



# NICE Community Coordinating Council Meeting Agenda

Date: May 26, 2021    Time: 3:30-5:00 p.m. ET

# I. Introduction and Ground Rules - Susi Barraza, NICE Program Manager

## II. Opening Remarks

- a. Industry Co-Chair - Jon Brickey, Senior Vice President, Mastercard
- b. Government Co-Chair – Rodney Petersen, Director of NICE

# III. Standing Items

- a. Strategy Stories - New Developments that Align to NICE Strategic Plan

## *MilGear*

Presented by: Keith Boring, Director, Navy Credentialing Programs

URL: <https://milgears.osd.mil/>

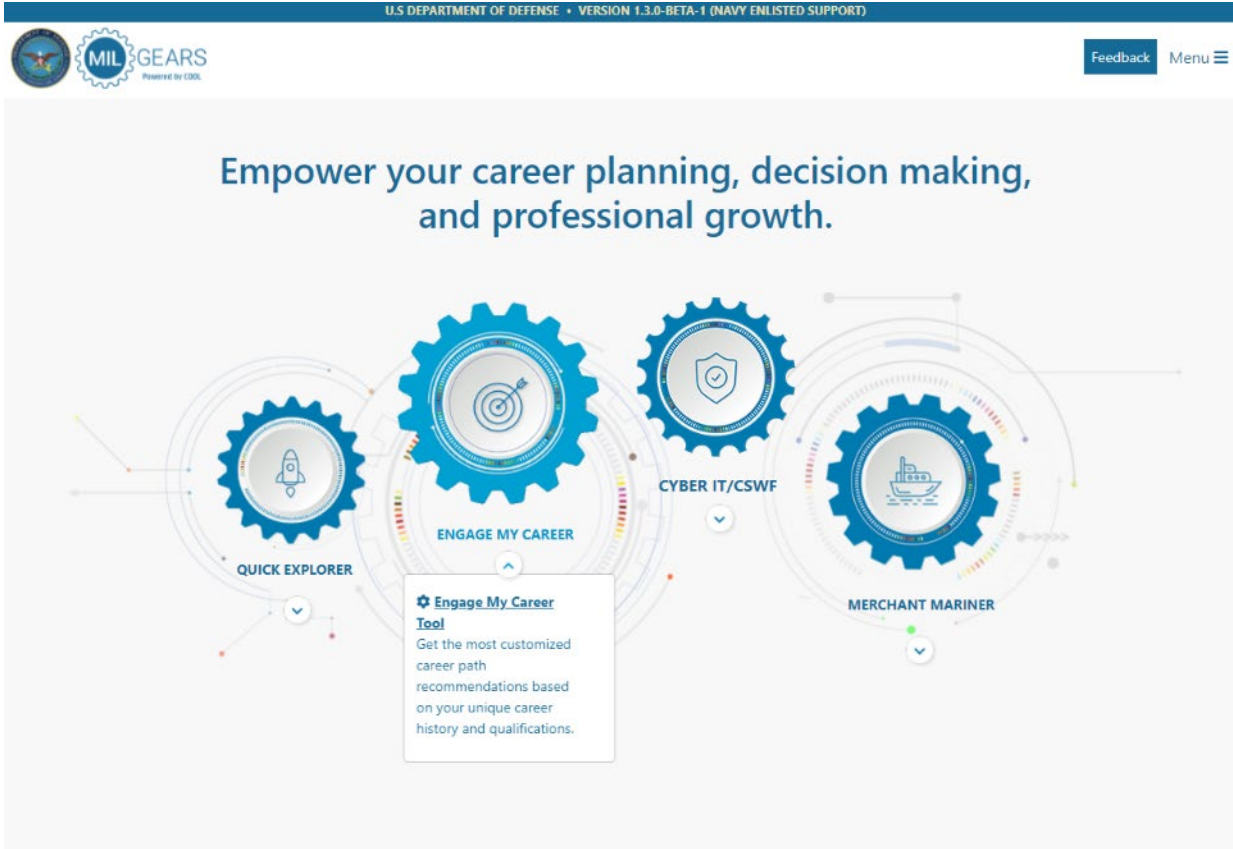
See the MilGears NICE Framework Success Story: <https://www.nist.gov/itl/applied-cybersecurity/nice/nice-framework-resource-center/nice-framework-success-story-navy-cool>

- b. Report Roundup - Learning from Good Ideas

## *ISACA Annual Cybersecurity Study*

Presented by: Jonathan Brandt, Information Security Professional Practices Lead, ISACA

