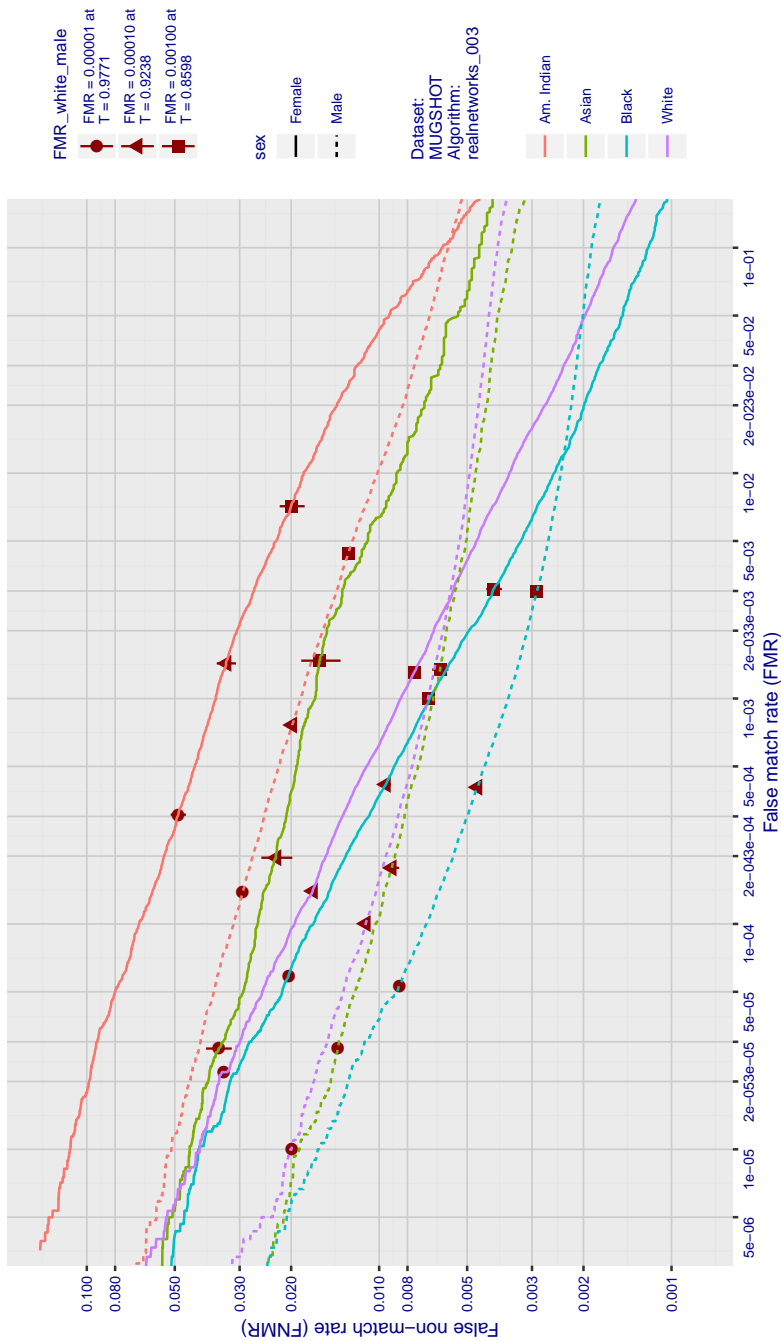


Figure 86: Verification error by sex and race: For algorithm realnetworks-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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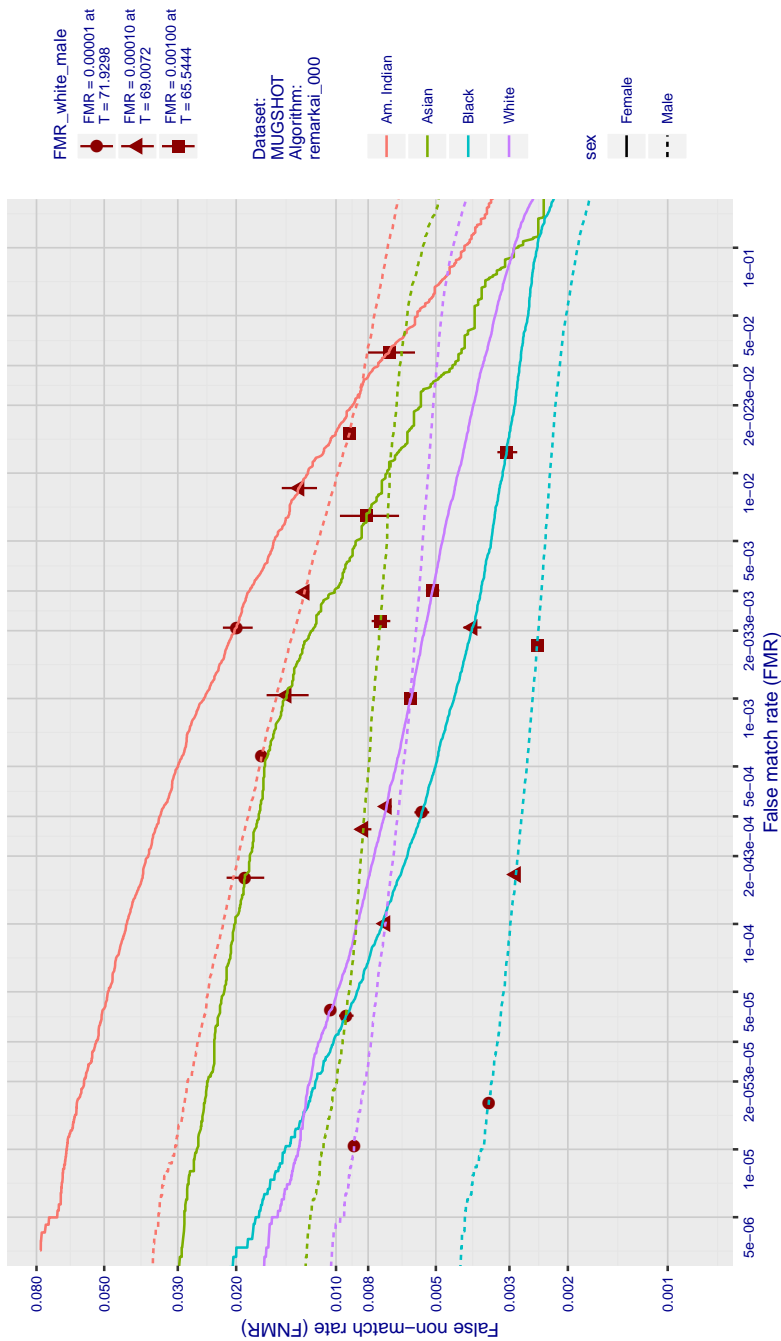


Figure 87: Verification error by sex and race: For algorithm remarkai-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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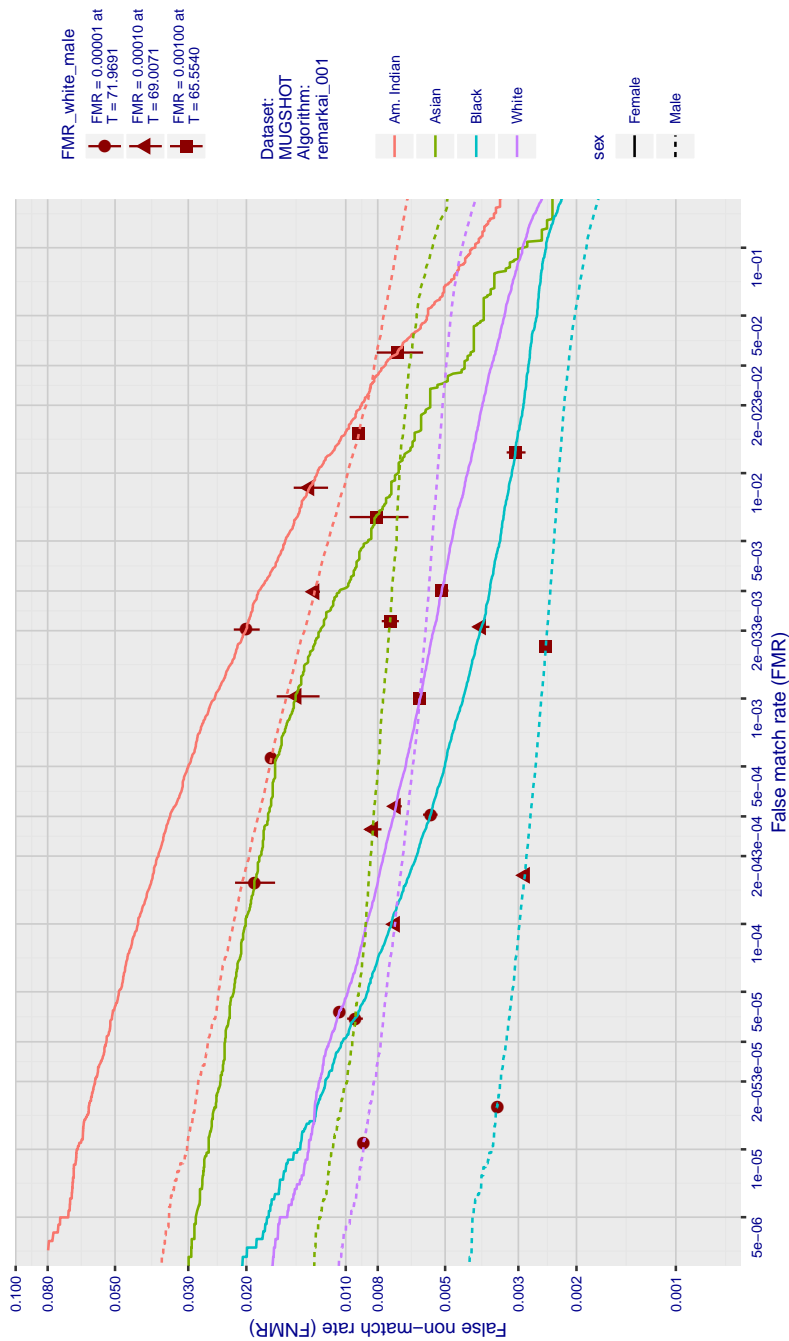


Figure 88: Verification error by sex and race: For algorithm remarkai-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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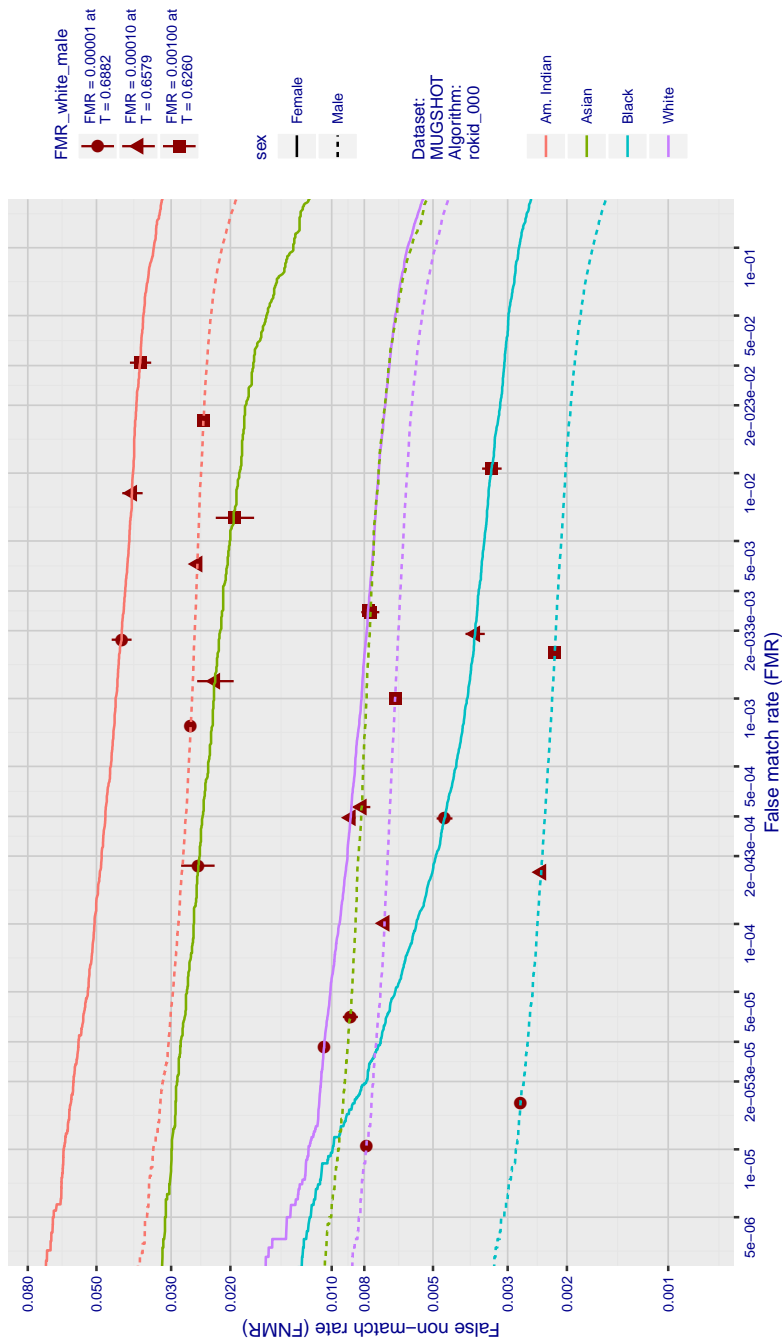


Figure 89: Verification error by sex and race: For algorithm rokid-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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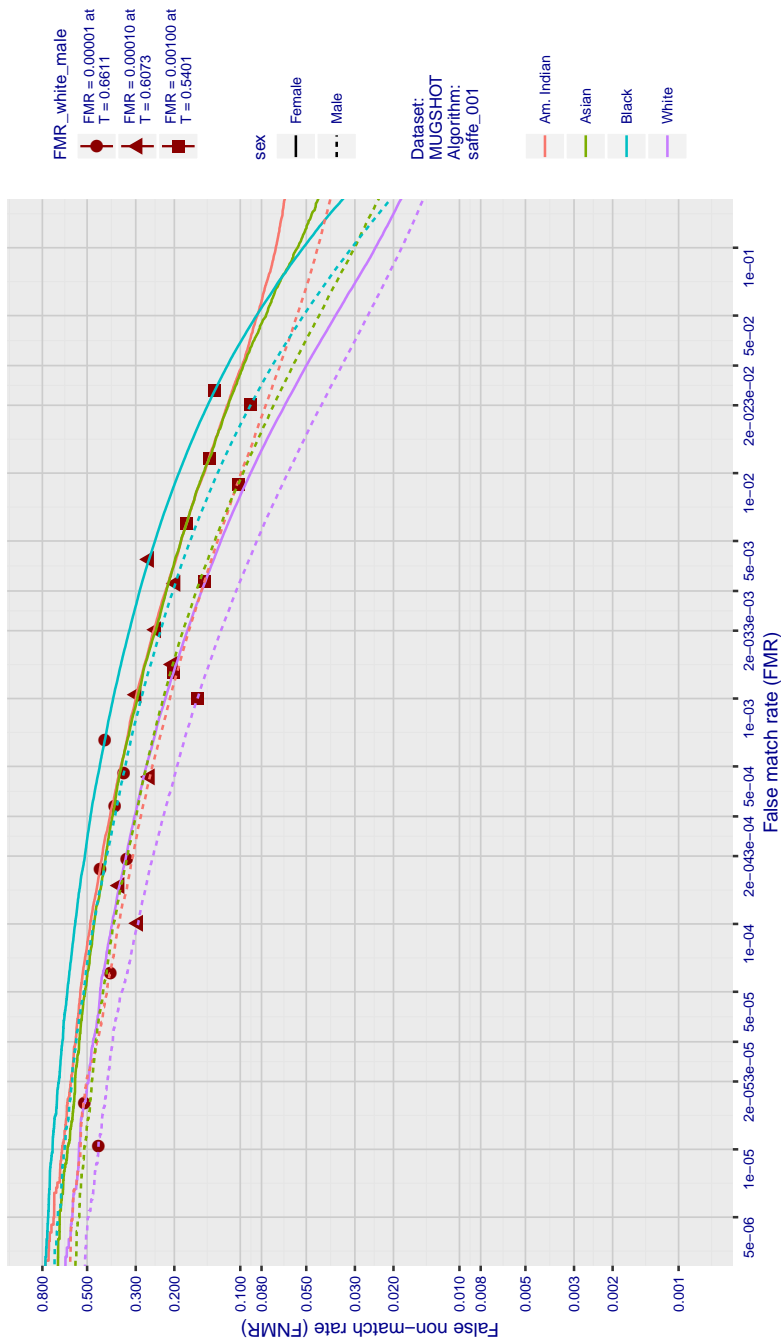


