NIST Update
Information Security and Privacy Advisory Board

Chuck Romine

Director, Information Technology Laboratory

NIST Leadership Changes: Retirement

Donna F. Dodson
Chief Cybersecurity Advisor
Director of the NCCoE
NIST Fellow

- ▸ Retired May 2020 after 33 years of federal service
- ▸ Leadership in many cyber areas, including AI, IoT, quantum-resistant cryptography, and privacy engineering
- ▸ Presidential Rank Award in 2019
- ▸ Finalist for a 2020 Samuel J. Heyman Service to America Medal in the Safety, Security and International Affairs category

NIST Leadership Changes: Welcomes

Kevin Stine
Acting Chief Cybersecurity Advisor

Jeff Greene
NCCoE Director

Privacy Framework Released 01/16/2020

NIST

www.nist.gov/privacy-framework/privacy-framework

Using the Privacy Framework:

- Manage privacy risk among different organizational roles in the data processing ecosystem

- Establish or improve a privacy program using a Ready, Set, Go model

- Strengthen organizational accountability through collaboration and communication

Early Adopters of the Privacy Framework

A Conversation on the NIST Privacy Framework

Wednesday, February 19, 2020 2:00 pm - 4:00 pm
CSIS Headquarters, 2nd Floor

Join us at CSIS to hear **Dr. Walter Copan, Under Secretary of Commerce for Standards and Technology and NIST Director**, discuss the NIST Privacy Framework.

Noteworthy Releases

SP 800-171 Rev 2
Protecting Controlled Unclassified
Information in Nonfederal Systems

SP 800-207,
Zero Trust Architectures
Draft for public comment

Secure Software
Development Framework

SP 800-53 Rev 5
Draft for public comment

CSF Manufacturing profile
(NISTIR 8183 Rev 1 draft)

5G cybersecurity
FRN seeking formal industry
collaborators.

U.S. Voting Standards and Guidelines

EAC Commissioner Ben Hovland with NIST Director Walt Copan

NIST led Technical Guidelines Development Committee (TGDC) for the new Voluntary Voting Standards and Guidelines, Version 2.0 (VVSG 2.0)

VVSG 2.0 and enhancements for voting standards governance and transparency issued by EAC for public comment, ratification

EAC, NIST, DHS/CISA and FBI jointly issued report: "Risk Management for Electronic Ballot Delivery, Marking and Return"

EXECUTIVE ORDERS

Executive Order on Strengthening National Resilience through Responsible Use of Positioning, Navigation, and Timing Services

— INFRASTRUCTURE & TECHNOLOGY | Issued on: February 12, 2020

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The Executive Order directs the Department of Commerce and other agencies to work with the private sector to identify and promote responsible methods of using PNT services that appropriately manage risks.

Our Approach
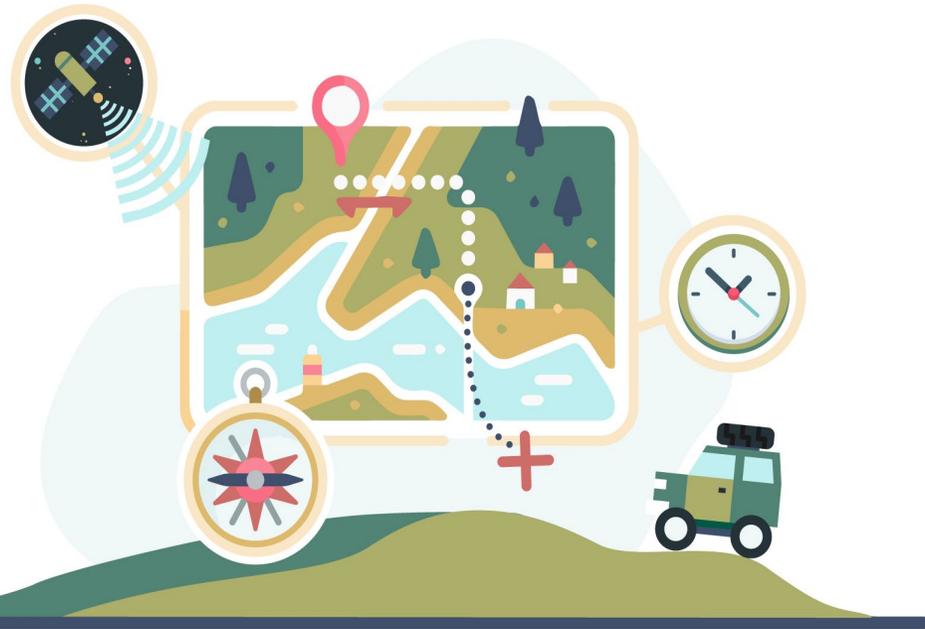
Request for Information anticipated was issued on 27 May 2020.
www.nist.gov/itl/pnt/request-information

NIST hosted a webinar on 4 June 2020 to share our task, objective, and approach.

