# Introduction to Secure and Trustworthy Cyberspace (SaTC) and Designing Accountable Software Systems (DASS)
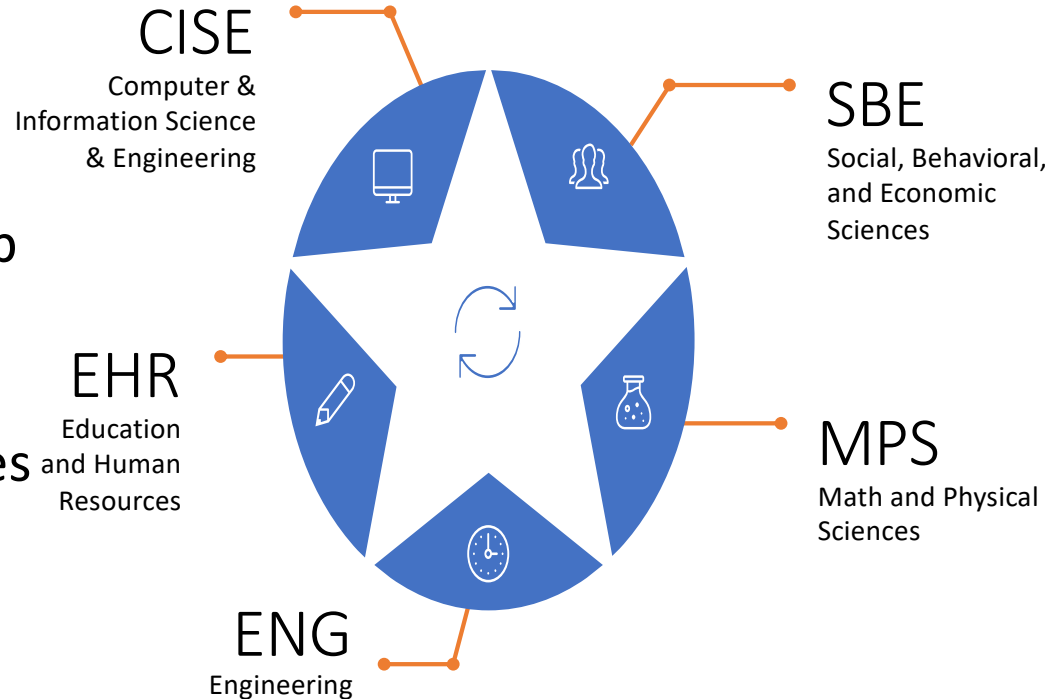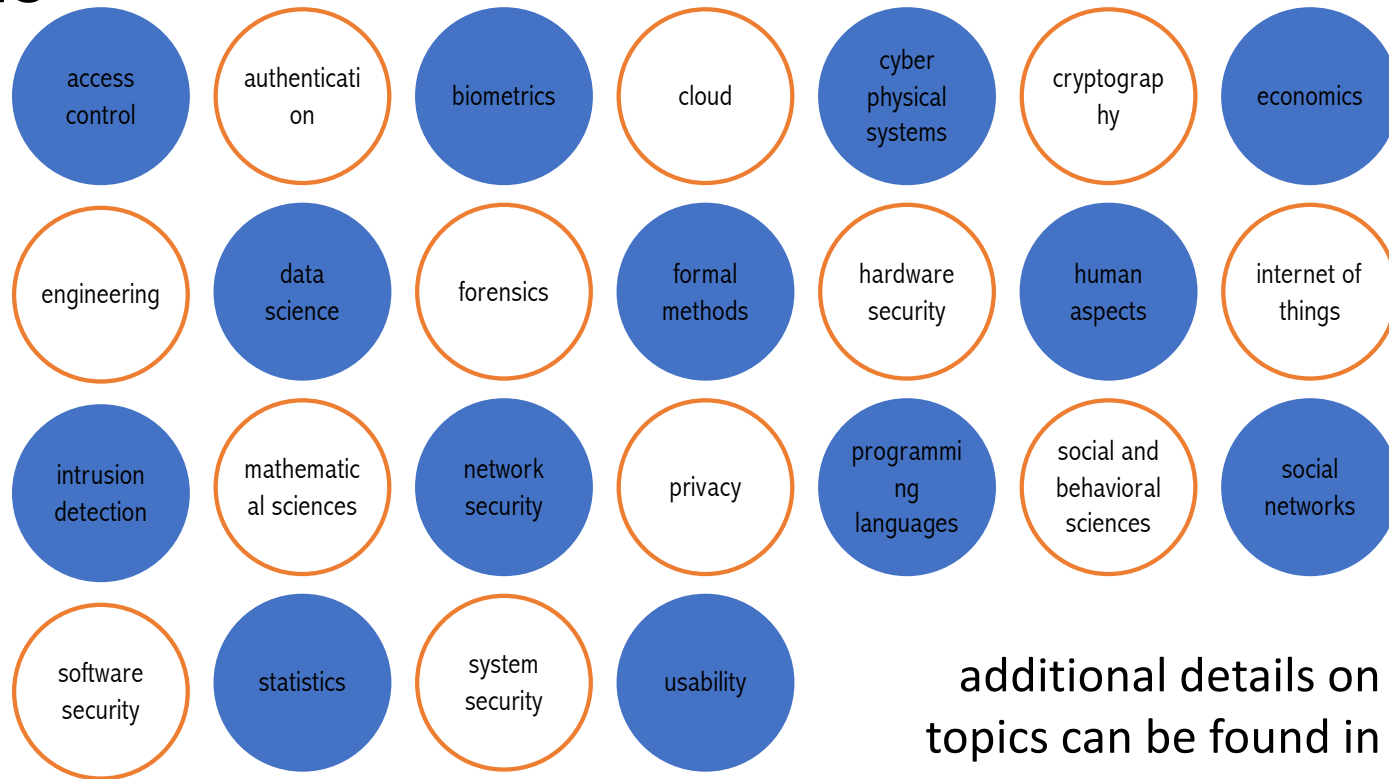
Jeremy Epstein
Lead Program Officer
jepstein@nsf.gov
703-989-8907