Figure 90: Verification error by sex and race: For algorithm saffe-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

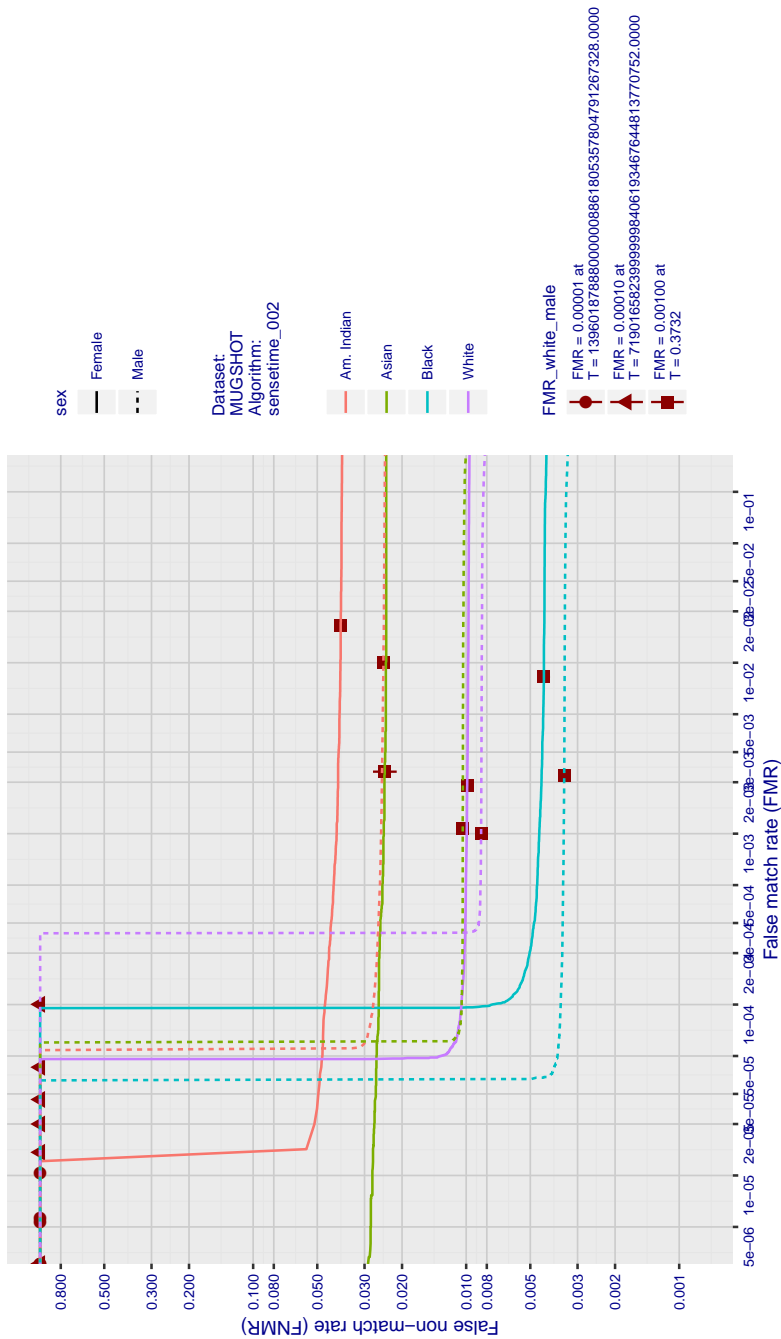


Figure 91: Verification error by sex and race: For algorithm sensetime-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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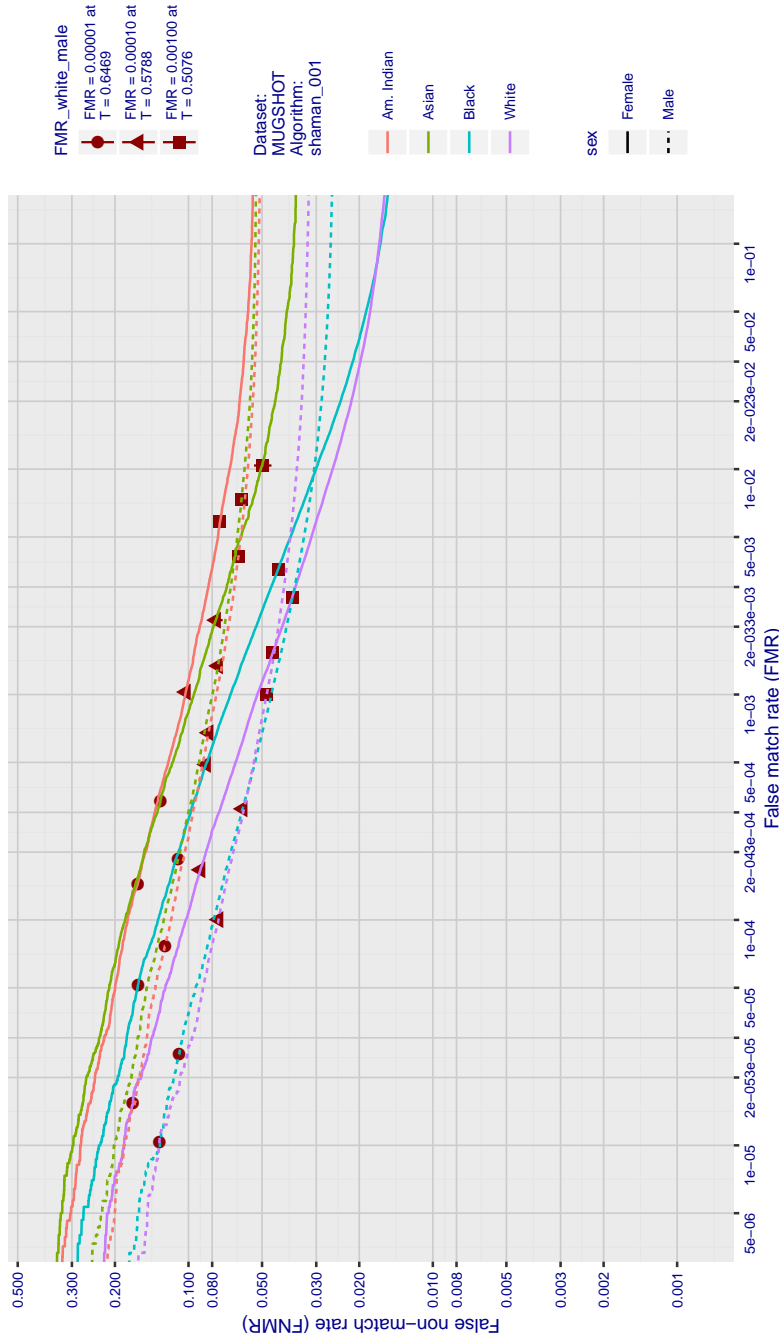


Figure 92: Verification error by sex and race: For algorithm shaman-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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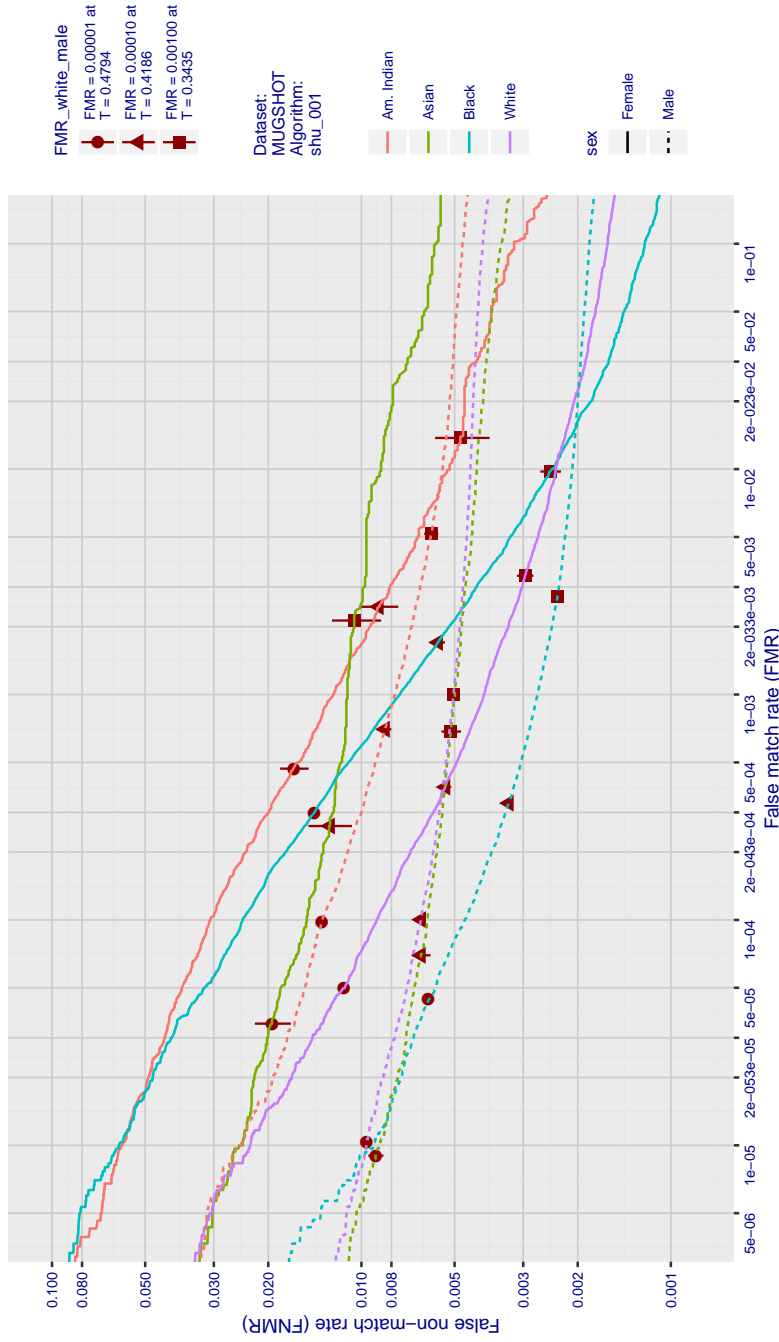


Figure 93: Verification error by sex and race: For algorithm shu-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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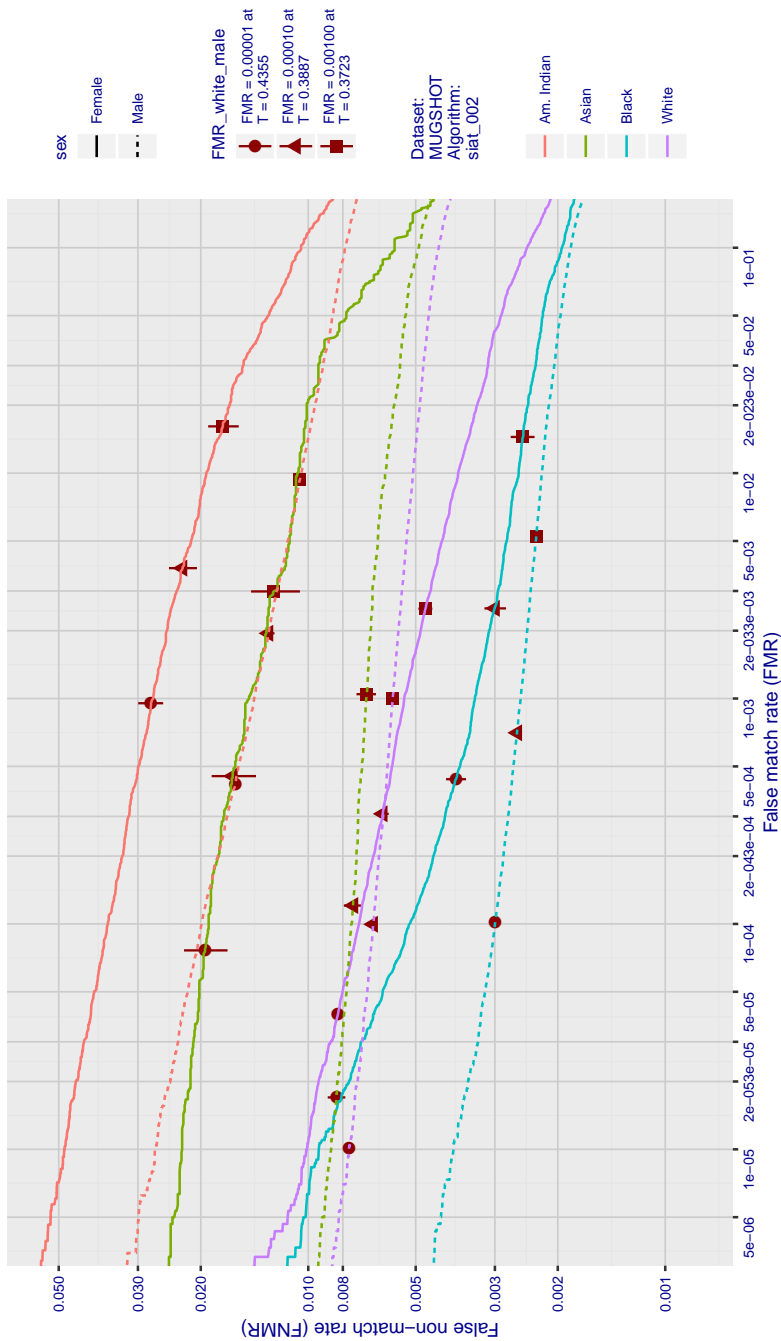


Figure 94: Verification error by sex and race: For algorithm siat-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