URL: [https://www.isaca.org/go/state-of-cybersecurity-2021?utm\\_source=isaca&utm\\_medium=other&utm\\_campaign=research&utm\\_content=pr\\_research\\_state-of-cybersecurity-2021-part-1-press-release&cid=pr\\_2006993&Appeal=pr](https://www.isaca.org/go/state-of-cybersecurity-2021?utm_source=isaca&utm_medium=other&utm_campaign=research&utm_content=pr_research_state-of-cybersecurity-2021-part-1-press-release&cid=pr_2006993&Appeal=pr)



# MilGears

Presented by: Keith Boring, Director, Navy  
Credentialing Programs

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# State of Cybersecurity 2021

JON BRANDT, CISM, CDPSE, CCISO, CISSP, CPI, PMP  
INFORMATION SECURITY PROFESSIONAL PRACTICES LEAD

[www.isaca.org/state-of-cybersecurity-2021](https://www.isaca.org/state-of-cybersecurity-2021)

## State of Cybersecurity 2021

Part 1: Global Update on Workforce Efforts,  
Resources and Budgets



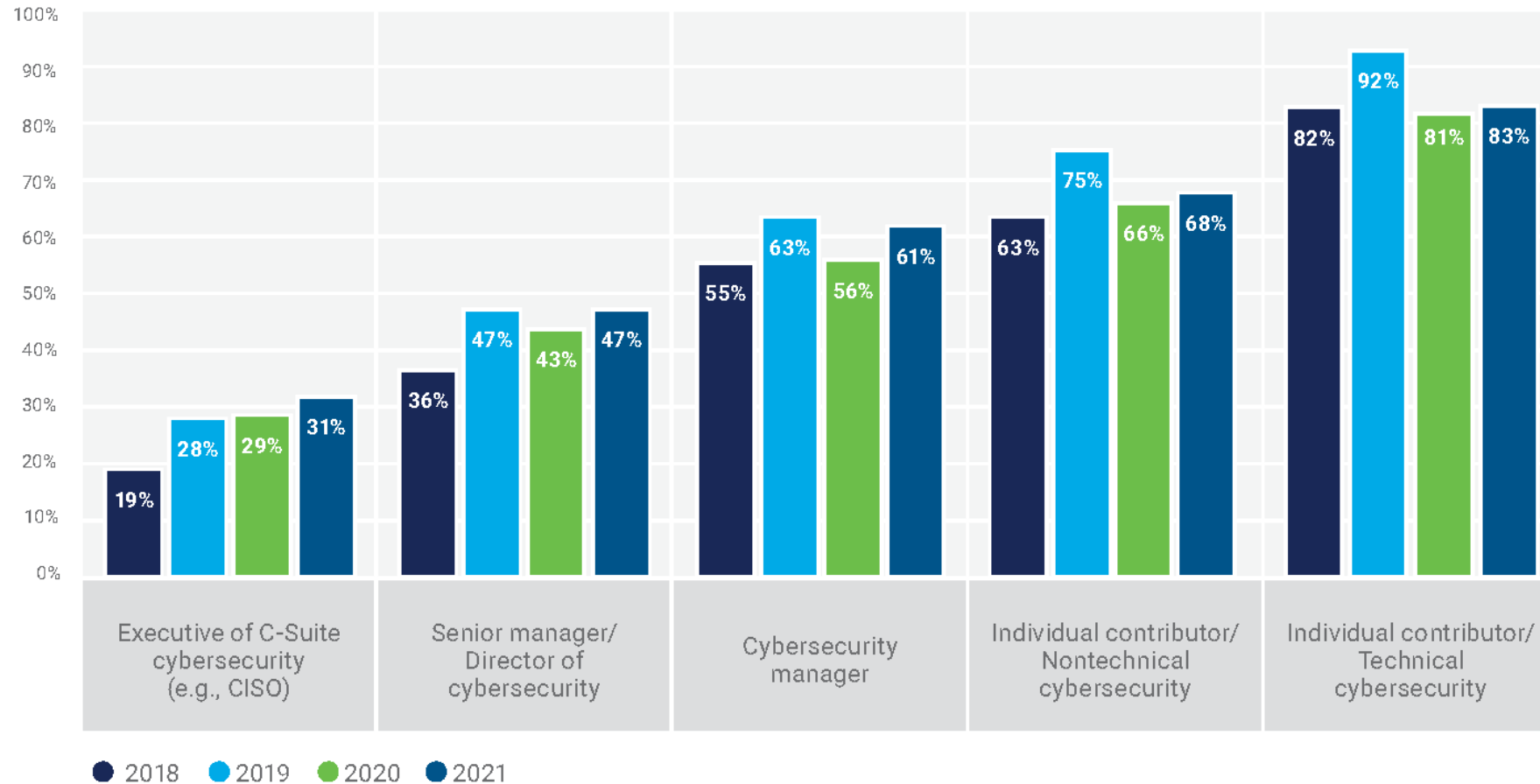
# SUMMARY

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- Demand for talent vastly outweighs supply
- Time to fill changed little from 2020; 55% claim to have unfilled cybersecurity positions
- The number who believe that their cybersecurity team is appropriately staffed increased 3 percentage points (consistent with prior year data)
- 68% of respondents whose organization experienced more cyberattacks report being somewhat or significantly understaffed
- Retention is difficult but slightly improved (likely due to the global pandemic)
- Budgets expected to increase (but growth in budgets continues to level out)
- 50% of respondents generally do not believe that applicants are well qualified
- Hands-on cybersecurity experience remains primary factor in qualification determination