Industries of the Future

QUANTUM INFORMATION SCIENCES

5G AND ADVANCED COMMUNICATIONS

ARTIFICIAL INTELLIGENCE

ADVANCED MANUFACTURING

BIOTECHNOLOGY

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

Updates on Work in Encryption

Credit: E. Edwards/JQI
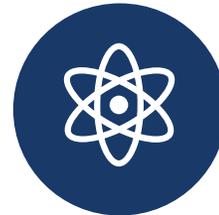
Post Quantum Cryptography
Moving to Round Three Selections soon.

Lightweight Encryption
Down-selected from 57 to 32 potential candidate algorithms, analysis ongoing

Emerging Tech Standards: 5G
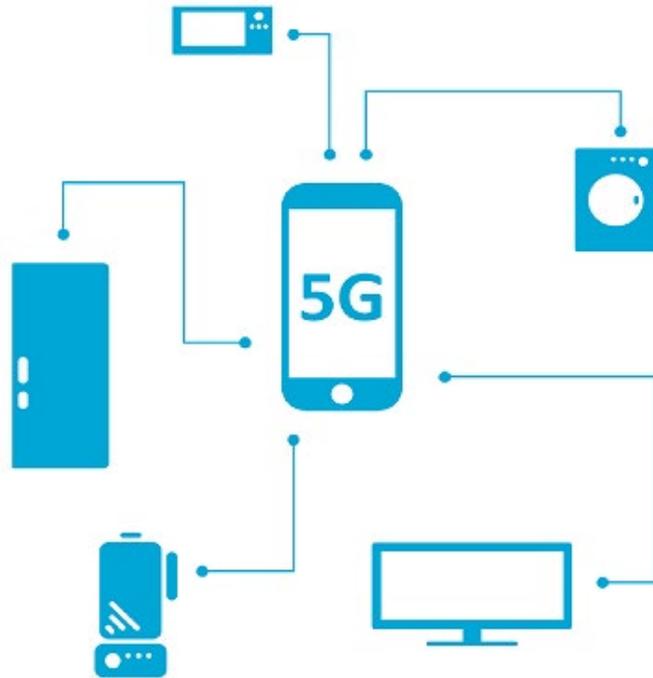
Credit: Pixabay

Significant focus for the Administration with engagement at highest levels of government – Congress, Executive Branch

March 2020: "Secure 5G and Beyond Act" signed. Administration released "National Strategy to Secure 5G"

NIST engaged in whole-of-government effort in support of the National Strategy. NIST plays a leading role in standards-related efforts in strategy development

Commerce Department established 5G Working Group to help coordinate DOC bureau activities relating to 5G

Update on NIST AI Program

NIST

Foundational Research

establish needed scientific foundation for design, development, and assessment of trustworthy AI

Use-inspired Research

advance AI as a tool to accelerate scientific discoveries and technological innovations standards

Test and Evaluation

benchmarks to understand the theoretical capabilities and limitations of AI

Standards and Guides

tools and guidelines for vocabulary, data, metrics and testbeds for AI

Policy and Engagement

forums and research to engage scientists, engineers, psychologists, and lawyers on issues of trustworthiness

AI Happenings in Summer 2020

NIST

Develop a shared understanding of what constitutes trustworthy AI (e.g., accuracy, security, explainability, reliability, free from bias) and establish the associated measurements, standards, and tools for design, development, and assessment of trustworthy AI

Kick off webinar on August 6, 2020

Bias in AI: workshop on August 18, 2020

Secure AI: Terminology and Taxonomy; 2nd draft for public comment

USG AI Standards Coordinator

U.S. LEADERSHIP IN AI:
A Plan for Federal Engagement in Developing Technical Standards and Related Tools