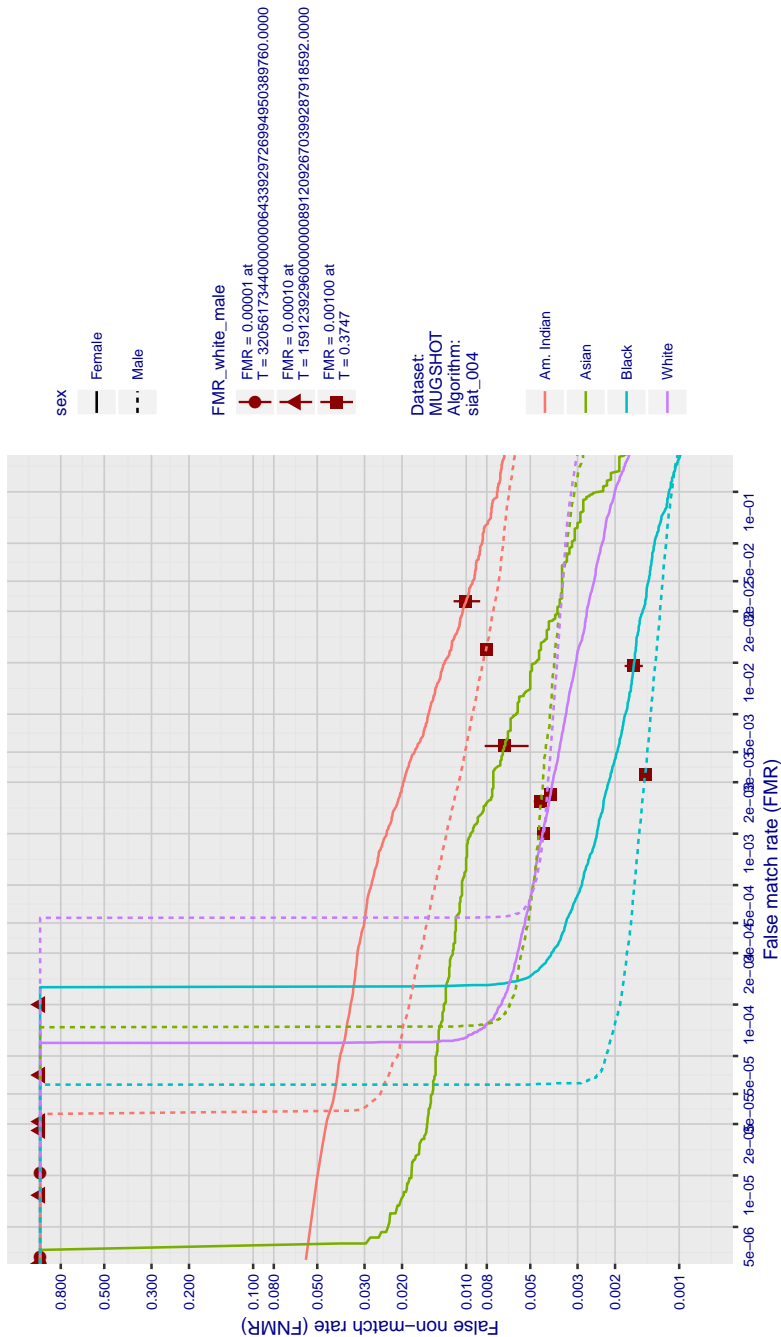


Figure 95: Verification error by sex and race: For algorithm siat-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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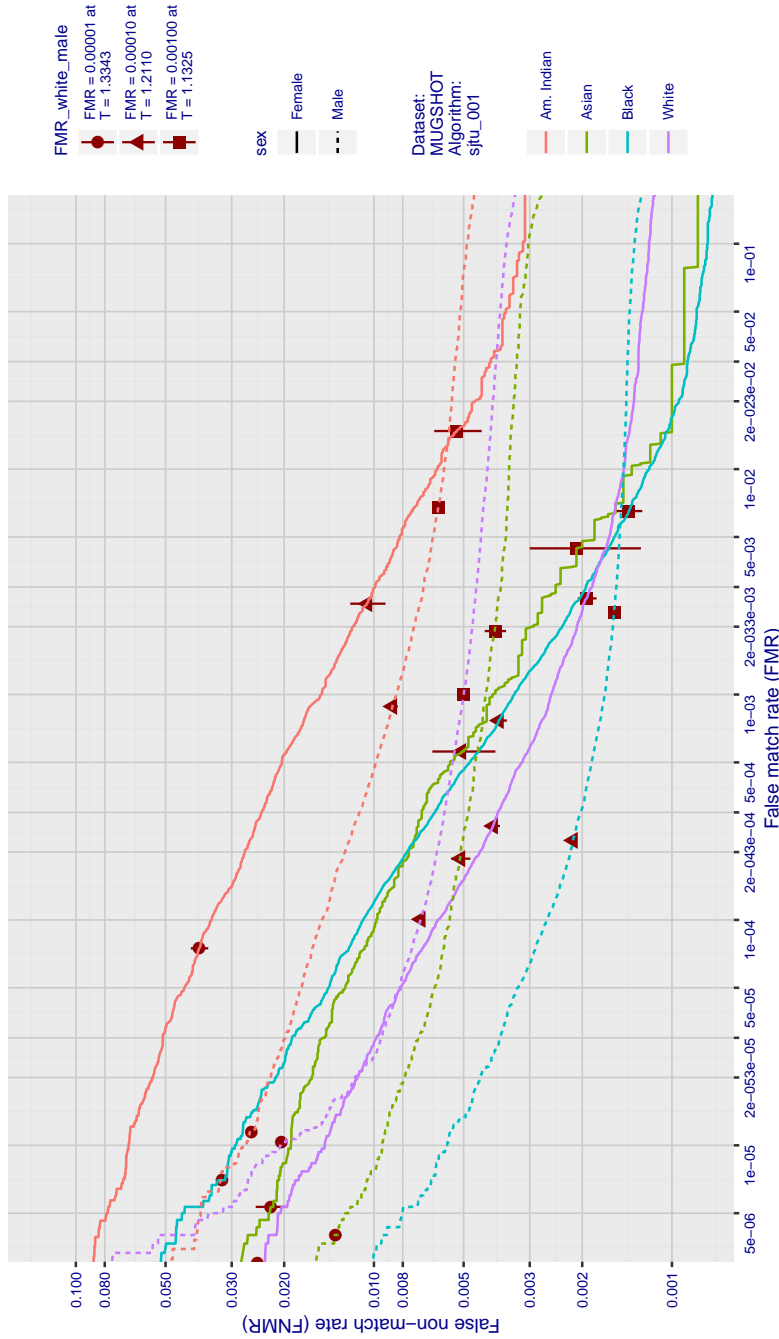


Figure 96: Verification error by sex and race: For algorithm sjtu-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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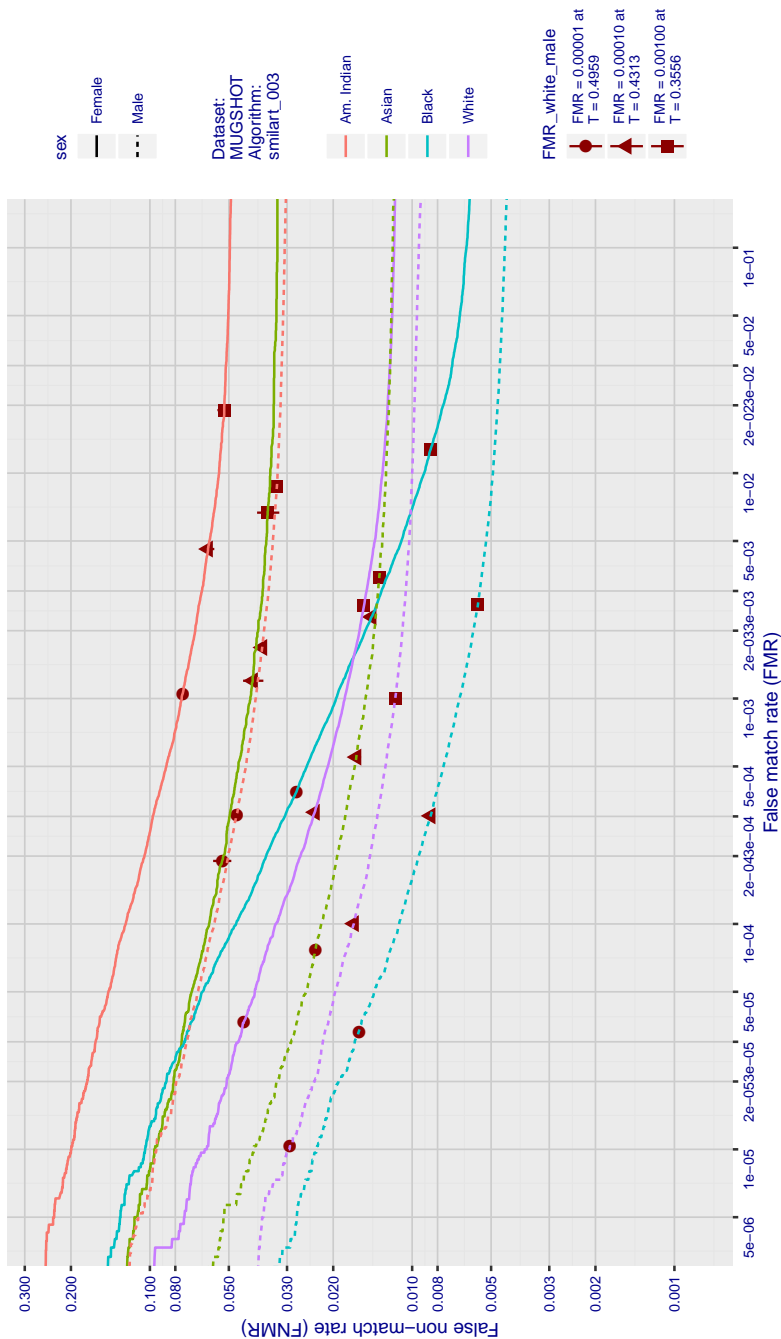


Figure 97: Verification error by sex and race: For algorithm smilart-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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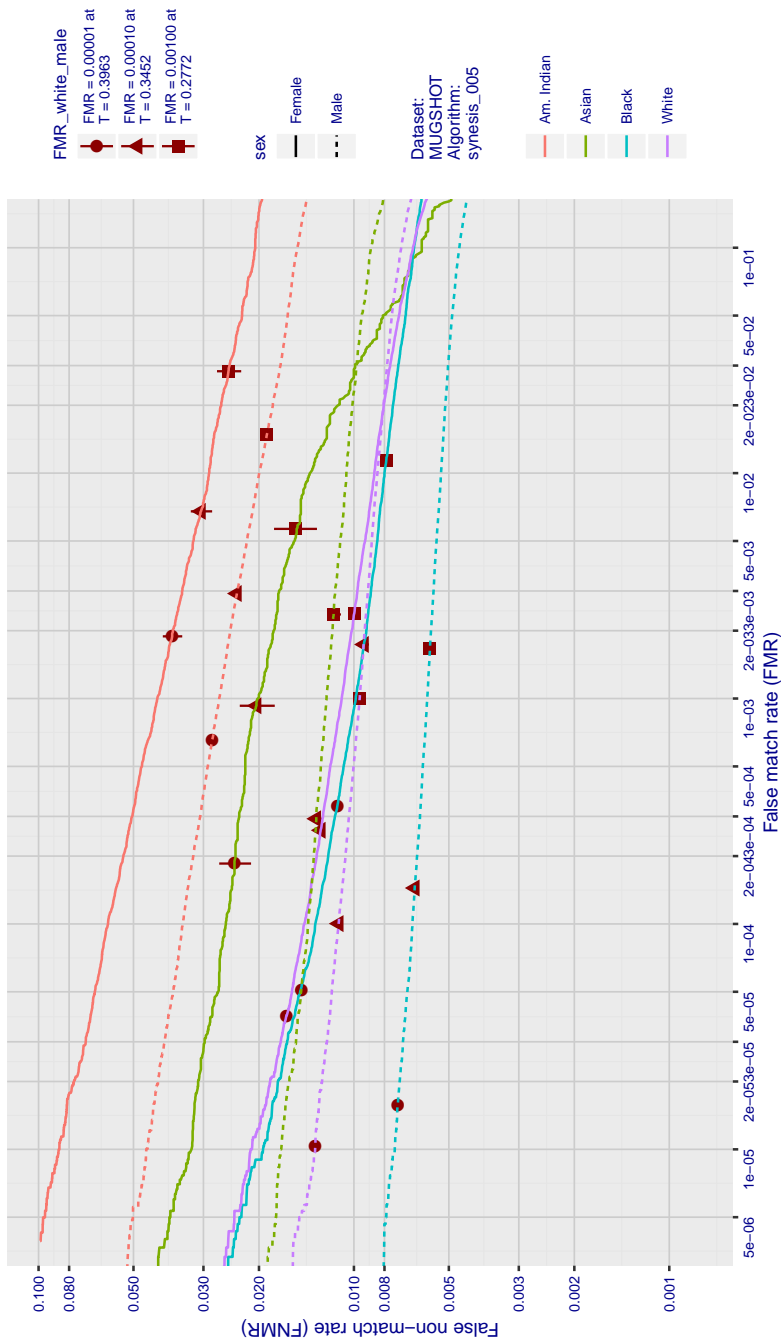


Figure 98: Verification error by sex and race: For algorithm synthesis-005 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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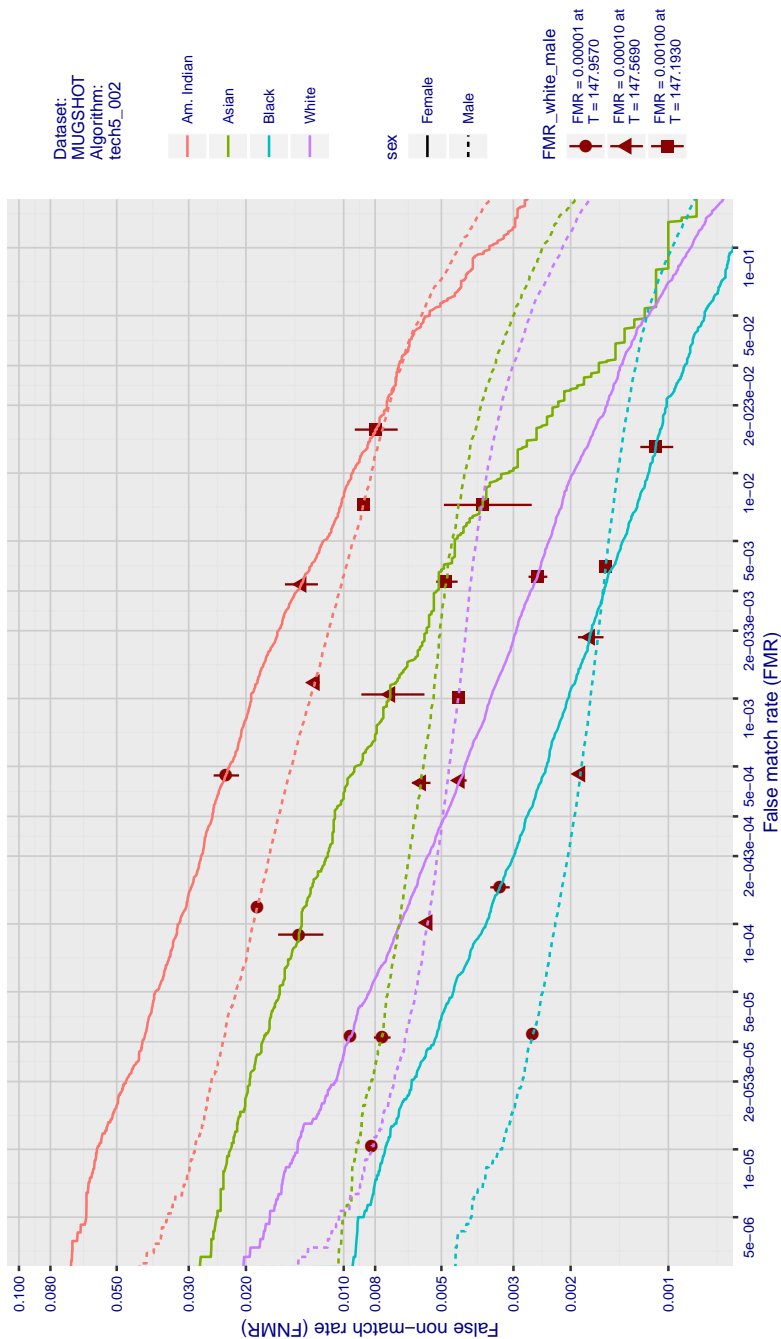


Figure 99: Verification error by sex and race: For algorithm tech5-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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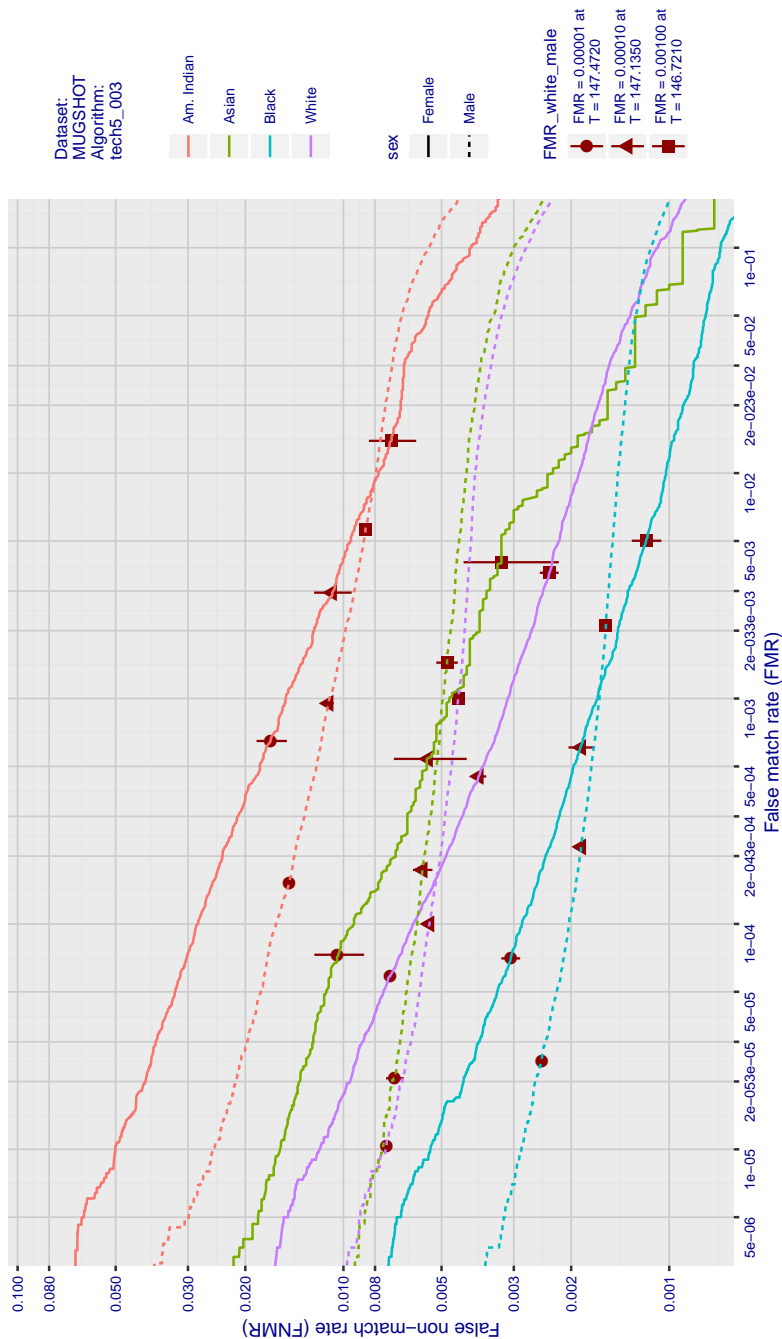


