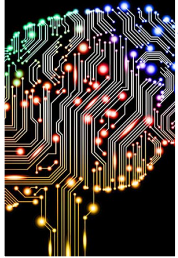


NIST COVID-19 Efforts

Crowdsourcing our Community: How Can NIST Help?



AI/Data Analytics



Personal Protective Equipment



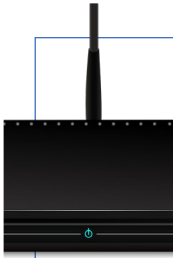
Manufacturing and Industry



Biological Measurements



Environment




Wireless Innovations



Idea Submission
Form open for **4**
weeks

75 submissions

Projects selected in
all **6** NIST
laboratories



COVID-19 Measurement Products & Services

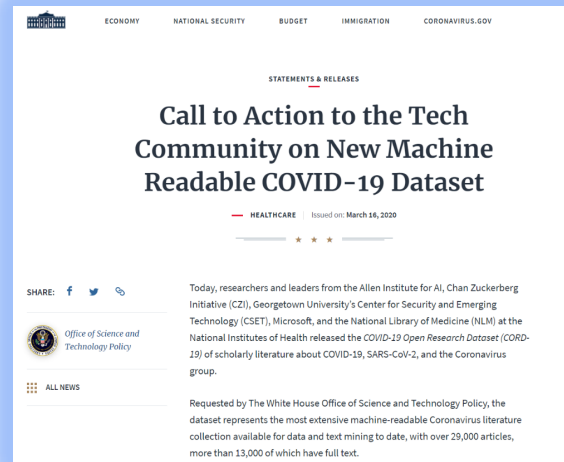
NIST Research Grade Test Material
Interlaboratory Studies
Serology Reference Materials
Analytics to increase COVID-19 test sensitivity



Image credit: Adobe Stock

Advancing AI capabilities for COVID-19

NIST TREC-COVID –advancing search algorithms using COVID-19 dataset



- Public-private partnership
- Ran 5 sprints April - June
- 550+ submissions from 130 teams
- Data set of 200,000 documents, 50 topics

NIST study: how well do face recognition algorithms identify people wearing masks?

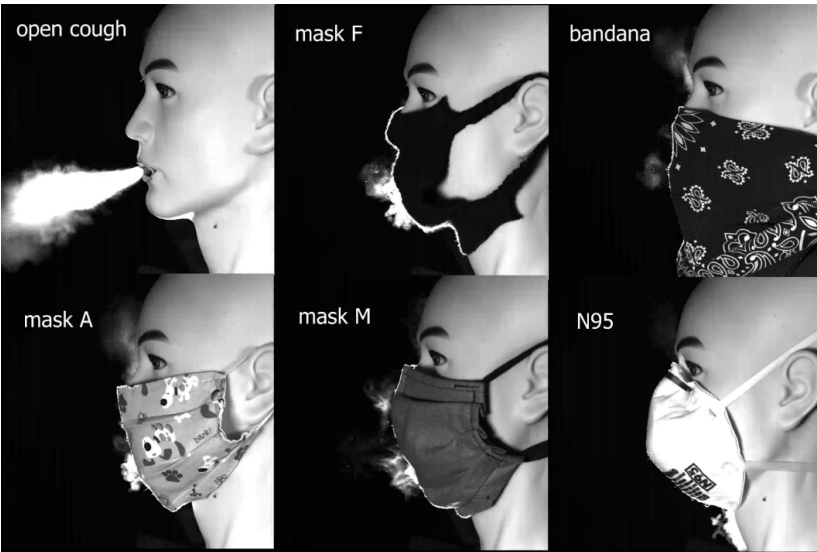
- Commercial algorithms had error rates **between 5% and 50%**
- Newer algorithms show improvement



Results published in NISTIR 8311

Characterization and Standards for PPE

Visualizing Flow



Credit: M. Staymates

- Over 7 million video views
- Shows importance of snug nose fit
- Images show qualitative effectiveness of masks
- Aerosol measurements published

Disinfection Methods



- NIST tool helps hospitals determine best rooms for using vapor hydrogen peroxide
- NIST experts in UV lighting partnering with small business

Standards Development



ASTM INTERNATIONAL

- NIST leading efforts for standards for consumer face masks
- Reducing complexity of testing to ensure market accessible to SMEs
- Coordinating with MEP Network

Protecting Workplaces and Communities



Indoor Air Quality: Ventilation Needs

- NIST FaTIMA computer model estimates indoor aerosol concentrations
- Presentations to over 2,500 stakeholders
- Working with practitioners developing local HVAC guidelines

Exposure Notification: Secure, Privacy-Preserving, Accurate, Effective?

- Promise of apps and wearables to track individual exposures/encounters
- NIST building prototype sensor system
- Speaking with community on privacy and security aspects of systems
- Workshop targeted for mid January

CARES Act – MEP across the U.S.



The NIST Manufacturing Extension Partnership awarded \$50 million in CARES Act Funding to 51 centers in each U.S. state and Puerto Rico in 90 days

As of September, MEP Centers across the nation have:

- Contacted over **71,000** manufacturers
- Completed **5,333** projects
- Conducted **3,829** supplier searches
- Initiated **2,858** supplier matches

“MD MEP quickly identified Micropore’s need to increase manufacturing capacity of CO2 absorbents for portable ventilators... Through these efforts Micropore obtained a grant to purchase additional equipment which allowed us to increase throughput over 30%!”

— Doug McKenna, CEO



To date, we’ve supported small and medium sized manufacturers in many ways:

- Providing information and support services, including guidance on PPP loan repayment
- Connecting suppliers and manufacturers
- Helping manufacturers retool and pool resources to produce millions of face masks
- Providing webinars on PPE regulatory compliance



CARES Act – Manufacturing USA



\$12.4 million competitively awarded to five Manufacturing USA institutes, sponsoring 13 high-impact pandemic response projects (*\$10 M CARES Act*)

- Reskilling the Displaced Workforce

LIFT



- Using robots to process COVID-19 tests more quickly

ARM



- Rapid technology roadmapping

BioFabUSA



- Accelerating PPE production using 3D printing

America Makes



\$8.9 M to the Department of Commerce/NIST
National Institute for Innovation in Manufacturing
Biopharmaceuticals:

- Improve blood testing capabilities
- Validation of rapid in-house diagnostic testing capabilities
- Alternative domestic supply chains for respirators and masks
- Validate decontamination approaches for clinical spaces
- Development of flexible manufacturing capabilities for biologic therapies and rapid release testing to position the nation for faster medical product scale-up in response to pandemics