Prepared in response to Executive Order 13859
Submitted on August 9, 2019

NIST National Institute of Standards and Technology
U.S. Department of Commerce
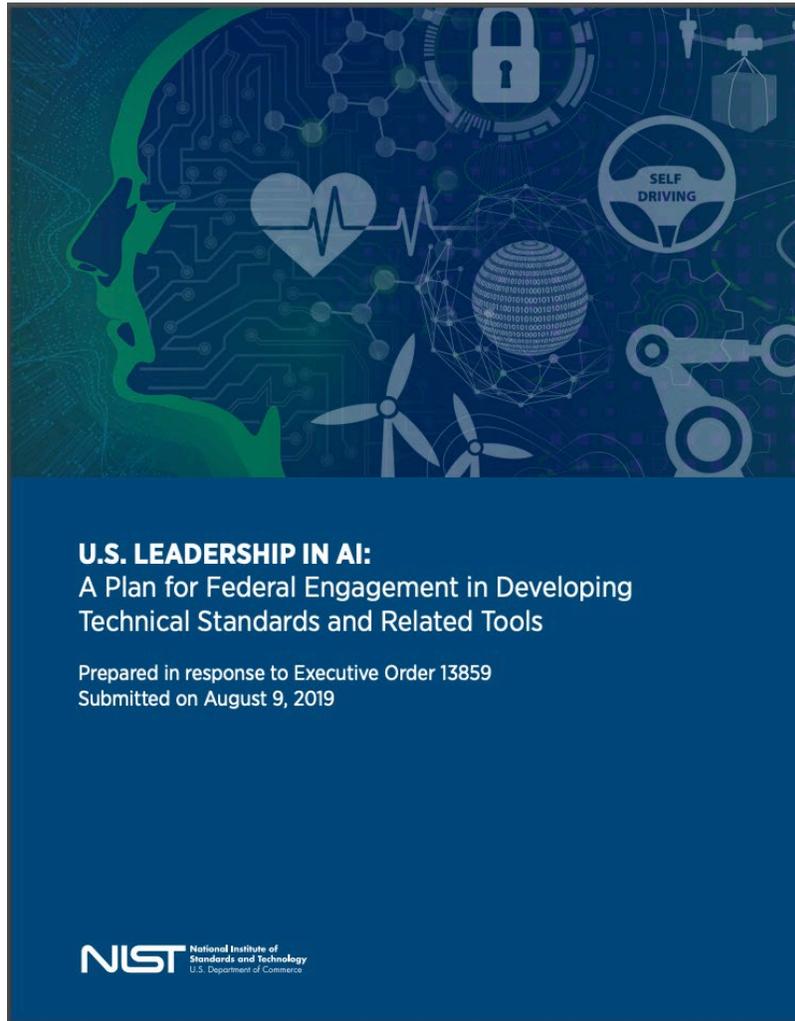
Carried out Executive Order by developing a plan for prioritizing federal agency engagement in the development of AI standards

Reached out all known federal and other efforts relating to AI standards development and use

Will facilitate discussions between the U.S. private sector and federal agencies to strengthen private-public sector coordination

Congressional Hearings

1   **NIST Reauthorization**

Walt Copan
March 11, 2020
House Committee on Science, Space, and Technology
Subcommittee on Research and Technology

2   **More Hires, Fewer Hacks: Developing the U.S. Cybersecurity Workforce**

Rodney Peterson
February 11, 2020
House Committee on Science, Space, and Technology
Subcommittee on Research and Technology

3   **Facial Recognition Technology**

Chuck Romine
February 6, 2020
House Committee on Homeland Security

4   **Facial Recognition Technology (Part III): Ensuring Commercial Transparency & Accuracy**

Chuck Romine
January 15, 2020
House Committee on Oversight and Reform

5   **Industries of the Future**

Walt Copan
January 15, 2020
Senate Commerce, Science, and Transportation Committee

How Can NIST Help?


1. Idea Generation

2. Information Sharing

3. Collaboration

4. Action

qPCR Data analysis

Manual thresholds for detecting SARS-CoV-2 confounded by background effects

Do these individuals have COVID-19?