Figure 100: Verification error by sex and race: For algorithm tech5-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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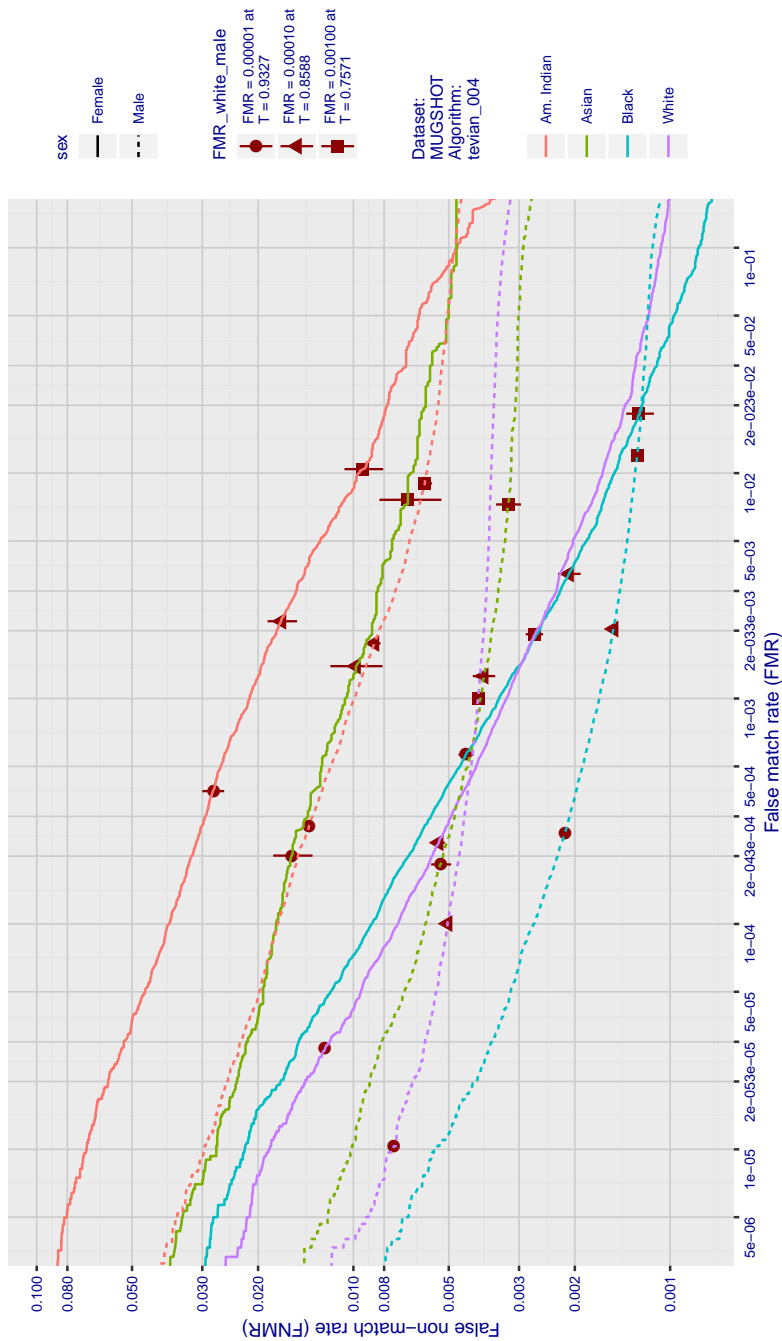


Figure 101: Verification error by sex and race: For algorithm tevian-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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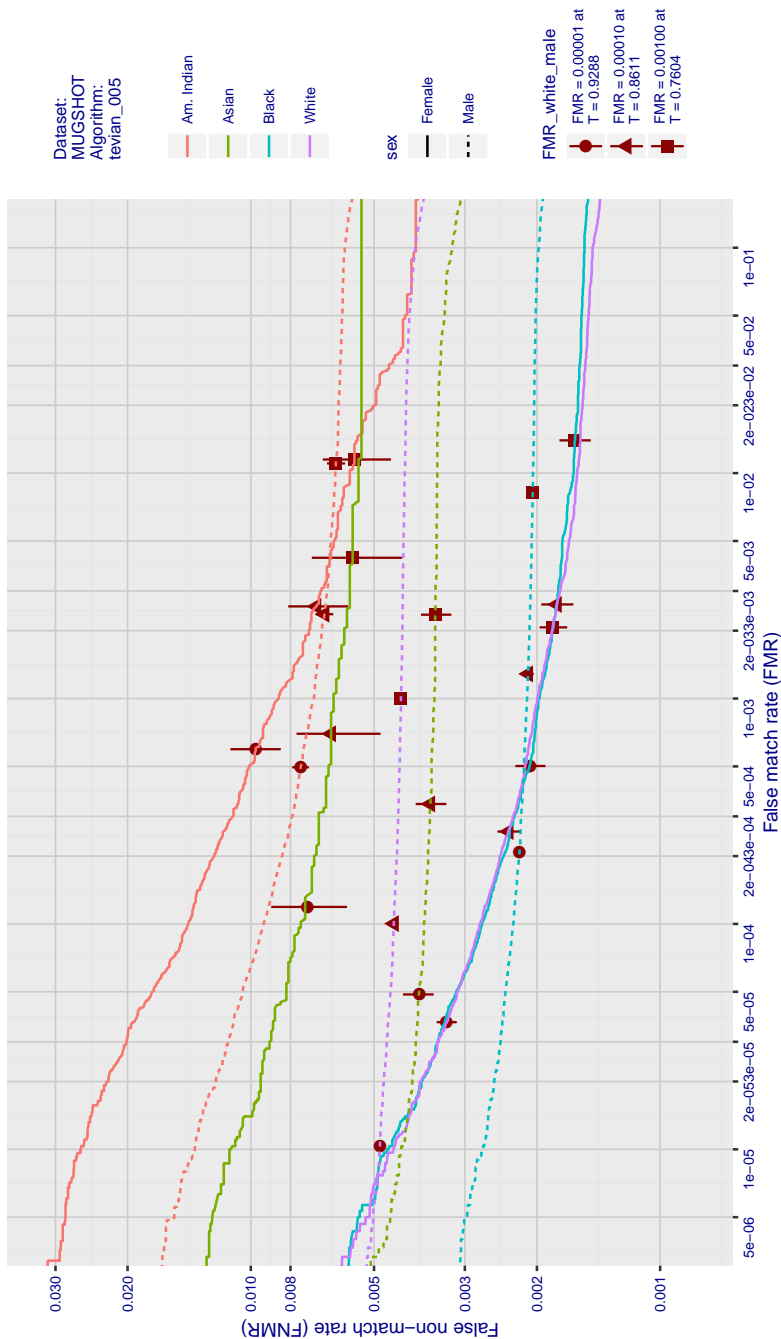


Figure 102: Verification error by sex and race: For algorithm tevian-005 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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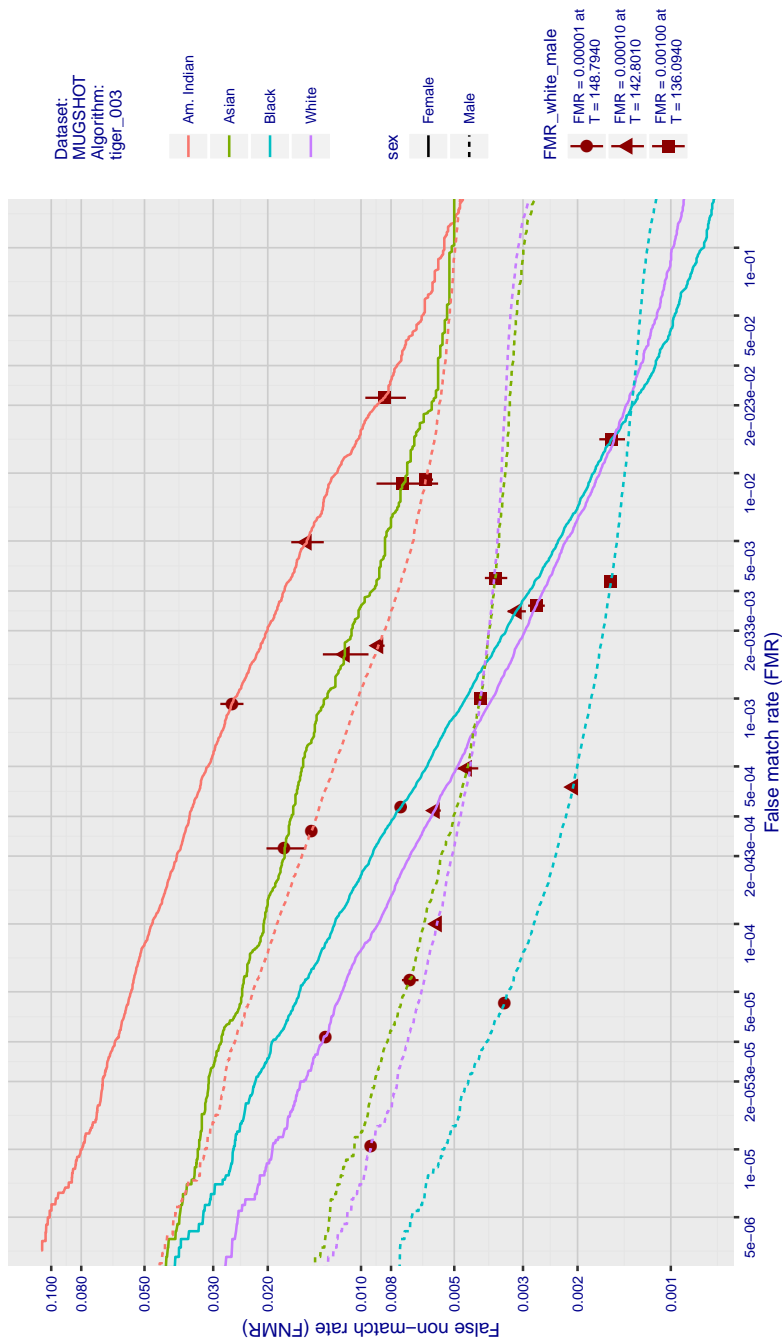


Figure 103: Verification error by sex and race: For algorithm tiger-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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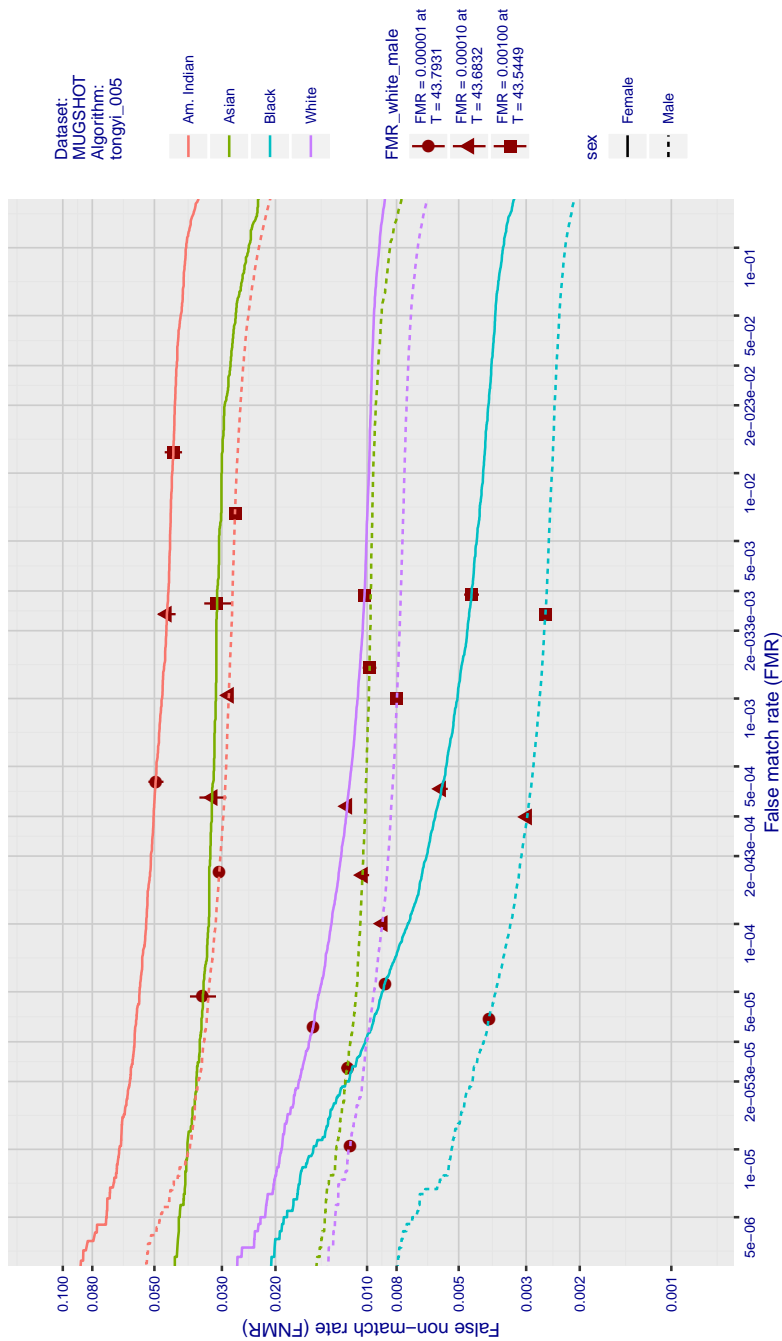


Figure 104: Verification error by sex and race: For algorithm tongyi-005 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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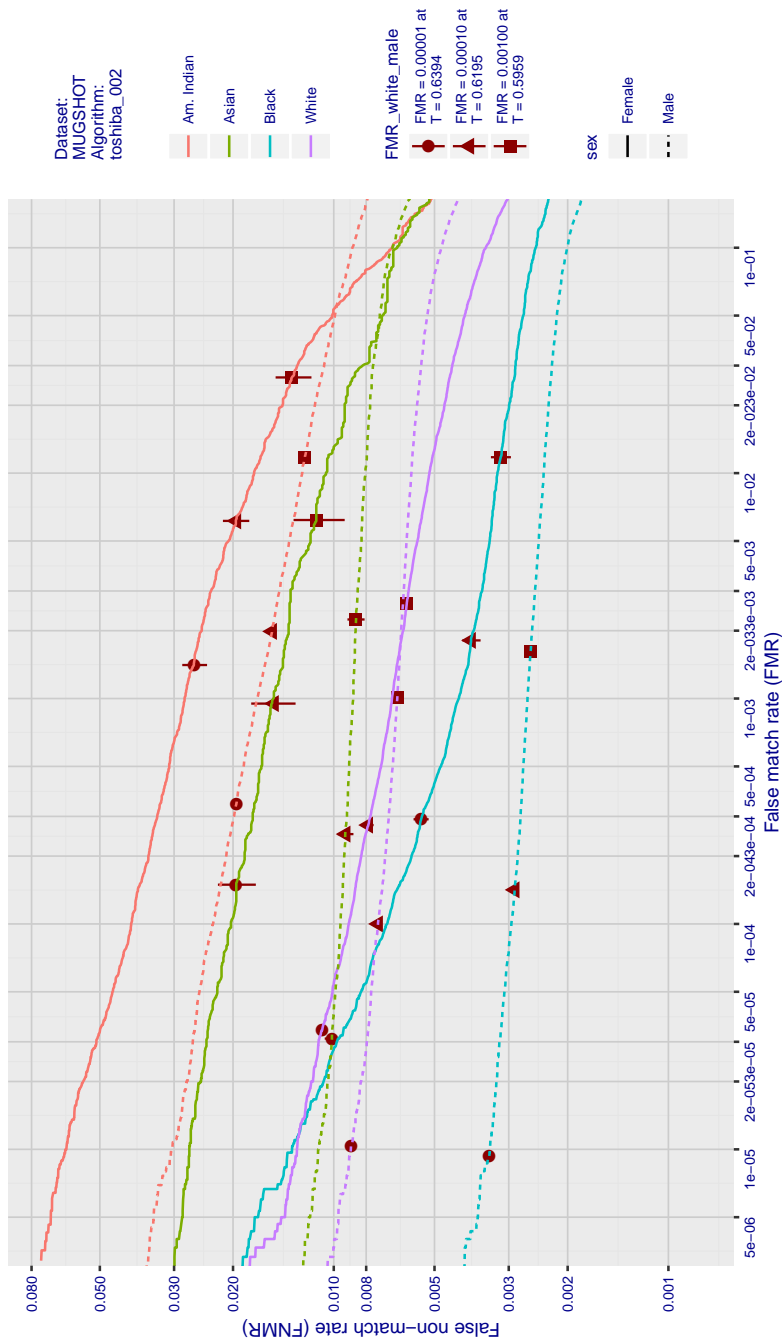


