NIST's FACE RECOGNITION + ANALYSIS EVALUATIONS: NEXT STEPS

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Science and Technology

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NIST'S FACE BENCHMARKS

NIST NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY U.S. DEPARTMENT OF COMMERCE

FRTE

FACE **RECOGNITION** TECHNOLOGY EVALUATION

RECOGNITION: **WHO** IS IN AN IMAGE

1:1 VERIFICATION	SAME PERSON OR NOT?
1:N SEARCH	WHO? WHERE? WHEN?
FACE IN VIDEO 2024	1:N ON NON-COOP PEOPLE
TWINS DISAMBIGUATION	SAME PERSON, OR TWIN?

FATE

FACE **ANALYSIS** TECHNOLOGY EVALUATION

ANALYSIS: **ABOUT** IN AN IMAGE

MORPH DETECTION	TWO PEOPLE IN ONE FACE?
QUALITY + DIAGNOSTICS	HOW BAD IS THIS PHOTO
PAD	SUBVERSIVE PHOTO?
AGE ESTIMATION	HOW OLD? OLD ENOUGH?

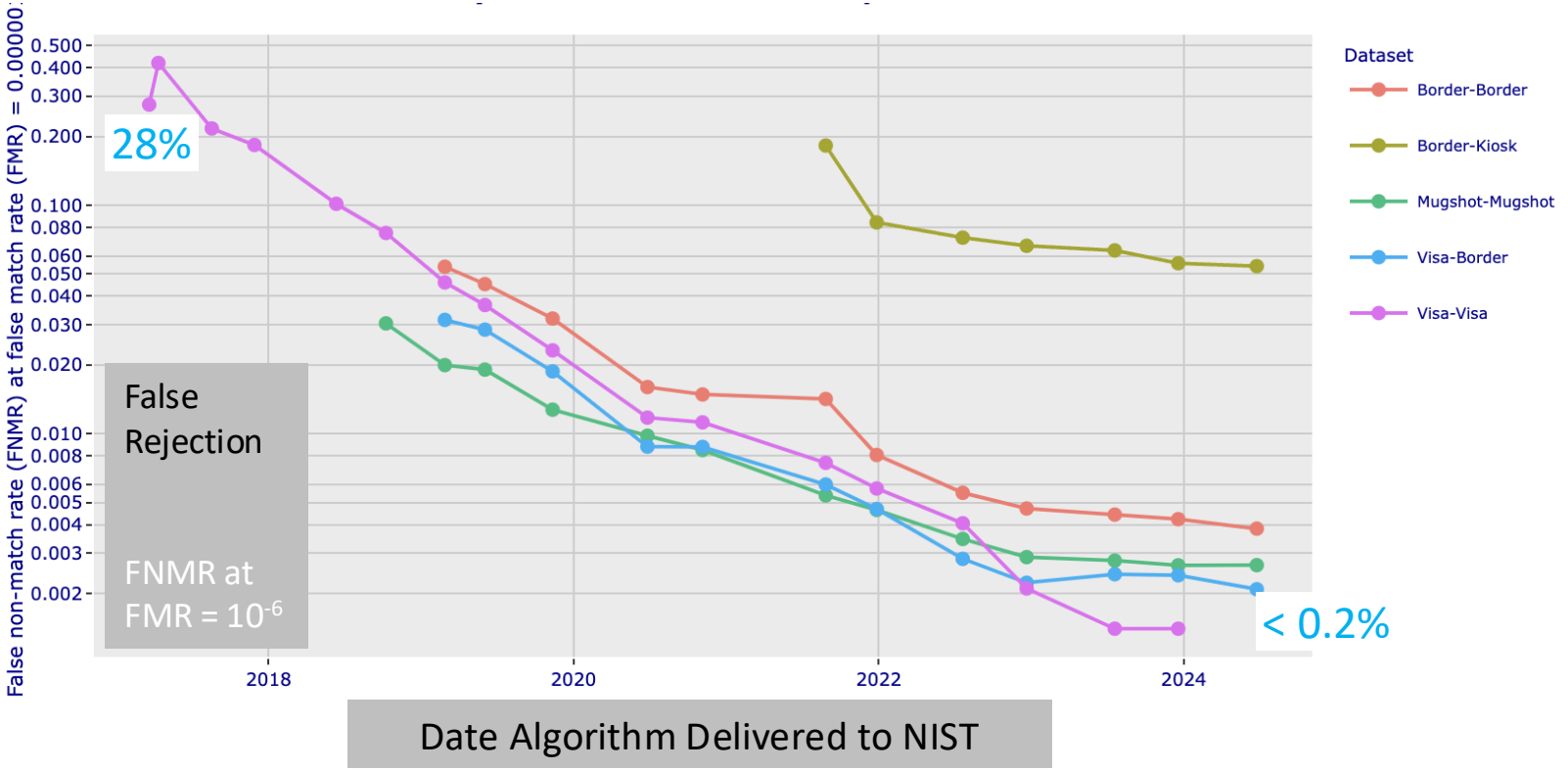
Benchmarks are:

- Independent
- Free
- Regular
- Fast
- Repeatable
- Fair
- Black box
- IP-protecting
- Open globally
- Large-scale
- Sequestered datasets
- Statistically robust
- Public
- Transparent
- Extensible
- **ABSOLUTE ACCU**
- **RELATIVE ACCU**