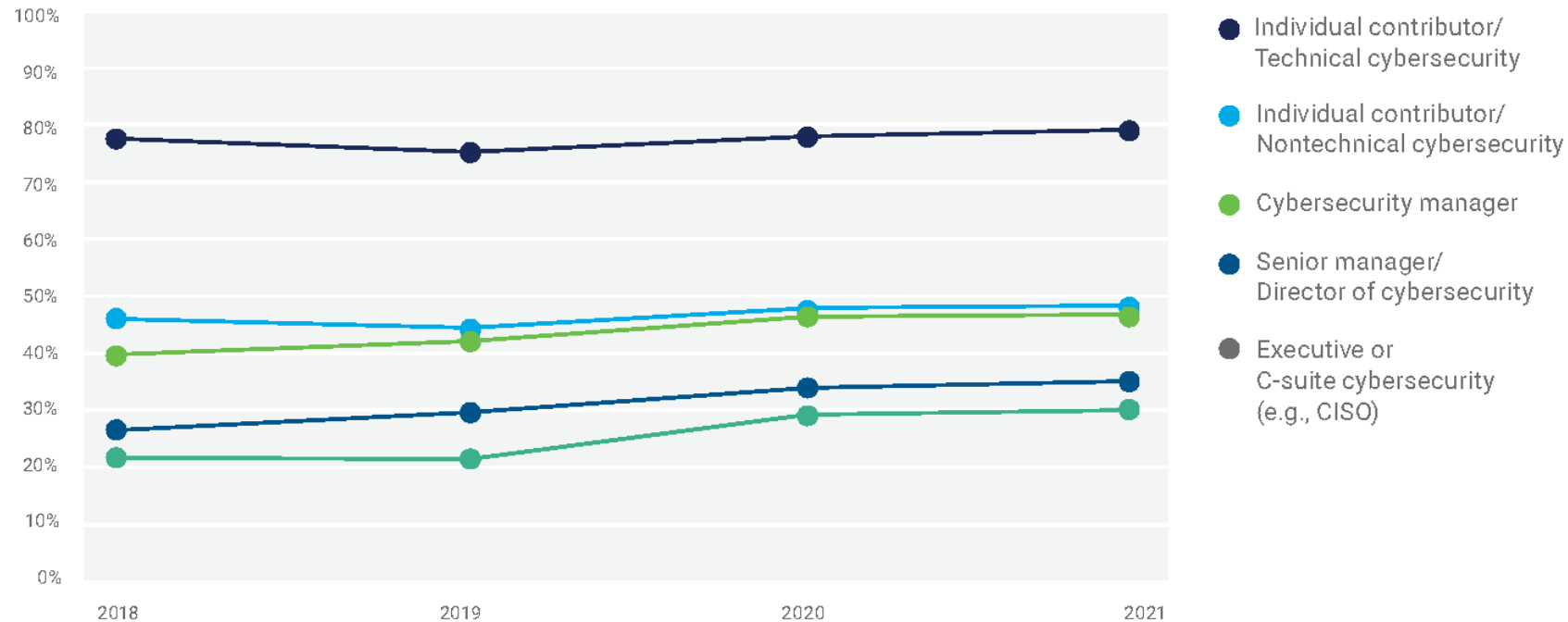


# TREND OF UNFILLED ROLES



**Unfilled roles increased slightly in 2021, but not to the levels of 2019, except for cybersecurity executives**

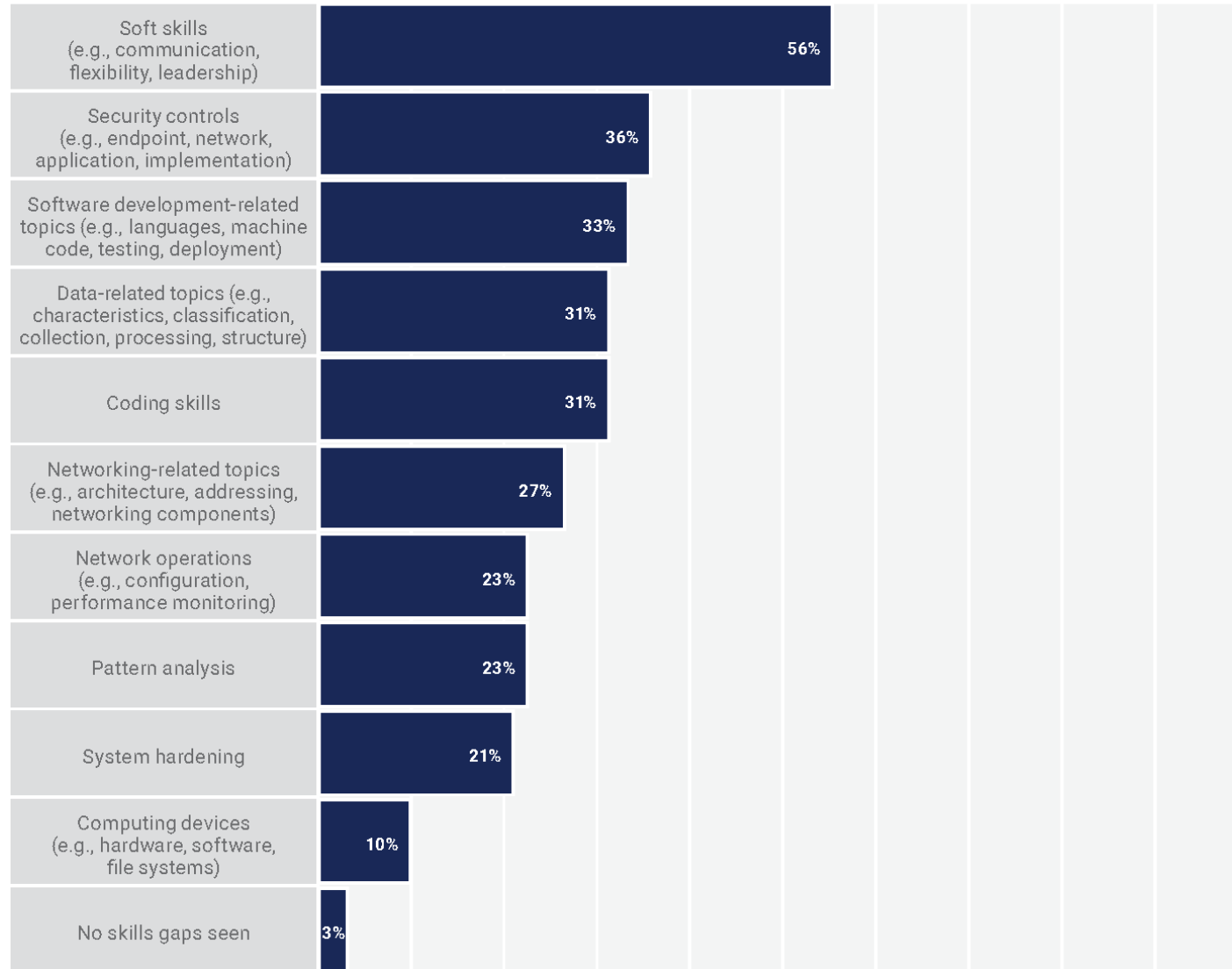
# FUTURE HIRING DEMAND TRENDS



- Respondents were asked about future demand across 5 categories of positions
- Four-year trending illustrates future hiring is leveling off

# SKILLS GAP

What are the biggest skill gaps you see in today's cybersecurity professionals? Select all that apply.



**Respondents largely view soft skills as the primary skills gap among cybersecurity professionals**

# III. Standing Items

## c. Framework Feature - Applications and Uses of Workforce Framework for Cybersecurity

*New Curricula for National Cybersecurity Workforce Development Program*

Presented by: Dr. Tirthankar Ghosh, Professor and Associate Director, Center for Cybersecurity, University of West Florida

URL: <https://cyberskills2work.org/>



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# National Cybersecurity Workforce Development Program: Curricula and Work Roles

**Dr. Tirthankar Ghosh**

Professor and Associate Director  
Center for Cybersecurity  
University of West Florida