# Secure and Trustworthy Cyberspace (SaTC): One of NSF's Largest Research Programs

SaTC approaches security and privacy as a socio-technical problem involving deep scientific and engineering problems as well as vulnerabilities that arise from human behaviors

CISE
Computer & Information Science & Engineering

SBE
Social, Behavioral, and Economic Sciences

EHR
Education and Human Resources

MPS
Math and Physical Sciences

ENG
Engineering

# About 1020 Active Awards in These Topic Areas

access control

authentication

biometrics

cloud

cyber physical systems

cryptography

economics

engineering

data science

forensics

formal methods

hardware security

human aspects

internet of things

intrusion detection

mathematical sciences

network security

privacy

programming languages

social and behavioral sciences

social networks

software security

statistics

system security

usability

additional details on topics can be found in the most recent SaTC solicitation

# Some numbers from 21-500
(Counts are proposals, not projects)

- 5 Conference/Travel
- 4 CRII
- 10 EAGER
- 15 EDU
- 25 EDU EAGER (AI/Security)
- 8 Large
- 45 Medium
- 3 RAPID
- 51 Small
- 3 TTP-Small
- 2 TTP-Medium

- Total spending ~$80M; expect similar numbers for FY23 (22-517)

- Details on all awards available at www.nsf.gov/awardsearch  click "Advanced", then enter "8060" for "element code"

- Historic total for SaTC & predecessor programs $1.14B, ~2800 awards

# Designation Summary - NSF 22-517 (FY22/FY23)
(replaces 21-500)

| CORE: | Transition to Practice (TTP): | Education (EDU): |
|---|---|---|
| Focus: Fundamental research in one/more of CISE/SBE/MPS/ENG<br><br>Funding levels:<br>• **Small**: Up to 3 years, $600K<br>• **Medium**: Up to 4 years, $1.2M<br><br>No submission deadlines<br><br>Mediums must include BPC plan<br><br>Open to universities & non-profits; PI may submit 2 proposals/FY<br><br>Int'l collaboration programs with Israel & Ireland | Focus: transitioning existing research results to practice<br><br>Funding levels:<br>• **Small**: Up to 3 years, $600K<br>• **Medium**: Up to 4 years, $1.2M<br><br>No submission deadlines<br><br>Mediums must include BPC plan<br><br>Open to universities & non-profits; PI may submit 1 proposal/FY | Focus: cybersecurity education<br><br>Funding levels:<br>• Up to 3 years, $400K<br>• If include both computer scientist and education specialist, up to $500K<br><br>No submission deadlines<br><br>Open to universities & non-profits; PI may submit 1 proposal/FY |

# A Few FAQs

- How do I become a panelist?
  - Fill out the survey:
    https://www.surveymonkey.com/r/SatcVolunteer2022
- What topics are most of interest to SaTC?
  - The ones you find most exciting – we're driven by the best ideas ("curiosity driven research"), not by a target of particular ideas
- How can I get help writing a good SaTC proposal?
  - Attend CISE CAREER workshops and CRA Career Mentoring Workshop (both held each spring)
  - Show your drafts to colleagues who have written successful NSF awards and/or have served on NSF panels

# Staying connected to SaTC

To join the SaTC mailing list: Send "subscribe SaTC-announce" to listserv@listserv.nsf.gov and then respond to the confirmation message.

Serving on a SaTC Panel

https://www.surveymonkey.com/r/SatcVolunteer2022

# Designing Accountable Software Systems (DASS): NSF 22-512

- Submission deadline Jan 27 2023

- Up to $750K, 3 years

- Open to Institutes of Higher Education and non-profit non-academic organizations

# Motivation for DASS

Society is becoming highly dependent on software for everything

- Serious physical, social, economic, and geo-political consequences

Recently there have been efforts to regulate software, and all indications seem to suggest that more are on the way!

Can current software development frameworks comprehensively address the challenges in this new (social) policy aware setting?

# High-level goals of DASS

How to design "accountable" software: flexible to change and context, expressive enough to capture policy, provably/certifiably compliant, and transparent/auditable to policymakers and stakeholders

How software systems interact with the complex legal and social environment in which they operate, and how that understanding evolves in the presence of software that helps enact those

Convergent research and community building across SBE and CISE on these topics.

# Program Scope

DASS seeks deep, forward-looking scientific research in

- Understanding the social, behavioral, economic and/or legal context of software design

- Improving the methodology for designing accountable software beyond specific use cases and systems

- Synergies and integration between these

(In the broad context of regulation as defined in the solicitation)

# Jeremy Epstein

Lead Program Officer
Secure and Trustworthy Cyberspace
[jepstein@nsf.gov](mailto:jepstein@nsf.gov)
+1 703 989 8907