RISK: USE OF LEGACY ALGORITHM

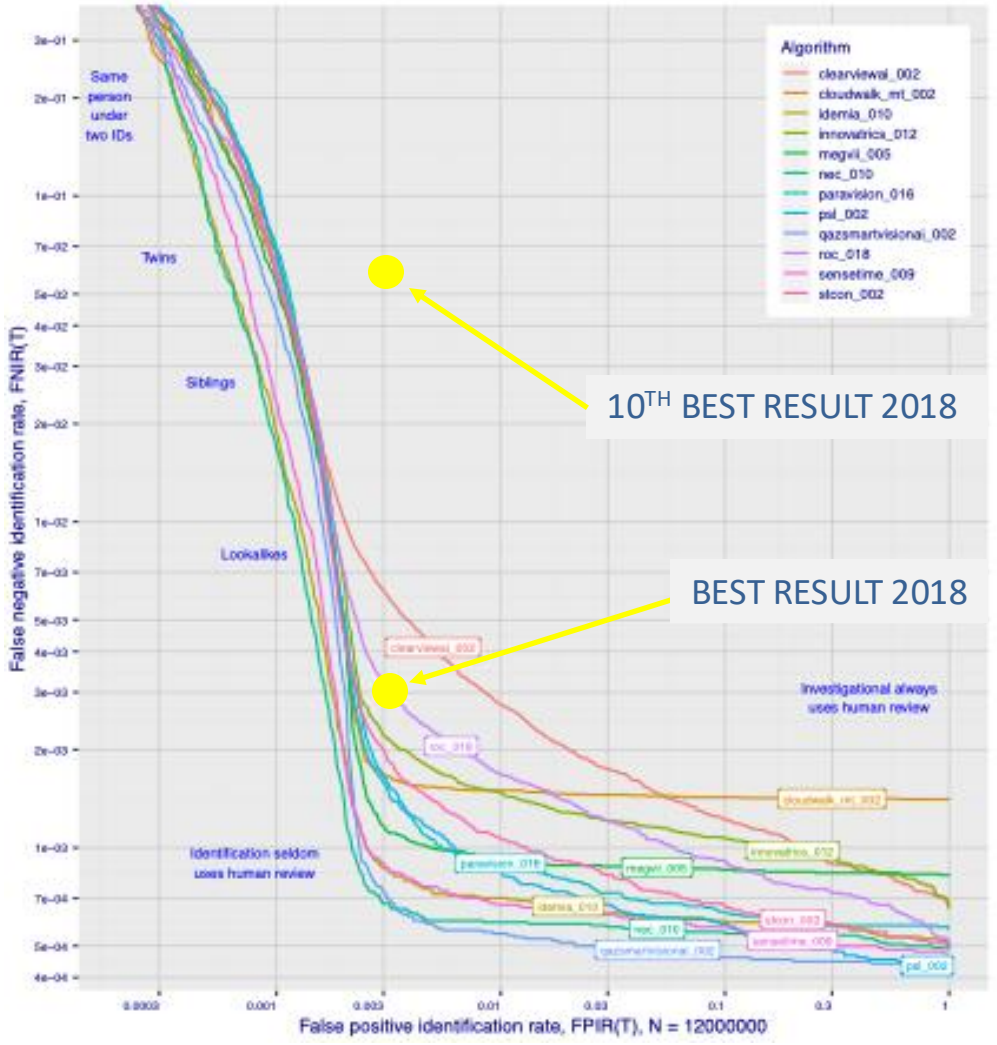
Management + Mitigation

- Algorithms improve regularly
- Do tech refresh!
- Contracts, agile procurement



STATE OF THE ART: 1:N MUGSHOT – MUGSHOT

- FNIR GAINS
- DET "HITS A WALL"
  - HIGH-SCORING NON-MATES MIXED IN WITH MATES
- WHY?
  - TWINS? RE-PRODUCE GRAPH WITH GALLERY AND NON-MATE PROBES TAKEN ON DIFFERENT DATES



FATE / FRTE: WHAT's NEXT

FRTE

- 1:1 VERIFICATION
- 1:N SEARCH
- FACE IN VIDEO 2024
- TWINS DISAMBIGUATION
- **COMPACT FACE 2025**

TATTE

- **TATTOO**

FATE

- MORPH DETECTION
- QUALITY + DIAGNOSTICS
- PAD
- AGE ESTIMATION

- IR images
- Ageing: Longer term 20+ years
- Ageing: In 0-18, 12-18 year olds
- Larger N, unconsolidated galleries
- More profile views, cross profile
- More webcam images

- Rejection option
- Blur
- Degraded images
- Lower FMR
- Stable FMR
- *Expanded envelope*

- Pub: Guideline to connect lab tests with deployed tests

- Ongoing FIVE – TBD. New datasets. FPIR maintenance

- Report thresholds at which adult twins FMR is viable

- Accuracy on images below 1KB.
- Report.

- Restart 1:N search, three new datasets. Image quality

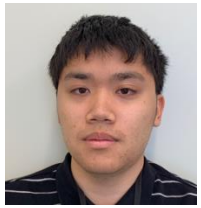
- Pub: "Guidelines for Operational use of Morph Detectors"
- Use new higher resolution sets (for BPCER)

- PAD restart, schedule is Q3/Q4 2025, collaboration with USG.
- New datasets. BPCER is important

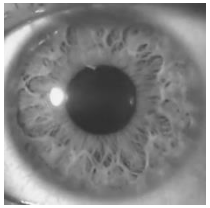
- AE Effect of resolution, inc. high resolution.
- New *verifyAge* API confidence
- Invariance to nuisance variables


Patrick Grother


Kayee Hanaoka (+ Mei Ngan)


Austin Hom


(not) Mei Ngan


Jim Matey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THANK YOU

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