# National Cybersecurity Workforce Development Program

- [cyberskills2work.org](https://cyberskills2work.org)
- Led by UWF and funded by a \$6 million 2-year NSA grant
- Prepare transitioning military, veterans and first responders for cybersecurity jobs
- Place in Critical Infrastructure sectors: Financial Services, Defense, Energy
- Train and place 1600 students across the country over 3 years
- Funds UWF CyberSkills2Work Program for 90 students: [uwf.edu/cyberskills2work](https://uwf.edu/cyberskills2work)
- Develop sustainable and scalable program

UWF is leading a coalition of 10 CAE institutions:

- University of South Florida – Cyber Florida
- University of Houston
- Augusta University
- Dakota State University
- Eastern New Mexico University - Ruidoso
- Florida International University
- Metropolitan State University
- San Antonio College
- University of Texas at San Antonio



# Workforce Programs and Number of Trainees

Institution	Year 1	Year 2	Year 3
Augusta University	In development	20	25
Dakota State University	In development	20	30
Eastern New Mexico University - Ruidoso	10	20	20
Florida International University	110	150	225
Metropolitan State University	63	90	150
San Antonio College	15	25	30
University of South Florida - Cyber Florida	20	40	40
University of Texas at San Antonio	30	80	170
University of West Florida	30	60	120
Target Total (from the proposal)	195	415	675
<b>Actual Total (based on current programs)</b>	<b>278</b>	<b>505</b>	<b>810</b>
<b>Cumulative Program Total</b>	<b>278</b>	<b>783</b>	<b>1593</b>





# NICE Framework Work Roles and Curricular Topics

NICE Framework Work Roles	Topics
Network Operations Specialist	CompTIA: A+, Network+, Security+, Linux+, CySA+
System Security Analyst	Cisco CCNA, Cisco CyberOps
Cyber Defense Incident Responder	EC Council CEH Palo Alto PCNSA
Cyber Defense Analyst	Cybersecurity Fundamentals, Network Defense Fundamentals, Threat Intelligence and Hunting
System Administrator	Cybersecurity Fundamentals, Network Defense Fundamentals, CompTIA Security+, CompTIA Linux+
Cyber Defense Infrastructure Support Specialist	Network Defense Fundamentals
Cyber Operator	Risk Management
Vulnerability Assessment Analyst	Incident Response
Law Enforcement/Counterintelligence Forensics Analyst	Digital Forensics, Threat Intelligence and Hunting, Artificial Intelligence and Machine Intelligence for Cybersecurity
Technical Support Specialist	CompTIA A+/PC Pro, CompTIA Network+/Network Pro, and CompTIA Security +/Security Pro
Cyber Crime Investigator	Digital Forensics, Threat Intelligence and Hunting, Artificial Intelligence and Machine Intelligence for Cybersecurity



