DHS SCIENCE AND TECHNOLOGY

Facial Recognition Research Needs

International Face Performance Conference (IFPC) 2020

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Biometric and Identity Technology Center

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Homeland Security

Science and Technology

Biometric and Identity Technology Center

Vision

- **Drive biometric and identity innovation** at DHS through RDT&E capability
- **Facilitate and accelerate understanding of biometrics and identity technologies** for new DHS use cases
- Follow "**Build once, use widely**" approach

Goals

- **Drive efficiencies** by supporting cross cutting methods, best practices, and solutions across programs
- **Deliver Subject Matter Expertise** across the DHS enterprise
- **Engage Industry** and provide feedback
- **Encourage Innovation** with Industry and Academia

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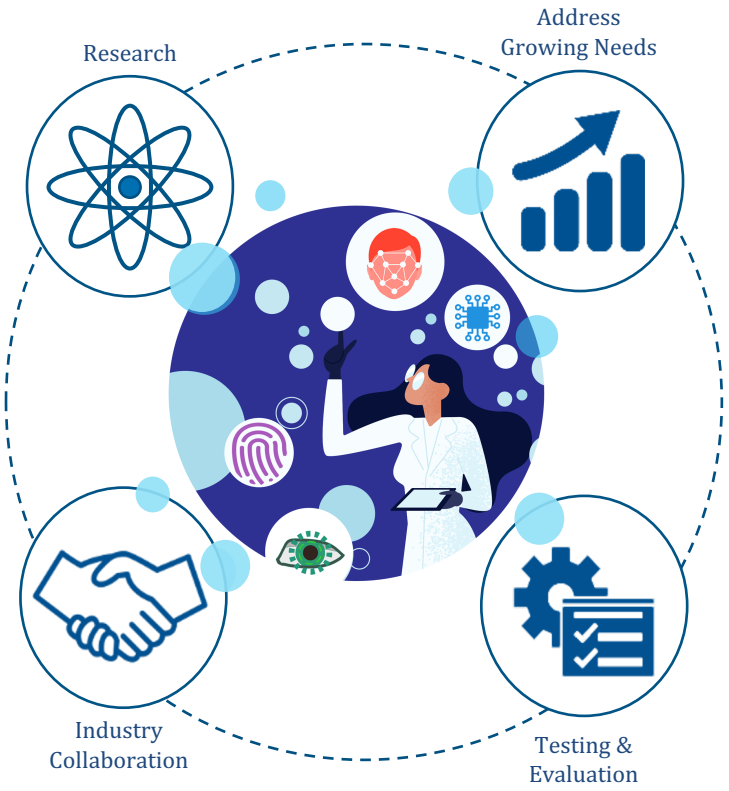
Activities

- Sponsor research (e.g. university and government applied research)
- Conduct technology evaluations and industry challenges
- Participate in voluntary consensus standards development
- Advise DHS in shaping acquisitions, regulations, and operations
- Assist stakeholders in designing, evaluating, and improving systems



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Research and reach back support

We work with leading researchers within government, academia, and internationally to support DHS RDT&E needs