Figure 105: Verification error by sex and race: For algorithm toshiba-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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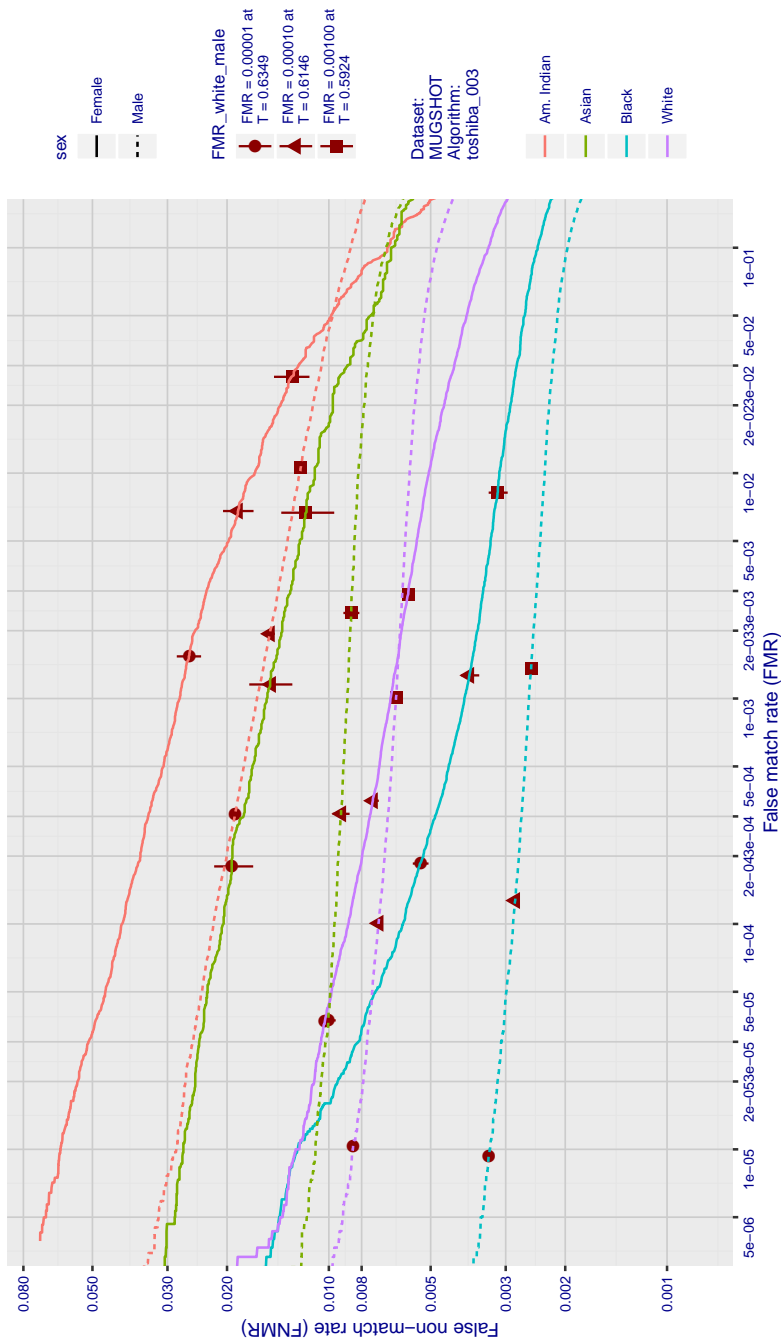


Figure 106: Verification error by sex and race: For algorithm toshiba-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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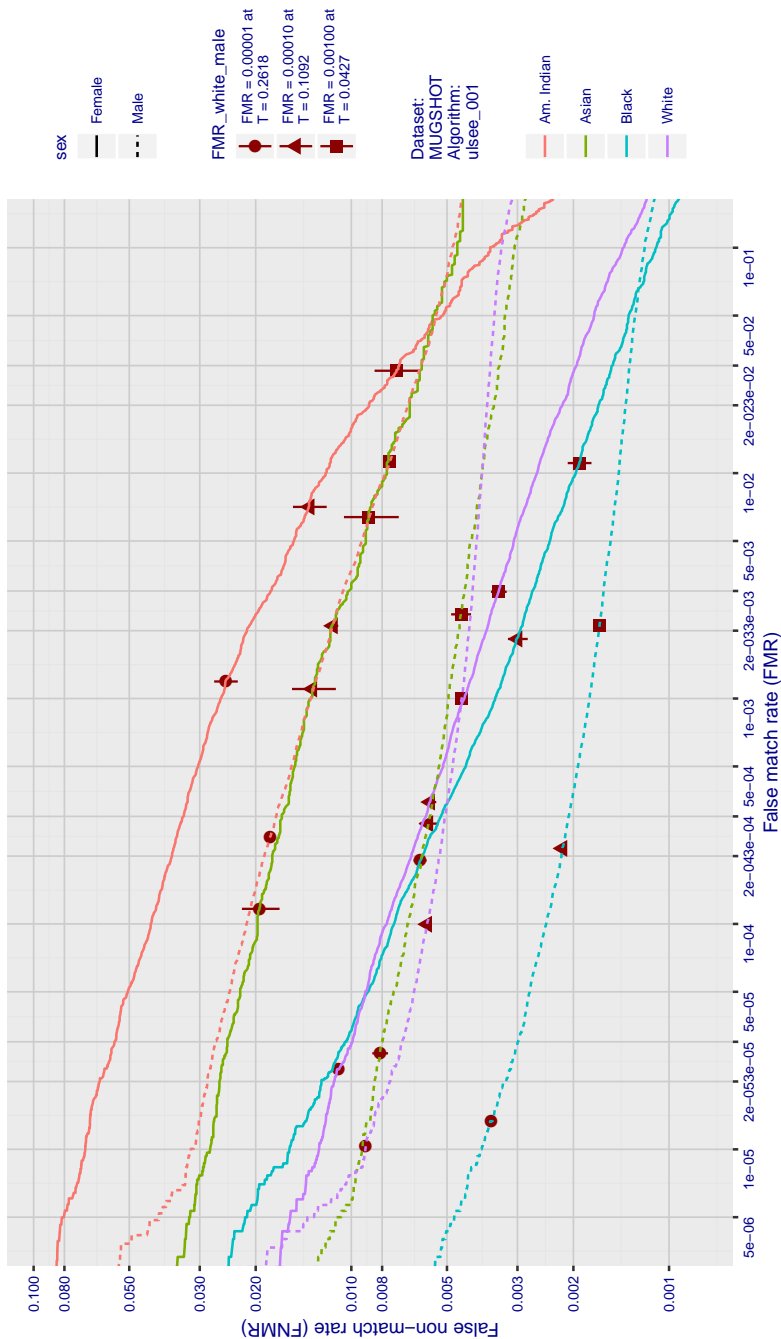


Figure 107: Verification error by sex and race: For algorithm ulsee-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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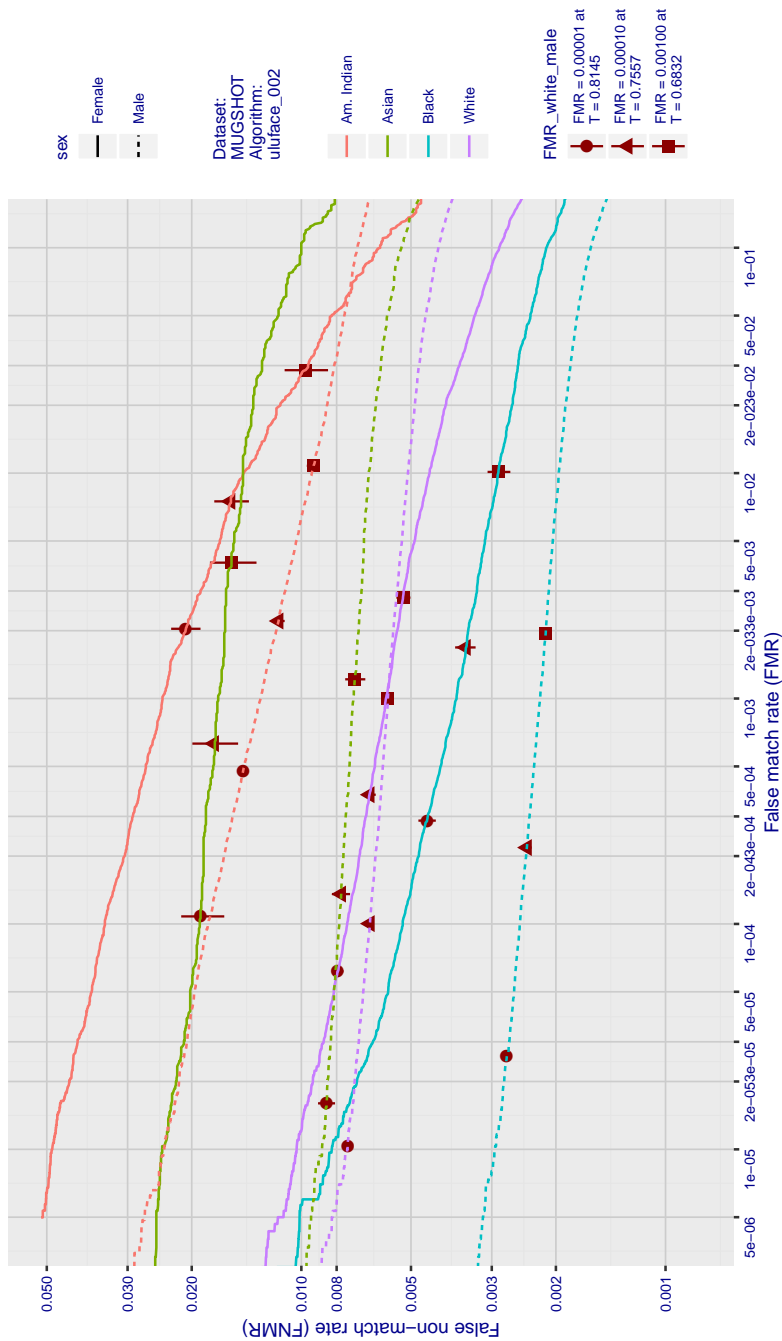


Figure 108: Verification error by sex and race: For algorithm ulface-002 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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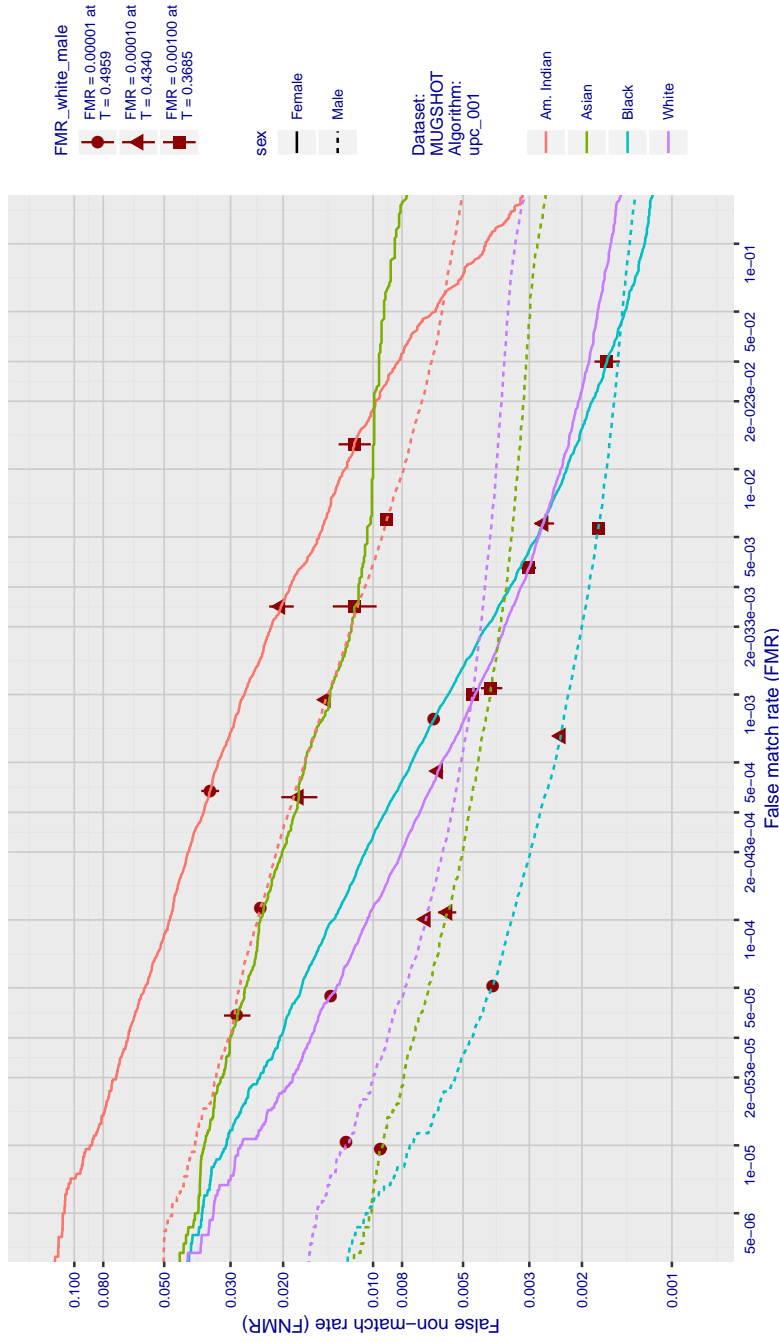