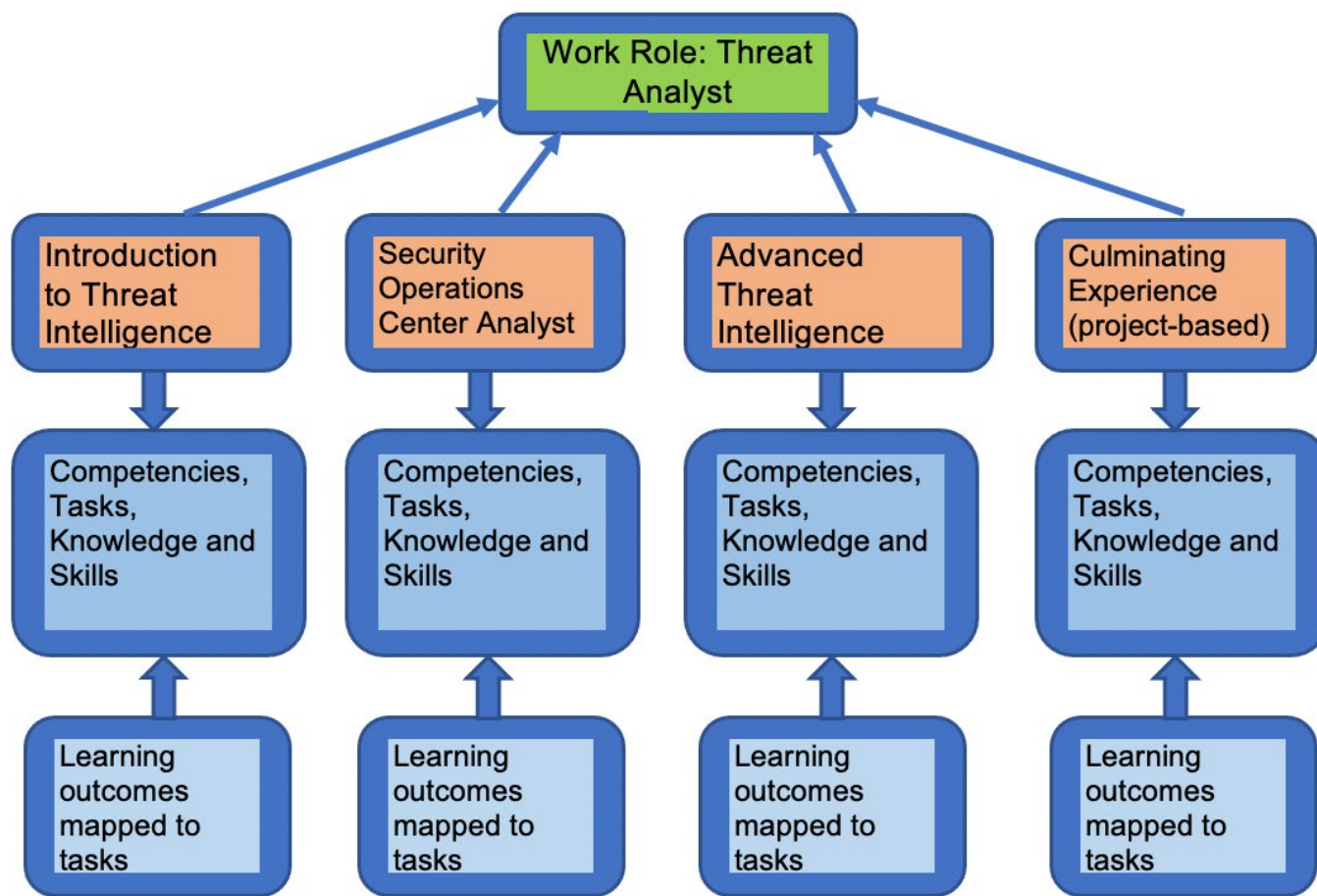


# New Curricular Topics Mapped To NICE Framework Work Roles

Topics	Work Roles
Threat Intelligence and Hunting	Threat Analyst
Artificial Intelligence and Machine Learning for Cybersecurity	Data Analyst
Malware Analysis	Cyber Defense Forensics Analyst
Cyber Defense	Cyber Defense Analyst
Digital Forensics	Cyber Defense Forensics Analyst



# An Example Work Role Mapping





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# Questions

# IV. Working Group Updates

a. Promote Career Discovery

James “Jimmy” Baker, Cybersecurity Evangelist and Author; or Roland Varriale II, Cybersecurity Analyst, Argonne National Laboratory; or Monica Gomez, Cisco

b. Transform Learning Process

Dr. Aurelia T. Williams, Interim Vice Provost for Academic Administration, Norfolk State University; or Richard Spires, Instructor, Learning Tree

c. Modernize Talent Management

Karen Jensen, Saaby Consulting; or Kevin Perry, Chief Cyber Training, DoD Cyber Crime Center/Cyber Training Academy; or Melissa Woo, Executive Vice President for Administration, Michigan State University

# V. Community of Interest Updates

a. Apprenticeships in Cybersecurity

Tony Bryan, Executive Director, CyberUp; or Jennifer Oddo, Executive Director, Strategic Workforce Education and Innovation, Youngstown State University

b. Cybersecurity Skills Competitions

Amelia Phillips, Highline College; or Brad Wolfenden, EmberSec

c. K12 Cybersecurity Educators

Terrance Campbell, CTE Cybersecurity Teacher, Shelby County Schools; or Laurin Buchanan, Secure Decisions

d. NICE Framework Users

Karen Wetzel, Manager of the NICE Framework

# VI. Research Review

*Cybersecurity Advocates: Discovering the Characteristics and Skills for an Emergent Role*  
Presented by: Julie Haney, NIST





# Cybersecurity Advocates: Discovering the Skills & Characteristics of an Emerging Role

**Julie Haney, Ph.D.**

Visualization & Usability Group

Information Technology Lab, National Institute of Standards and Technology

# CYBERSECURITY ADVOCATES



## Role

Professionals who are adept at motivating individuals and organizations to adopt sustainable, positive security behaviors



## Examples

- Security evangelist
- Security awareness professional
- Secure development champion
  - Security consultant
- Security guidance developer



Cybersecurity advocates require a unique combination of technical and non-technical skills along with an understanding of how to address underlying sociotechnical factors that can impact security adoption