MdTF

NIST
National Institute of Standards and Technology

CITeR
Center for Identification Technology Research

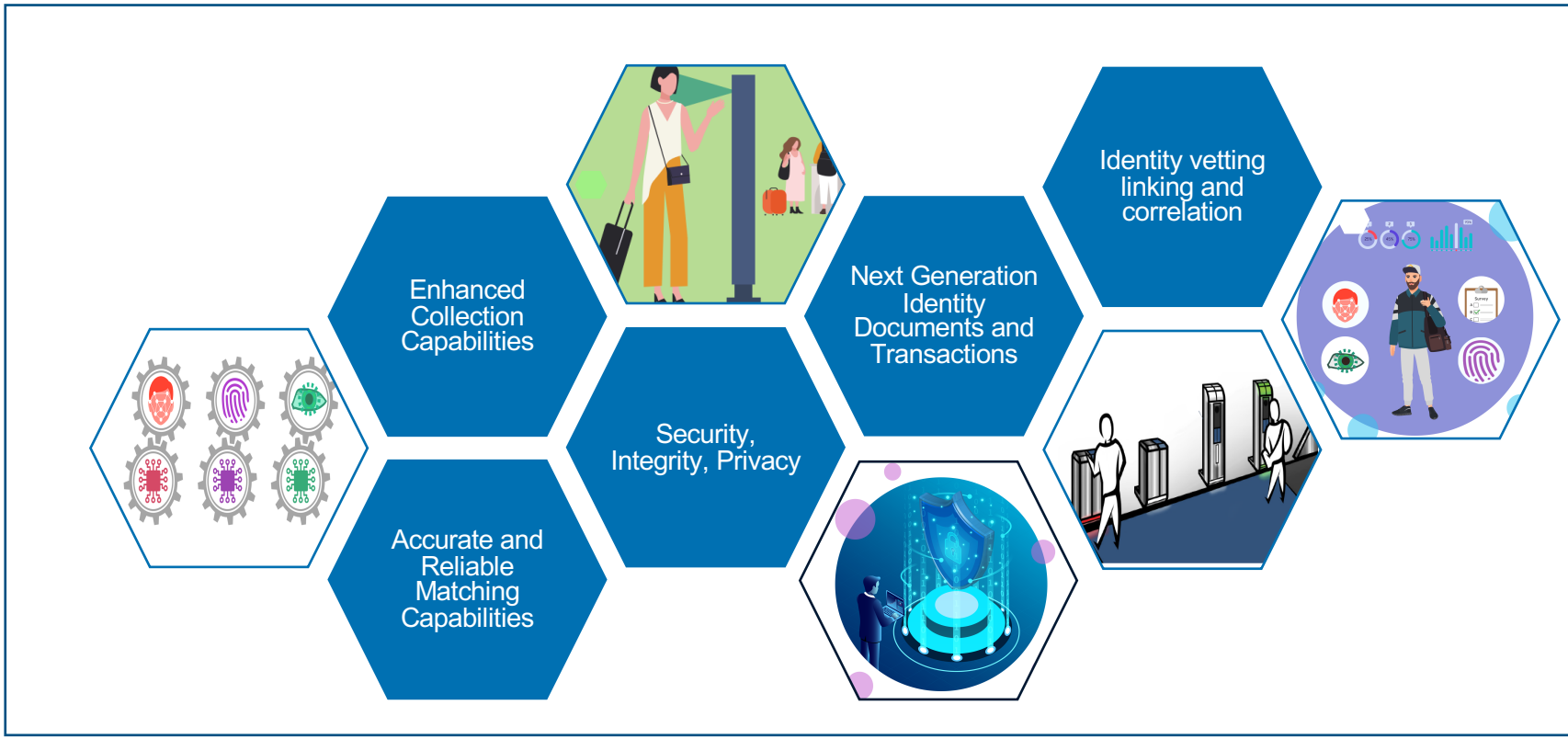
BTI Institute
Borders • Trade • Immigration
A Department of Homeland Security Center of Excellence

Criminal Investigations and Network Analysis
A DHS CENTER OF EXCELLENCE

Biometric and Identity Technology Center

Research Engagement

We employ S&T RDT&E capabilities to enhance/enable DHS biometric and identity capabilities and close capability gaps and vulnerabilities



Biometric Technology Rally 2020

Goals

- **Focus Industry on a specific use-case** (e.g. high-throughput)
- **Identify and mitigate risks** associated with new biometric technology
- **Create an independent assessment** of current industry capabilities

Phase1 – Individuals

- Face image required, iris/fingerprint optional
- ~~Top systems from Phase 1 will carry over into Phase 2~~

~~Phase 2 – Groups~~

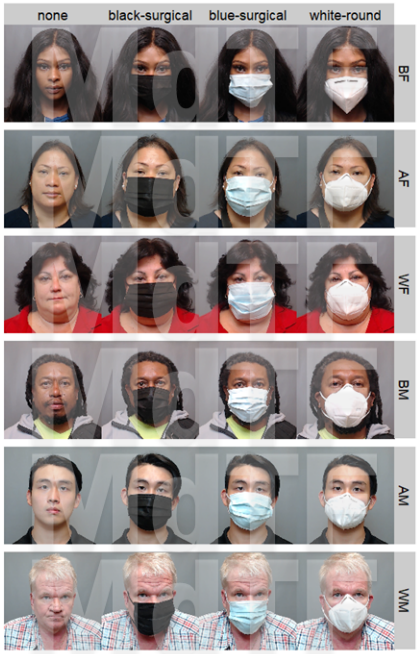
- ~~Acquire one face image per individual in a group~~
- ~~Opt in and opt out individuals~~
- ~~Must utilize the same system as in Phase 1~~

~~Deferred~~

Can your system acquire/match face images from individuals wearing face masks?