Figure 109: Verification error by sex and race: For algorithm upc-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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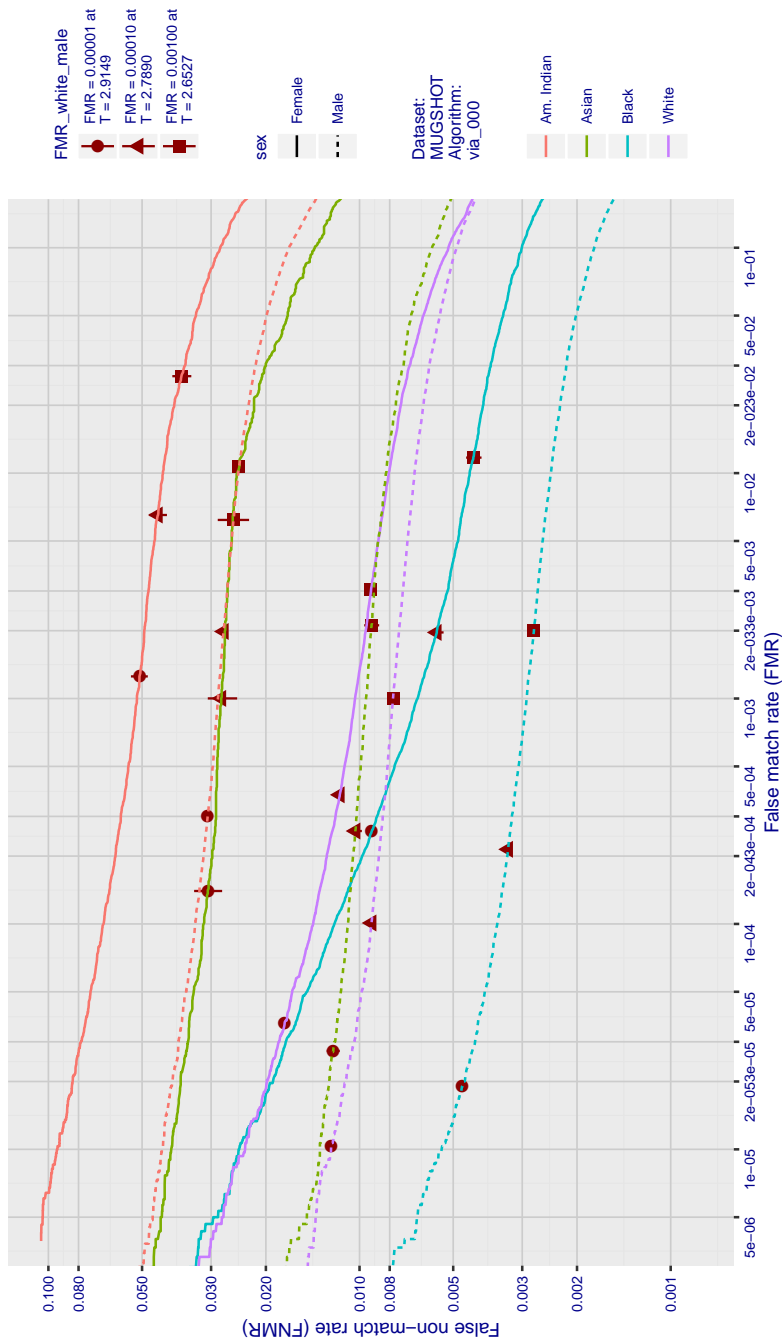


Figure 110: Verification error by sex and race: For algorithm via-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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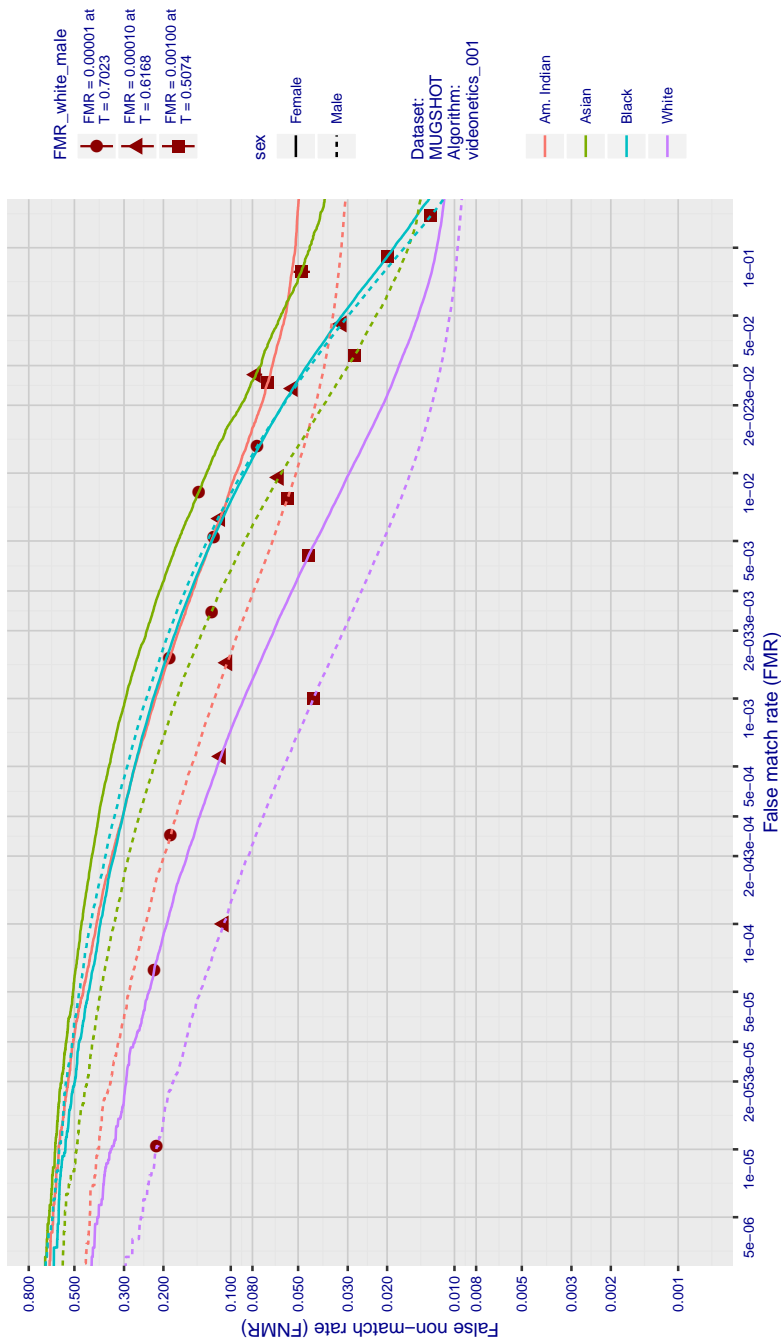


Figure 111: Verification error by sex and race: For algorithm videonetics-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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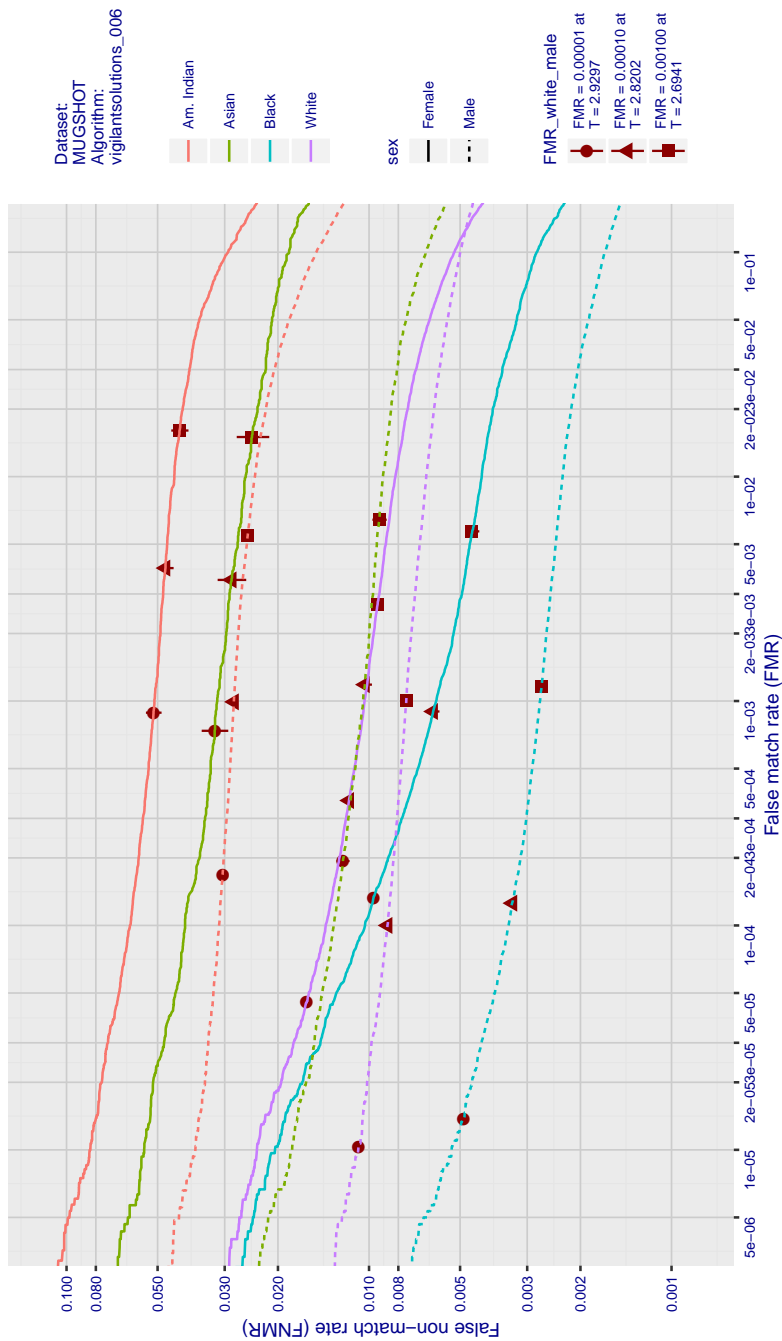


Figure 112: Verification error by sex and race: For algorithm vigilantolutions-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

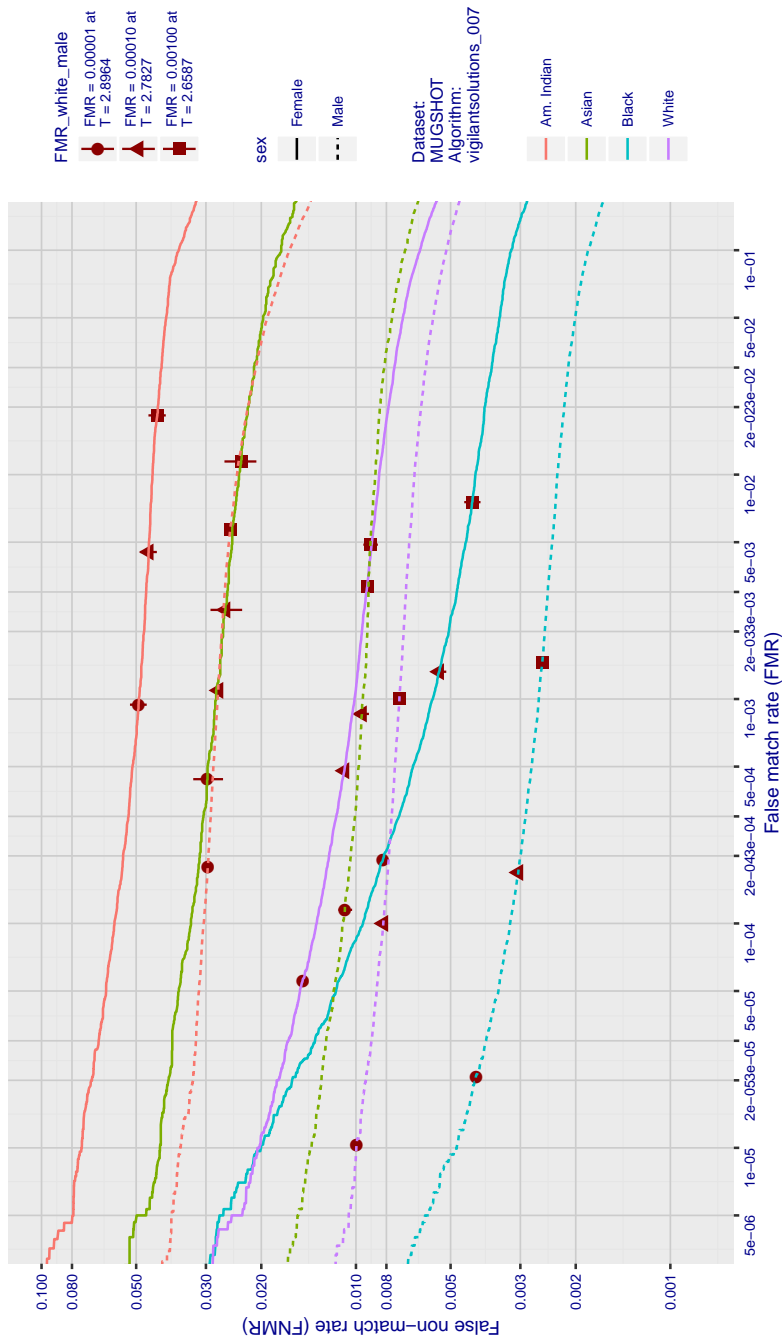


Figure 113: Verification error by sex and race: For algorithm vigilantolutions-007 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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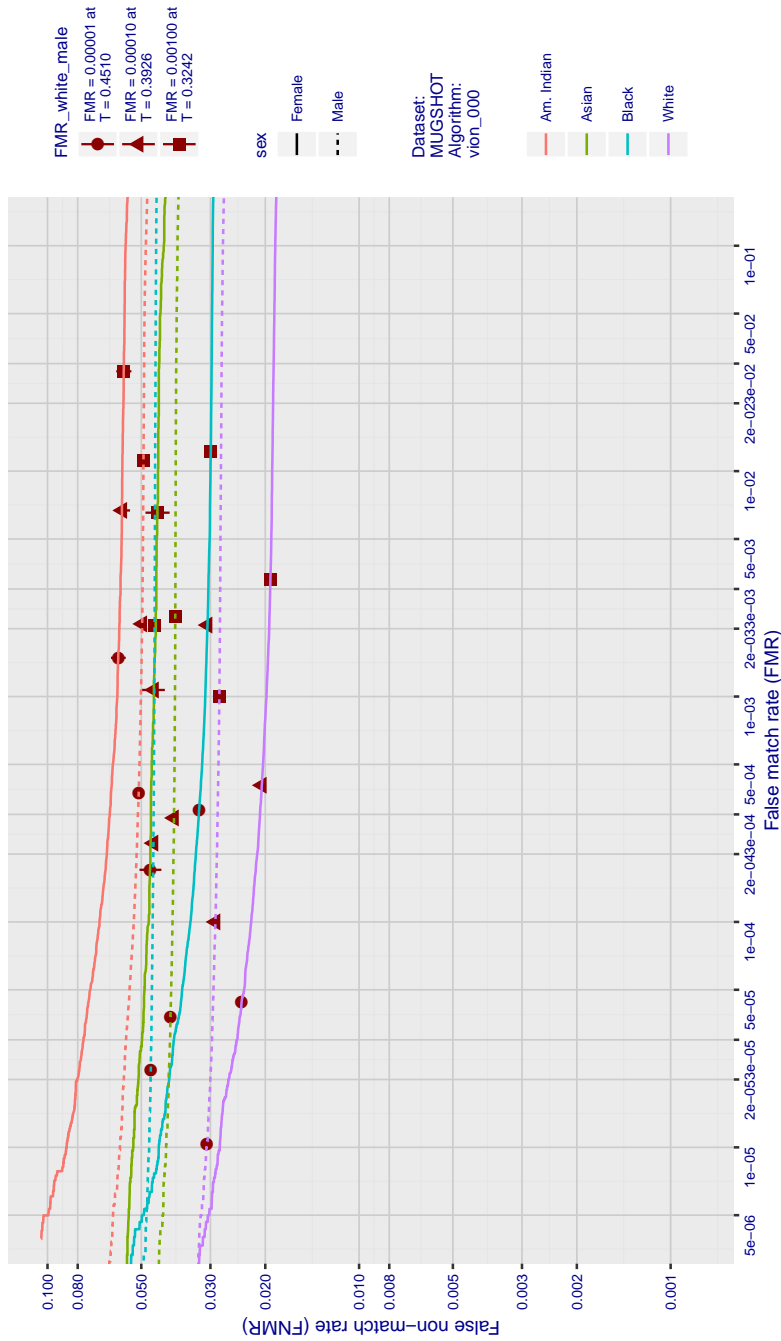