# ADVOCATE QUALITIES



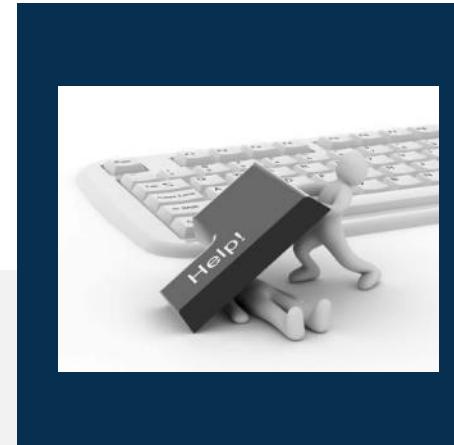
## Technical Knowledge & Skills

- IT, cybersecurity, threats
- Enough to establish credibility & trust with intended audience



## Non-technical Skills

- Interpersonal skills
- Context awareness
- Communications skills



## Service Orientation

- Gravitate towards helping people
- Deep sense of the importance of the work



## Discipline Diversity

- Diverse educational backgrounds & work experiences
- Those from outside field can bring valuable skills
- Multi-disciplinary teams

# BOLSTERING THE WORKFORCE

Implications for workforce education, recruitment, and professional development for advocates and other cybersecurity roles



## Progressing the Cybersecurity Advocate Role

- Formalization of the work role
- Designing professional development training



## Developing Non-technical Competencies

- Becoming increasingly necessary for security professionals in general
- Professional development opportunities
- Incorporate into computing education curricula



## Expanding the Pipeline

- Those with strong non-tech skills can thrive
- Framing as a service-oriented profession
- Hiring those with non-traditional backgrounds & skills



# Backup Slides



# RESEARCH EFFORTS



Multi-year (2017-2021) research effort to discover who cybersecurity advocates are, what they do, and what skills they employ in their work



## INTERVIEWS OF ADVOCATES

- 28 cybersecurity advocates
- Diverse backgrounds and job functions across a range of sectors



## SECURITY AWARENESS STUDIES

- Year-long case study of a security awareness team at a government agency
- Focus groups of 29 government security awareness professionals

Researchers: Julie Haney (NIST), Wayne Lutters (University of Maryland), Jody Jacobs (NIST), Susanne Furman (NIST)

# PUBLICATIONS

- Coming soon: **Cybersecurity Advocates: Force Multipliers in Security Behavior Change.** *IEEE Security & Privacy* (to appear - July/August 2021 issue)
- **Cybersecurity Advocates: Discovering the Skills and Characteristics of an Emerging Role.** *Information and Computer Security* (2021)
- **Security Awareness Training for the Workforce: Moving Beyond “Check-the-box” Compliance.** *Computer* (2020)
- **Motivating Cybersecurity Advocates: Implications for Recruitment and Retention.** *ACM SIGMIS Computer & Personnel Research* (2019)
- **“It’s Scary...It’s Confusing...It’s Dull”: How Cybersecurity Advocates Overcome Negative Perceptions of Security.** *Symposium on Usable Privacy and Security* (2018)

# VII. Project Progress Reports

a. Cybersecurity Career Awareness Week

Presented by: Davina Pruitt-Mentle, NICE

URL: <https://www.nist.gov/itl/applied-cybersecurity/nice/events/cybersecurity-career-awareness-week>

b. NICE Conference and Expo

Presented by: Randy Pestana, Florida International University

URL: <https://niceconference.org/>

c. NICE K12 Cybersecurity Education Conference

Presented by: Felicia Rateliff, Director of Operations & Programs, iKeepSafe

URL: <https://www.k12cybersecurityconference.org/>

**NICE** | Conference  
and Expo  
**2022**

JUNE 6 - 8, 2022 | WESTIN PEACHTREE PLAZA | ATLANTA, GA.

# DEMYSTIFYING CYBERSECURITY

INTEGRATED APPROACHES TO  
DEVELOPING CAREER PATHWAYS

[www.niceconference.org](http://www.niceconference.org)



# RICET

## REGIONAL INITIATIVE FOR CYBERSECURITY EDUCATION AND TRAINING

A collaborative effort to build and strengthen  
a foundation in cybersecurity education,  
training and workforce for the Americas

**Tuesday,  
September 14th, 2021**

Bogota	11:00
Washington D.C	12:00
Buenos Aires	13:00
Sao Paulo	13:00
GMT	16:00

**Save  
the  
Date!**



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**FLORIDA  
INTERNATIONAL  
UNIVERSITY**

## Timeline

June

RICET Agenda

July – August

Track Announcement

September 7<sup>th</sup>

Call for Proposals

November 16<sup>th</sup>

NICE Symposium

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# SAVE THE DATE

2021 • VIRTUAL  
**NICE K12**  
CYBERSECURITY EDUCATION  
CONFERENCE

## DECEMBER 6-7, 2021

[k12cybersecurityconference.org](https://k12cybersecurityconference.org)