Controlled Collection Conditions

- 582 unique volunteers collected during the **2020 Biometric Technology Rally**
- 5,820 frontal images
- Two devices
- Diverse age, race, gender
- Neutral grey background
- Images without masks and
- Three standard masks
  - black-surgical
  - blue-surgical
  - white-round (KN95)
- One personal mask
  - Variety of mask types



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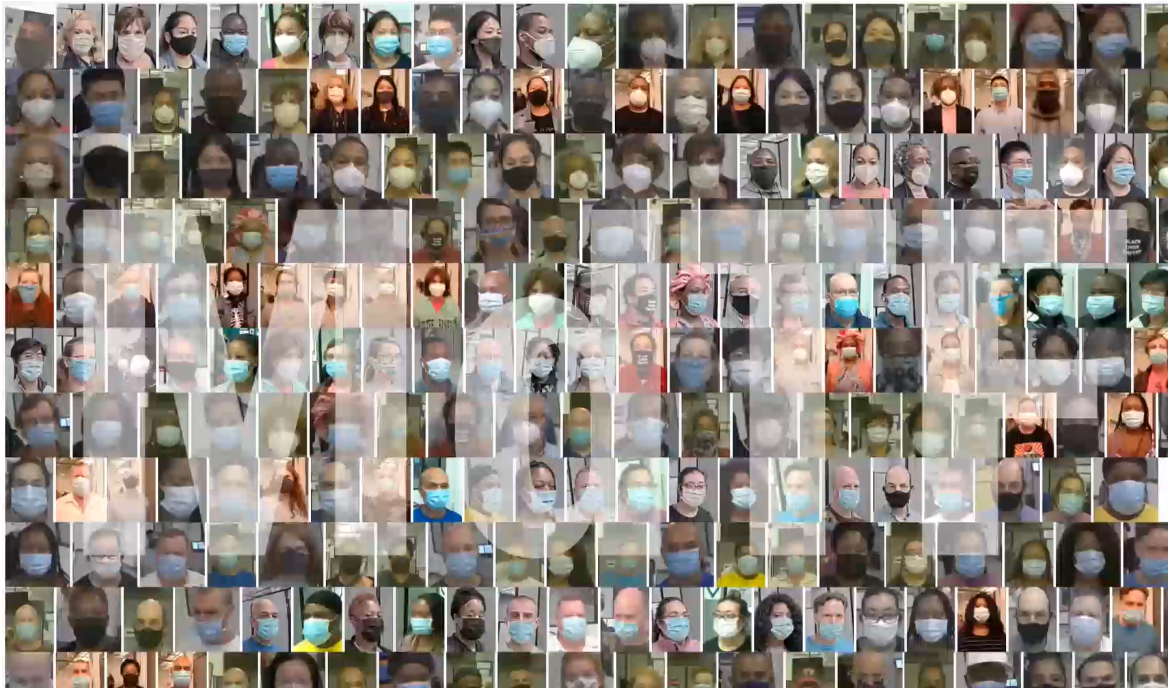
DIVERSE PERSPECTIVES + SHARED GOALS = POWERFUL SOLUTIONS

Varied Acquisition Systems

- 582 unique volunteers collected during the **2020 Biometric Technology Rally**
- Images with and without personal masks
- Six commercial acquisition systems
- ~7,000 images



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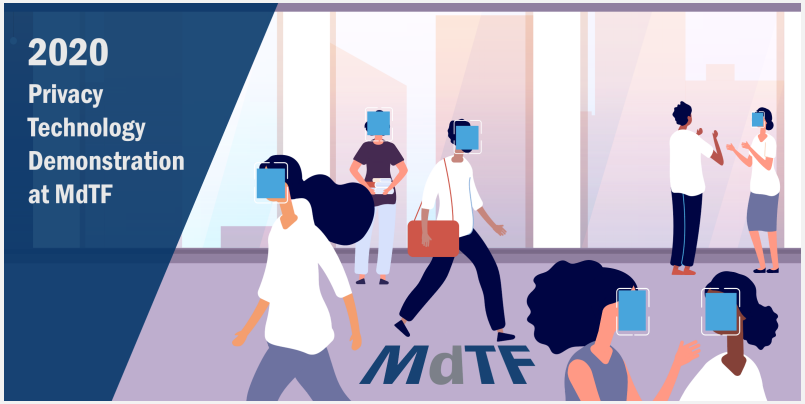
Privacy Technology Demonstration 2020