Figure 114: Verification error by sex and race: For algorithm vion-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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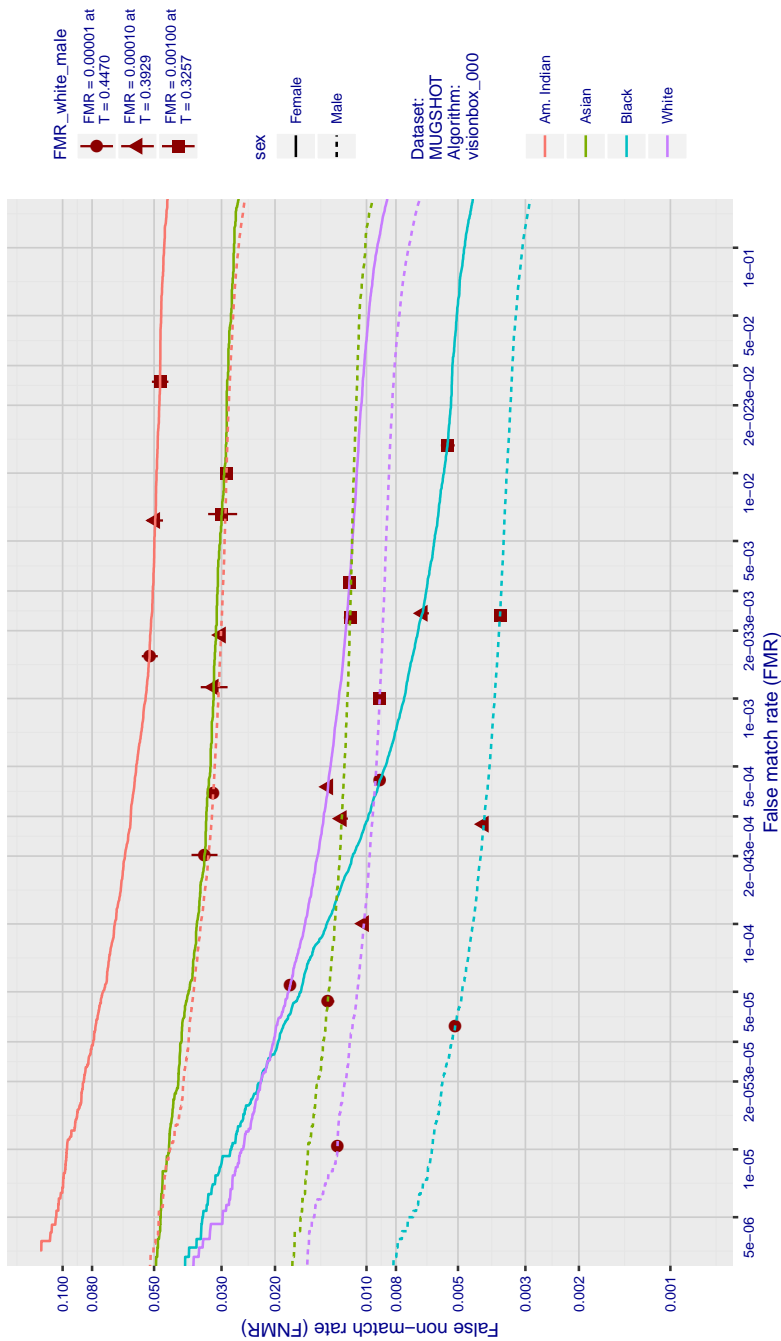


Figure 115: Verification error by sex and race: For algorithm visionbox-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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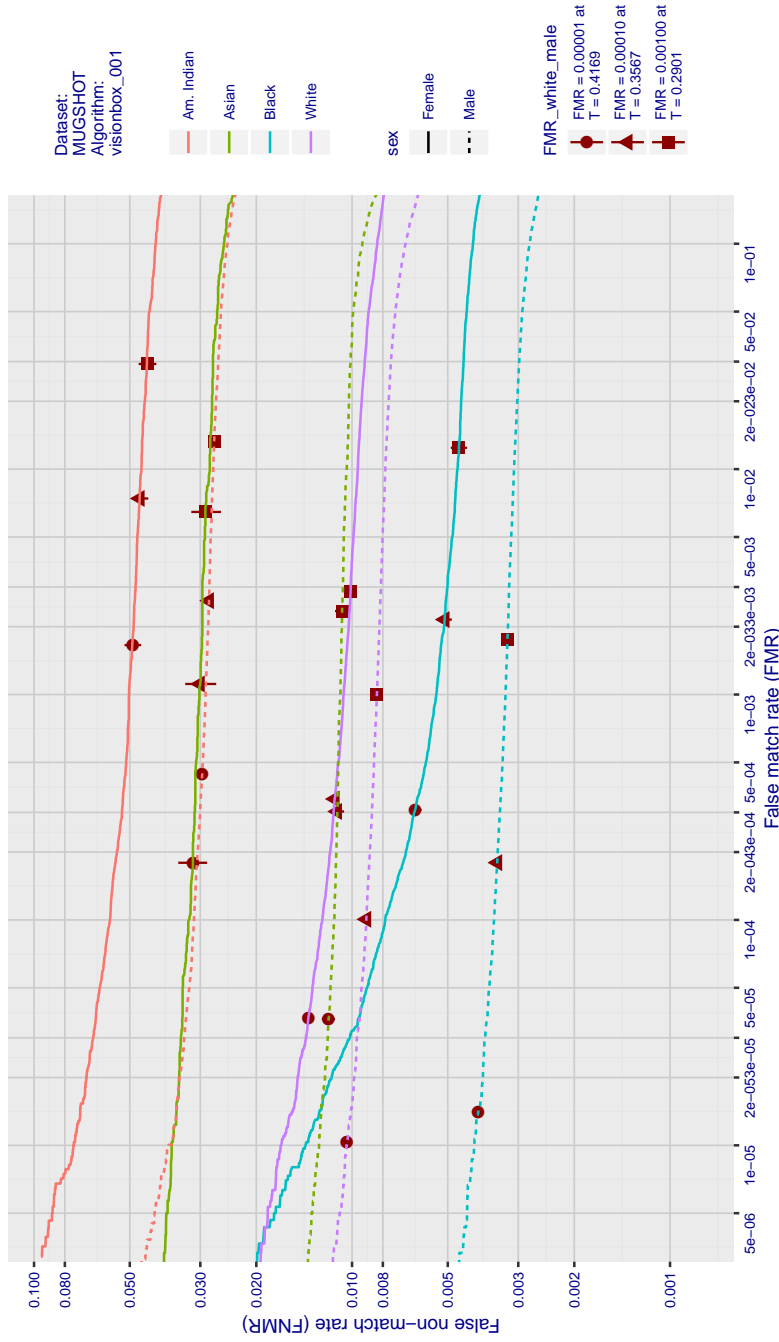


Figure 116: Verification error by sex and race: For algorithm visionbox-001 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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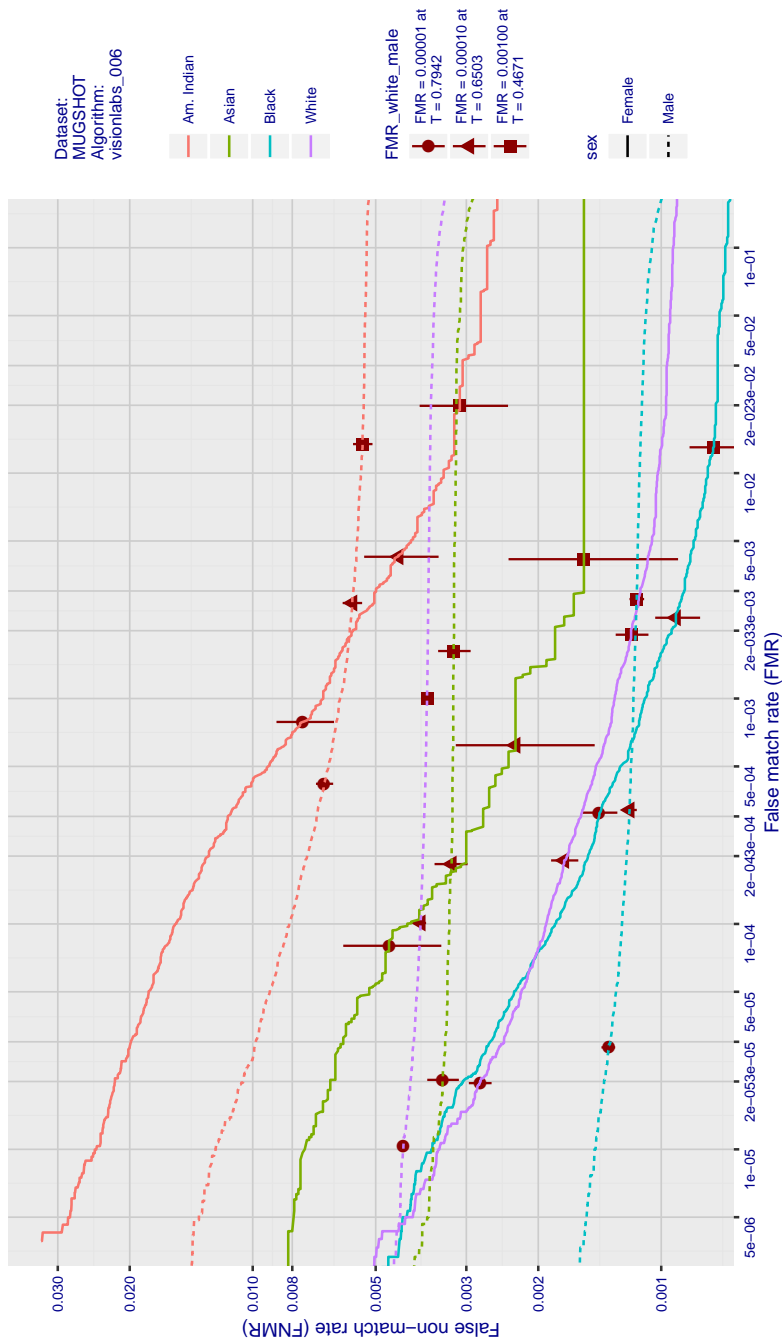


Figure 117: Verification error by sex and race: For algorithm visionlabs-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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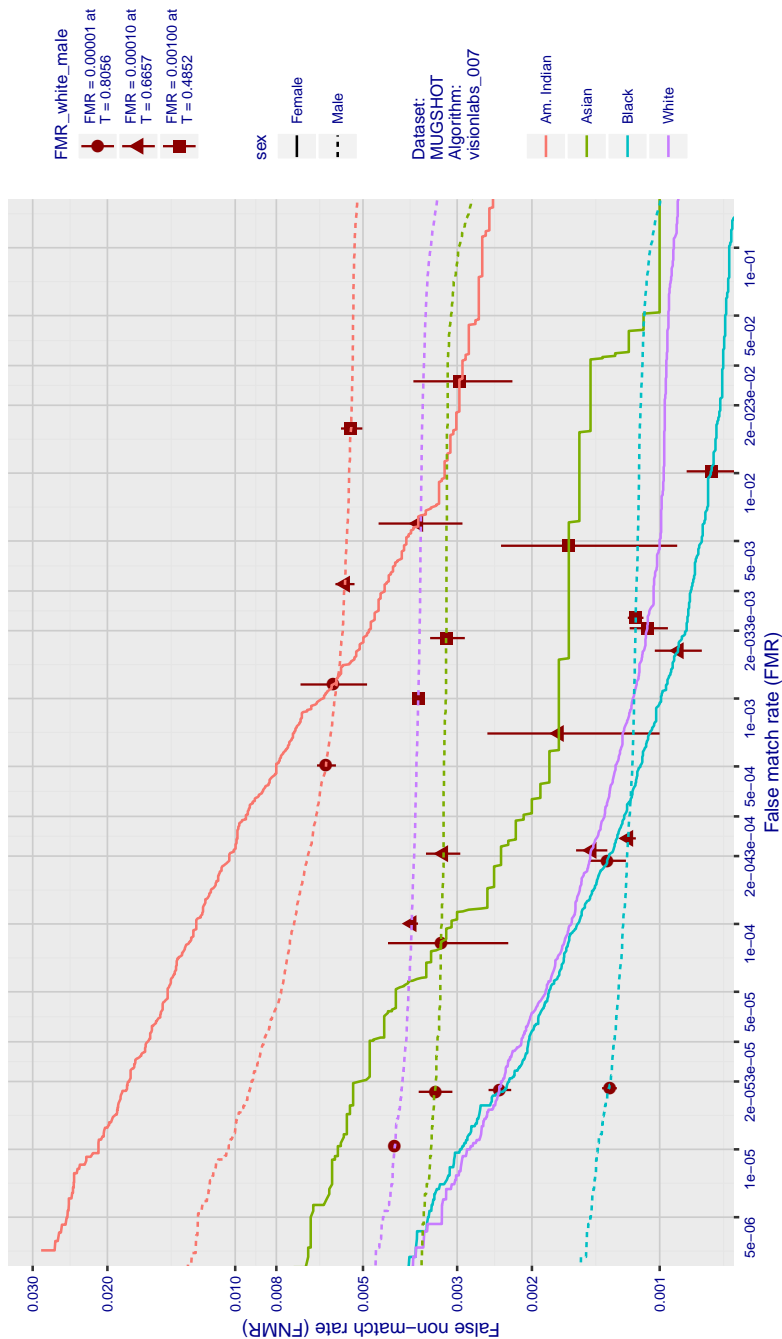


Figure 118: Verification error by sex and race: For algorithm visionlabs-007 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95



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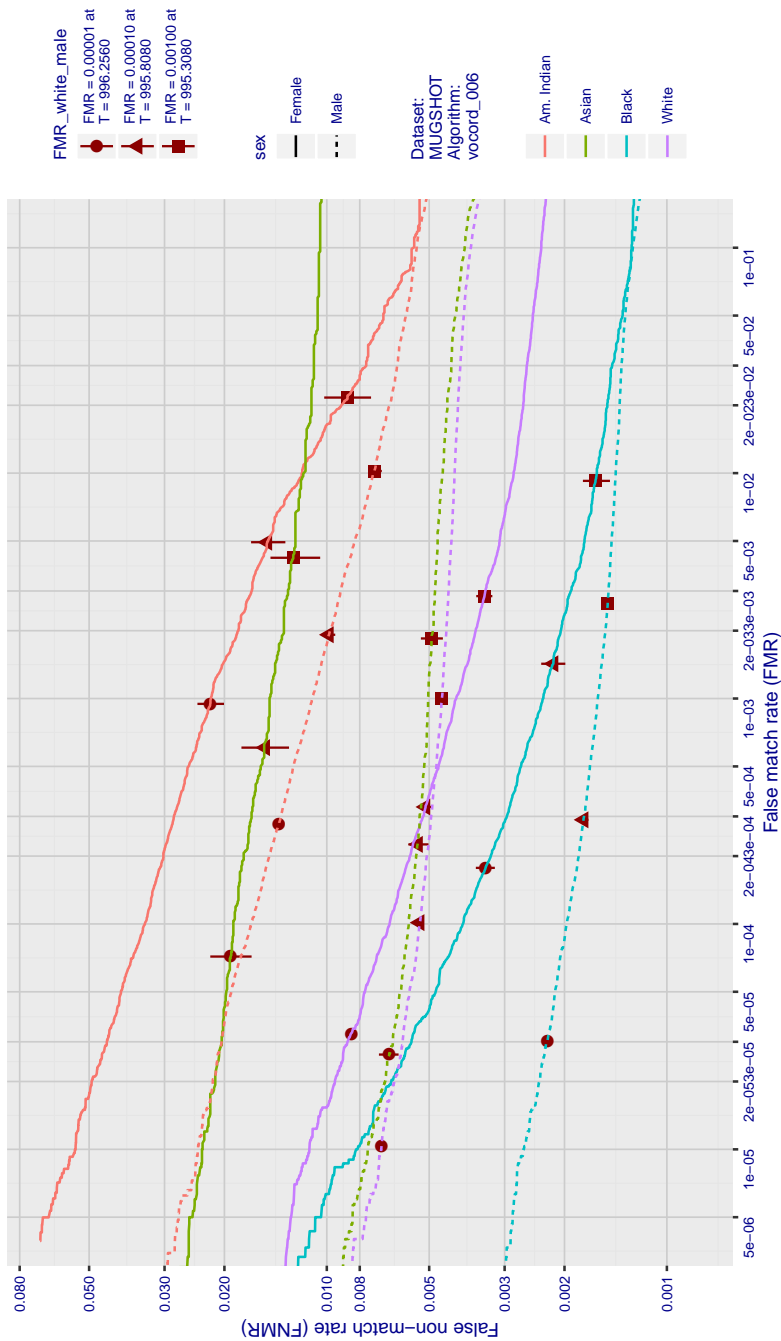


