U.S. Department of Homeland Security | Science and Technology Directorate

# **Updates on International Standards for Fairness in Face Recognition:** ISO/IEC **19795-10**: Quantifying biometric system performance variation across demographic groups

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June 2023

# A Brief History

New Work Item Registered
2020-08

New Work Item Approved for Working Draft
2021-01

Committee Draft
2023-Q1

Draft International Standard
2023-08

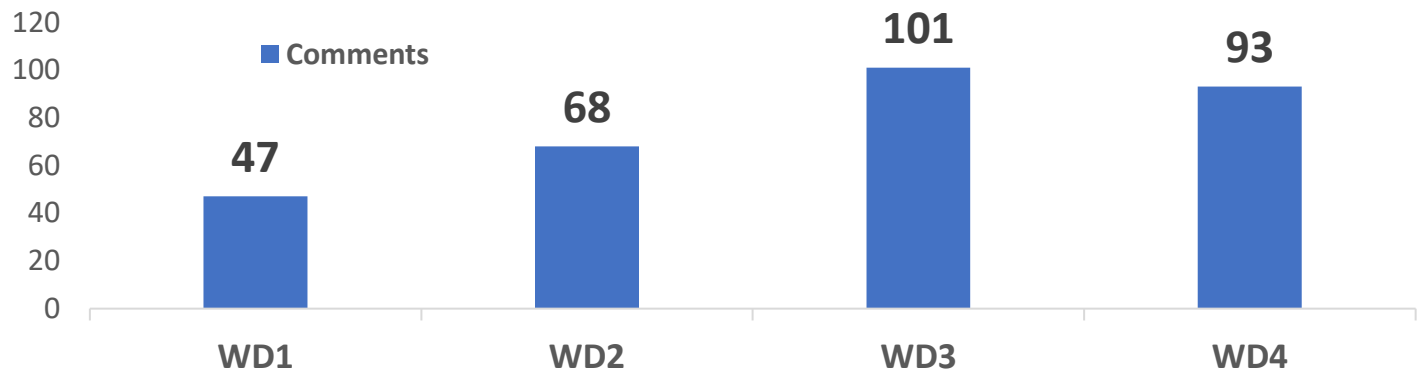
Publication
2024-01 (?)

WD1
2021-05

WD2
2021-12

WD3
2022-05

WD4
2022-08

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# Differential Performance

- Worst case error rate divided by the geometric mean:

$$A(\tau) = \frac{max_{d_i}\left(FMR_{d_i}(\tau)\right)}{\widehat{FMR(\tau)}} \forall\, d_i \in D$$

- Gini based error rate or “spread”

$$A(\tau) = \left(\frac{n}{n-1}\right) \frac{\sum_i \sum_j \left|FMR_{d_i}(\tau) - FMR_{d_j}(\tau)\right|}{2n^2 \overline{FMR(\tau)}}$$

**Next steps?**

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# Questions & Answers

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- Visit our websites for additional information
  - To see additional work DHS S&T supports, visit www.dhs.gov/science-and-technology

  - More information on recent demographic testing available at: https://mdtf.org