- DHS S&T is engaging industry to develop technologies to address public concerns that video surveillance capabilities could be misused for face recognition surveillance.

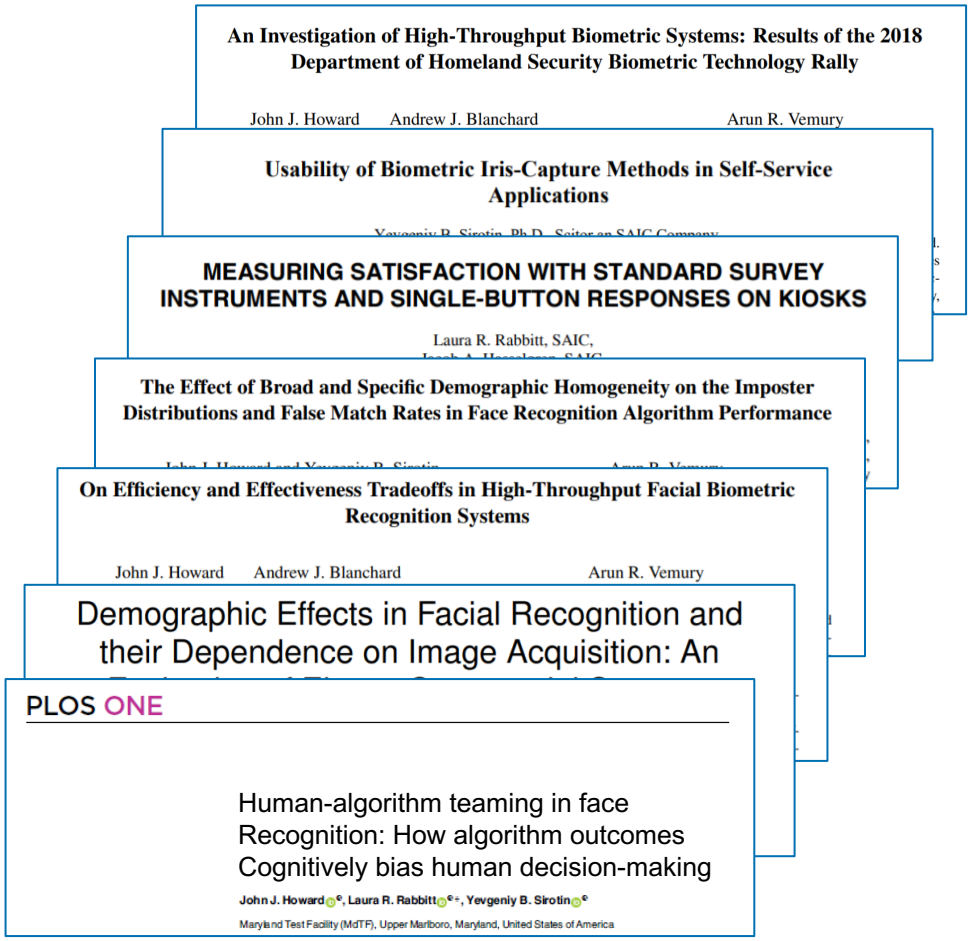


- The aim is to balance concerns, while allowing public safety organizations to safeguard our homeland.

- DHS S&T is interested in understanding the product landscape of technologies that can assist in protecting the privacy of individuals in photos and videos.

Additional Areas of Research

- Numerous peer reviewed and scientific publications
  - Demographic Effects
  - Performance and Tradeoffs
  - System Usability
  - Privacy Enhancing Technology
  - Human and automated system performance
  - ID and Face verification with Face Masks
- More information, videos, and webinars available through:
  - https://www.dhs.gov/science-and-technology/BI-TC
  - http://mdtf.org



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