Figure 119: Verification error by sex and race: For algorithm vocord-006 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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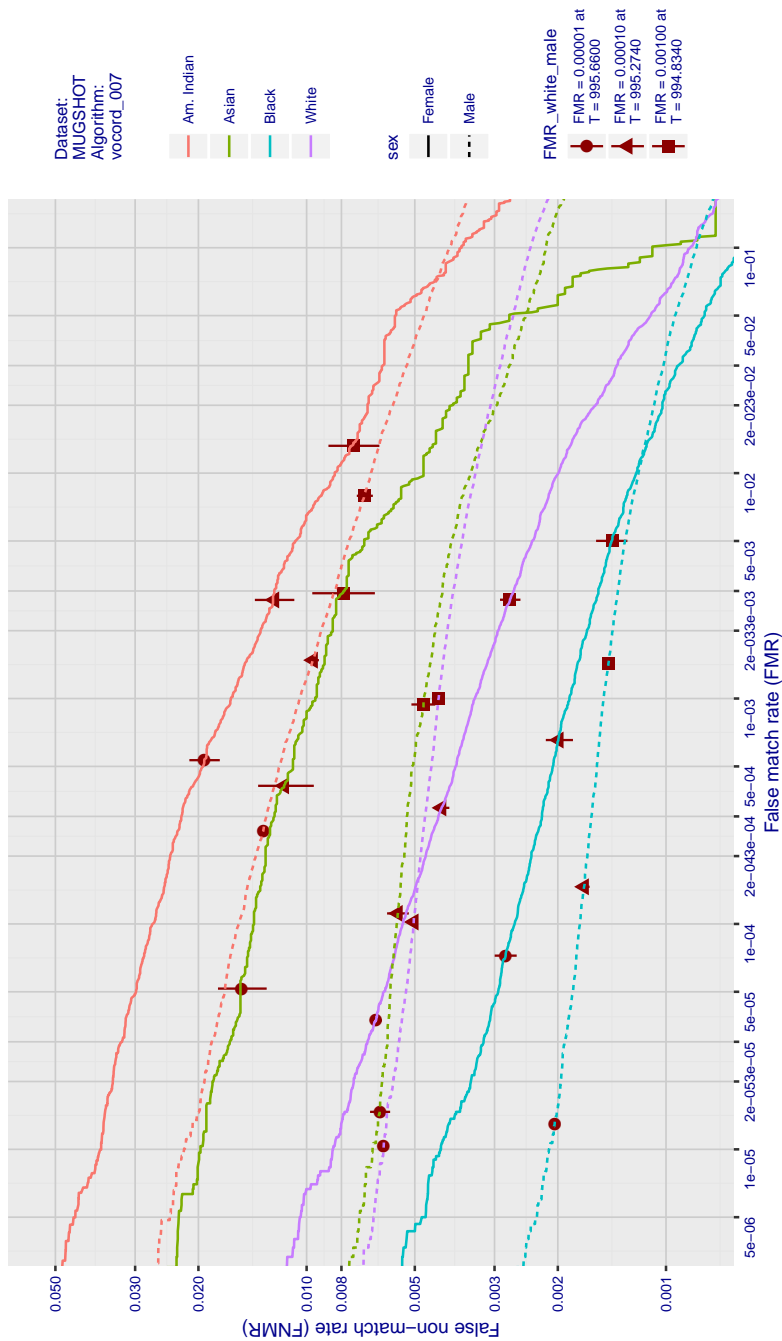


Figure 120: Verification error by sex and race: For algorithm vocord-007 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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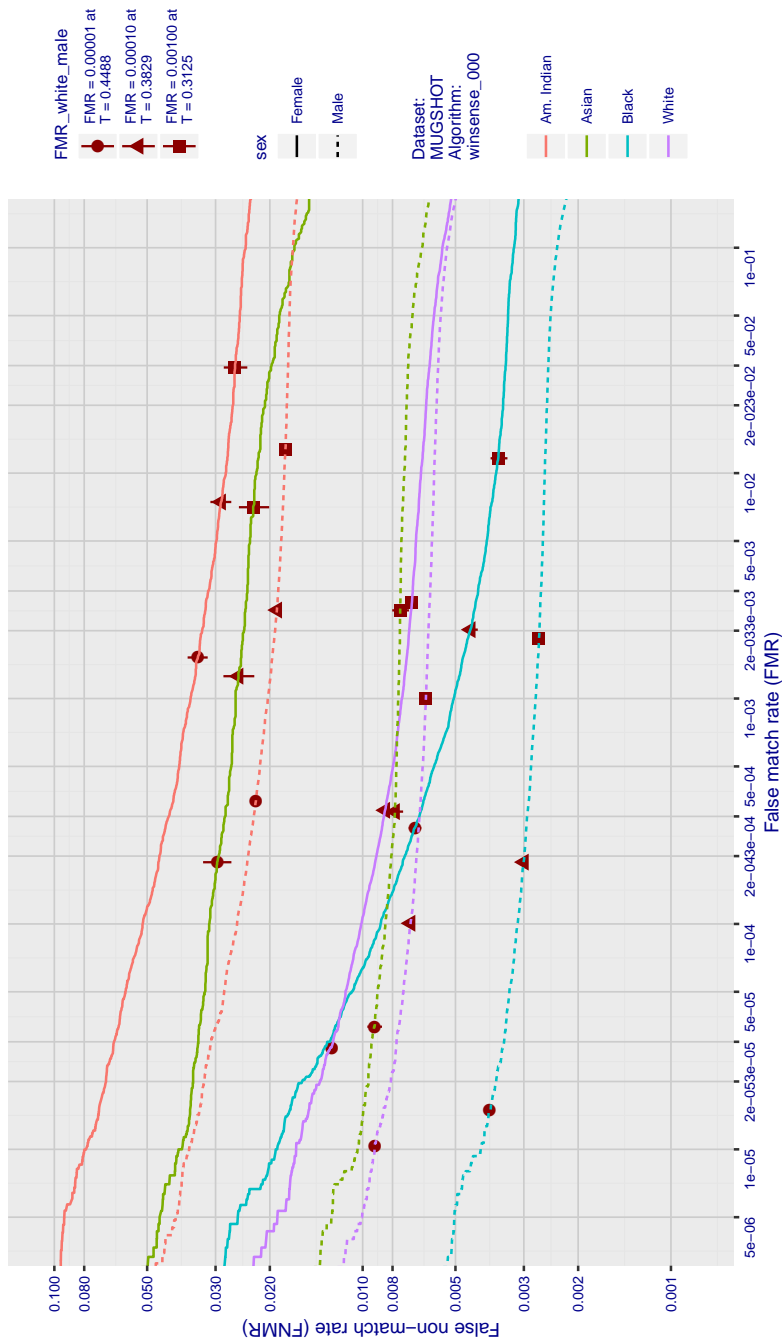


Figure 121: Verification error by sex and race: For algorithm winsense-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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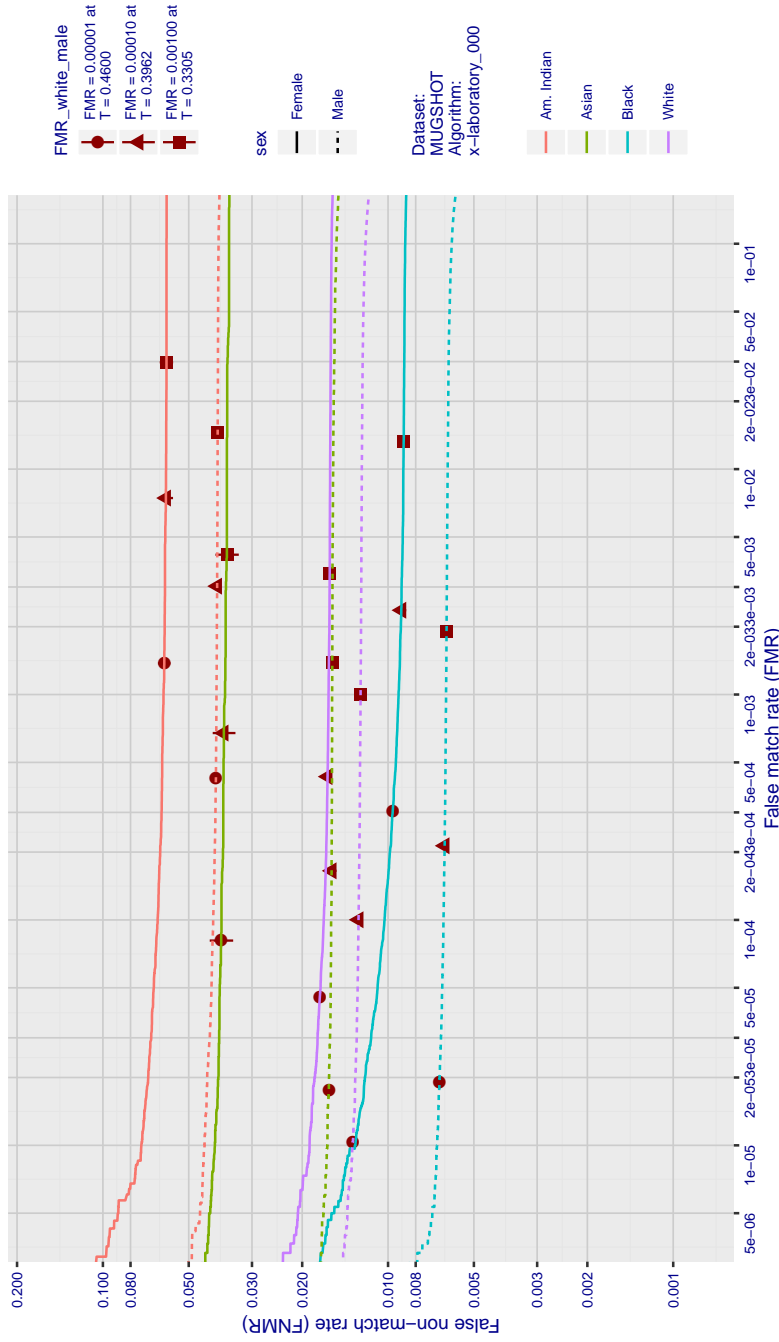


Figure 122: Verification error by sex and race: For algorithm x-laboratory-000 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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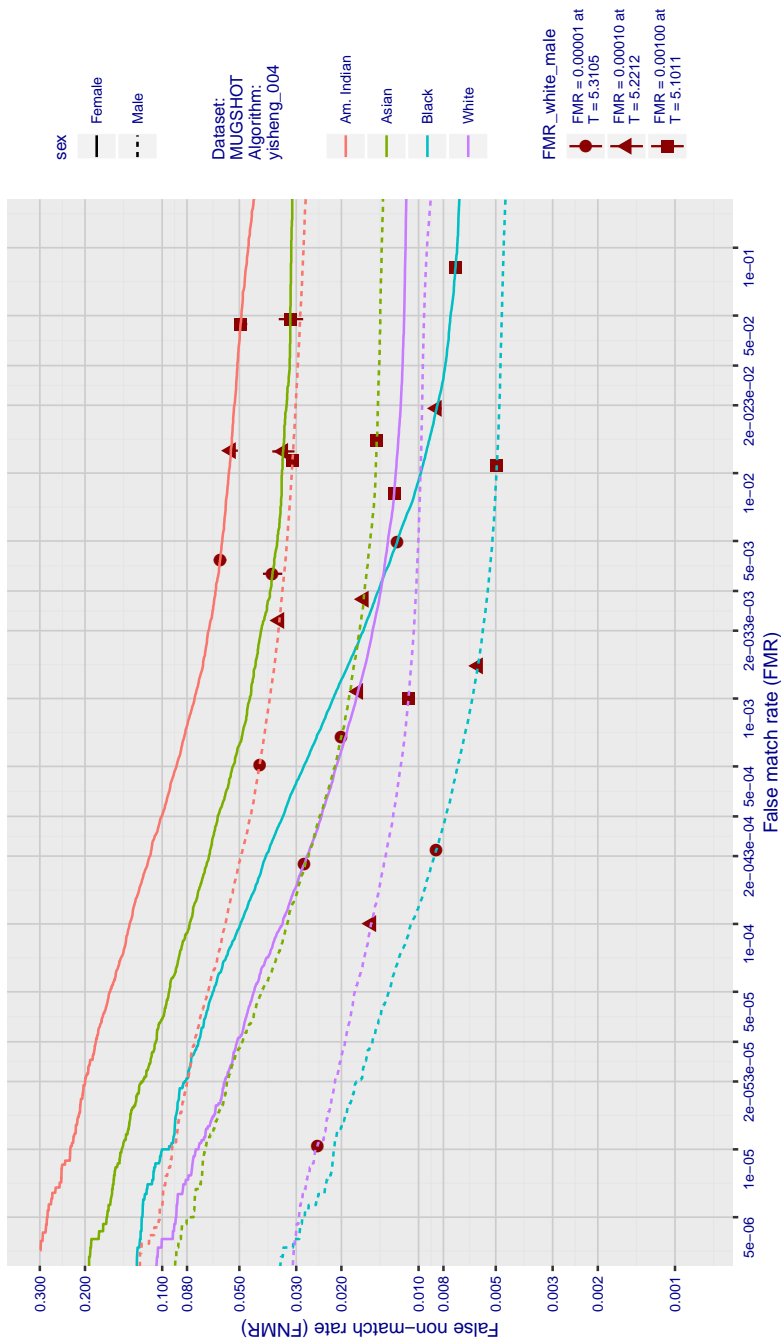


Figure 123: Verification error by sex and race: For algorithm yisheng-004 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95

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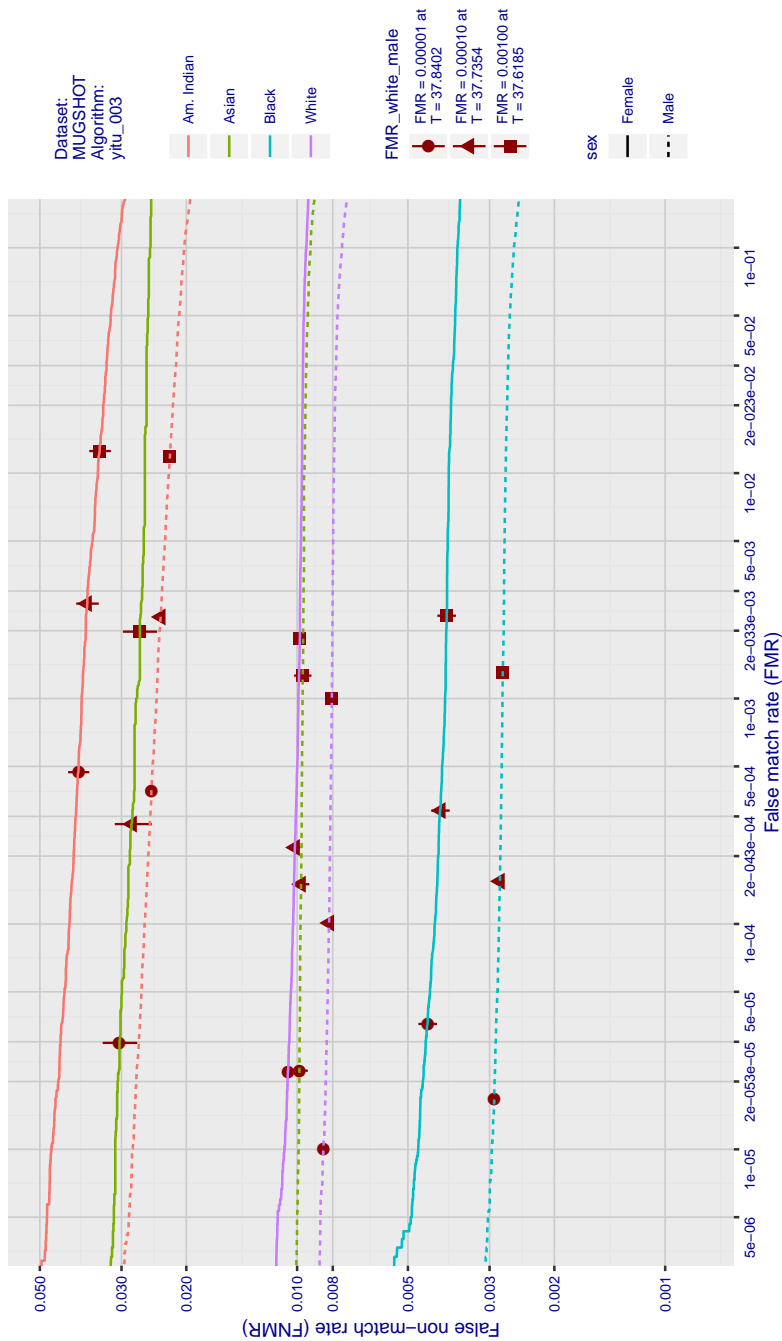


Figure 124: Verification error by sex and race: For algorithm yitu-003 verifying mugshot images, the error tradeoff characteristics show false non-match vs. false match rates. The FMR estimates are computed for same-sex and same-race impostor comparisons. Each symbol (circle, triangle, square) corresponds to a fixed threshold - the vertical and horizontal displacements reveal, respectively, differences in FNMR and FMR between demographic groups. The vertical line through each symbol indicates uncertainty related to sample size - it spans 95