Systematic background effects

qPCR Data analysis
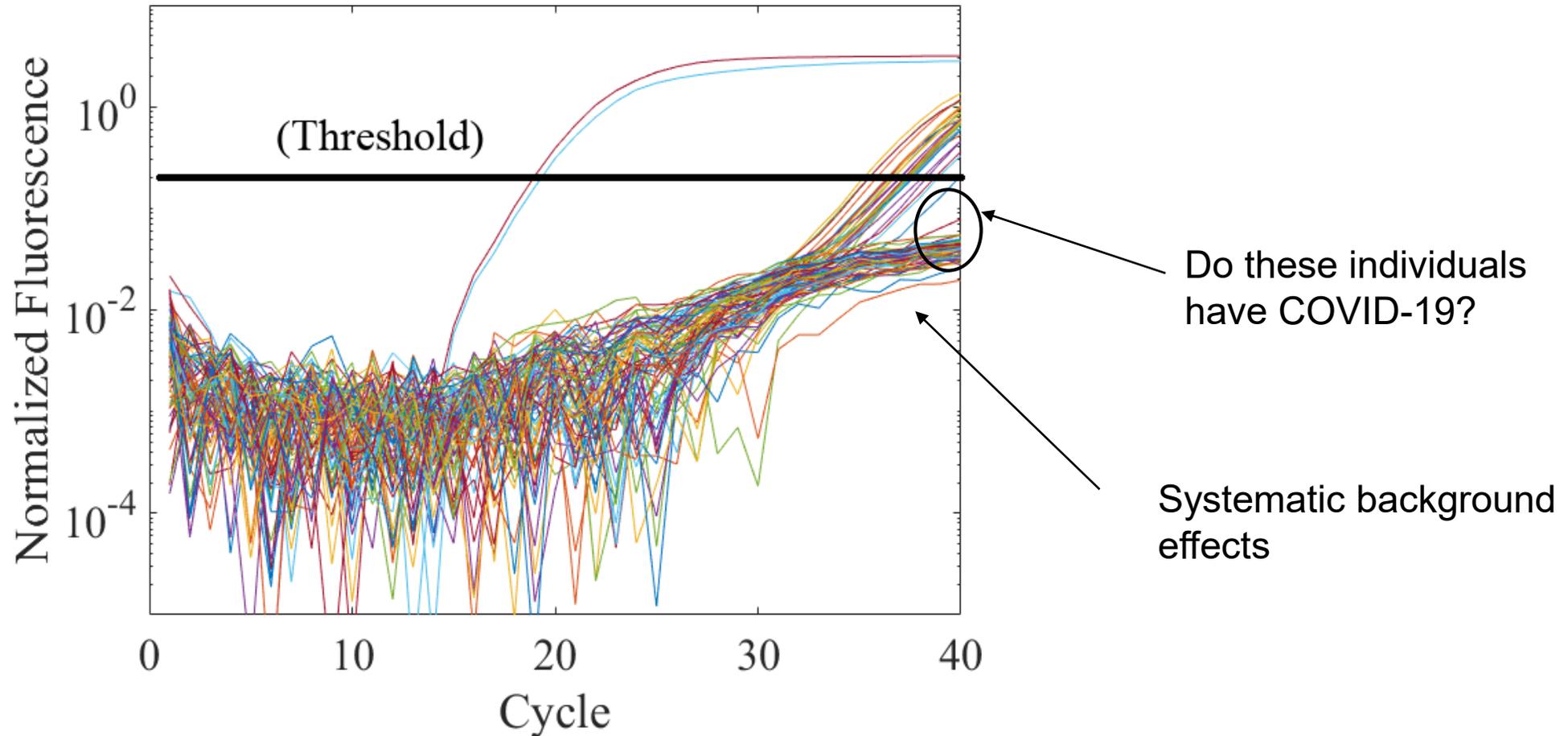
Mathematical improvement of sensitivity of quantitative PCR measurements

Typical Method

Our New Method

https://arxiv.org/abs/2004.05466

Systematic effects removed; noise floor lowered by a decade
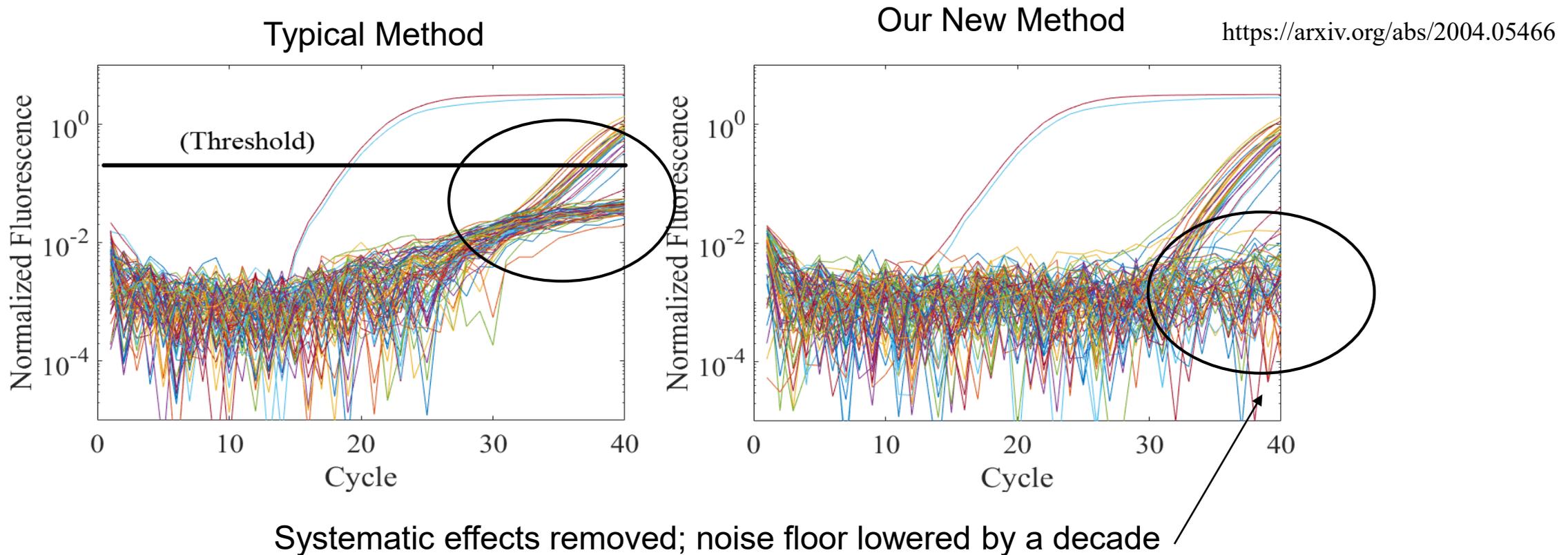
Two submitted manuscripts & provisional patent application (serial number 63/040,310)

COVID-19 Dataset

STATEMENTS & RELEASES

Call to Action to the Tech Community on New Machine Readable COVID-19 Dataset

— HEALTHCARE | Issued on: March 16, 2020

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Today, researchers and leaders from the Allen Institute for AI, Chan Zuckerberg Initiative (CZI), Georgetown University's Center for Security and Emerging Technology (CSET), Microsoft, and the National Library of Medicine (NLM) at the National Institutes of Health released the *COVID-19 Open Research Dataset (CORD-19)* of scholarly literature about COVID-19, SARS-CoV-2, and the Coronavirus group.

COVID-19 Data Repository

https://covid19-data.nist.gov/

NIST COVID-19 Resource Registry

https://covid19-registry.nist.gov/

Curated Archive cord19-cdcs-nist

https://github.com/usnistgov/cord19-cdcs-nist

TREC-COVID: Building a Pandemic Information Retrieval Test Collection

https://ir.nist.gov/covidSubmit/

TREC-COVID:
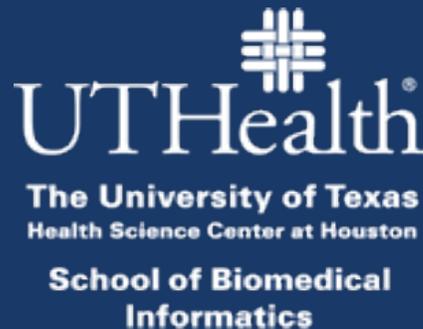
Documents
CORD-19, an open-access collection of the scientific literature about COVID-19 and other corona viruses. New snap-shots released weekly.

Questions
Inspired by search logs at medical libraries including NLM. New questions added in each round.

Relevance Judgments
Subset of retrieved documents annotated each round by individuals with biomedical expertise.

TREC-COVID

Two rounds completed; third in progress; Plan is for 5 rounds total.

Round 1	Round 2	Round 3
April 15—April 23	May 4—May 13	May 26—June 3
April 10 release of CORD-19, ~47k articles	May 1 release of CORD-19, ~60k articles	May 22 release of CORD-19, ~95k articles
30 topics	35 topics	40 topics
56 teams, 143 submissions	51 teams, 136 submissions	addition of a Kaggle task running in parallel
~8.5k judgments	~ 20k cumulative judgments	

2022

Celebrating 50 Years
of Cybersecurity Research at NIST

Back up slides

FY20 AI Spend Plan

NIST

[3M] **Use-inspired AI** research to accelerate scientific discoveries and technological innovations

[2M] Research and benchmark emerging **AI hardware**

[0.15M] Other objects

[0.5M] Explore and define the core tenets of **explainable AI**

[0.55M] Understand, examine, measure and mitigate **bias in AI** systems.

[1.8M] Develop **Secure AI** testbed for evaluation of vulnerability of AI systems

Vision: NIST will become an authoritative source of measurement tools, capabilities, and data necessary to define, develop, and evaluate trustworthy AI.