THE CONFERENCE FOR K12 CYBER EDUCATORS

**#NICEK12**



**2021 • VIRTUAL**

# **NICE K12**

**CYBERSECURITY EDUCATION  
CONFERENCE**

**DEC 6-7, 2021**



# **CALL FOR SPEAKER PROPOSALS**

**SUBMISSIONS OPEN APRIL 13, 2021**

**SUBMISSION DEADLINE JUNE 18, 2021**

**k12cybersecurityconference.org**

# CYBER SIGNING DAY

2021 • VIRTUAL  
**NICE K12**  
CYBERSECURITY EDUCATION  
CONFERENCE

## Recruiting Students

- High School or recent grad
- Will participate in an Internship, Apprenticeship or training before May 2022
- Recruitment will end by Sept 30, 2021 –Interviews will take place beginning this summer until Mid-October





# CALL FOR SPONSORS & EXHIBITORS

2021 • VIRTUAL  
**NICE K12**  
CYBERSECURITY EDUCATION  
CONFERENCE

- MANY SPONSOR LEVELS TO FIT YOUR ORG'S ADVERTISING NEEDS
- VIRTUAL EXHIBITOR BOOTH  
FOR-PROFIT \$750 / NON-PROFIT \$500

*"We have been a sponsor for the last four years at the NICE K12 Conference and have found it to be a great opportunity to engage with cybersecurity educators from around the country. The Conference is extremely well run and enabled Start Engineering to effectively interact with attendees at many different places throughout the event."*

*- Bob Black, CEO - Start Engineering*

# QUESTIONS/IDEAS

2021 • VIRTUAL  
**NICE K12**  
CYBERSECURITY EDUCATION  
CONFERENCE

FOR QUESTIONS, COMMENTS, IDEAS..

CONTACT FELICIA RATELIFF

[conference@ikeepsafe.org](mailto:conference@ikeepsafe.org)



# VII. Project Progress Reports

d. Centers of Academic Excellence (CAE) in Cybersecurity Community

Presented by: Tony Coulson or Amy Hysell, Cybersecurity Center, California State University, San Bernardino

URL: <https://www.caecommunity.org/>

e. CyberSeek

Presented by: Will Markow, Managing Director of Human Capital Management and Emerging Technologies, Burning Glass Technologies

URL: <https://www.cyberseek.org>

# VIII. Featured Topic

*a. Executive Order on Improving the Nation's Cybersecurity*

Presented by: Matt Scholl, Director of the Computer Security Division, NIST

URL: <https://www.nist.gov/itl/executive-order-improving-nations-cybersecurity>



## NIST CYBERSECURITY & PRIVACY PROGRAM

### EXECUTIVE ORDER ON IMPROVING THE NATION'S CYBERSECURITY

The President's Executive Order on Improving the Nation's Cybersecurity (EO 14028), issued May 12, 2021, charges multiple agencies – including the U.S. Department of Commerce's National Institute of Standards and Technology (NIST) – with enhancing the security of the software supply chain.

Section 4 of the Executive Order (EO) directs the Secretary of Commerce, through NIST, to consult with federal agencies, the private sector, academia, and other stakeholders and to identify or develop standards, tools, best practices, and other guidelines to enhance software supply chain security. The resulting standards and guidelines will be used by other agencies to govern the federal government's procurement of software.

NIST has a longstanding program focused on managing risks to the cyber supply chain, software quality and security, and security development and engineering resources – across research, standards and guidelines, and transition to practice. Resources published by NIST and others will serve as a starting point for assignments under the EO.

#### STANDARDS AND GUIDELINES

The guidelines will address: critical software, secure software development lifecycle, security measures for the federal government, and requirements for testing software. They are to include:

- criteria to evaluate software security,
- criteria to evaluate the security practices of the developers and suppliers themselves, and
- innovative tools or methods to demonstrate conformance with secure practices.
- By **November 8, 2021**, NIST is to publish preliminary guidelines, based on stakeholder input and existing documents for enhancing software supply chain security.
- By **February 6, 2022**, after having consulted heads of agencies, NIST will issue guidance that identifies practices that enhance software supply chain security, including standards, procedures, and criteria.
- By **May 8, 2022**, NIST will publish additional guidelines, including procedures for periodically reviewing and updating guidelines.

#### CRITICAL SOFTWARE

Security measures for "critical software" are on an even faster track. NIST is to consult with the National Security Agency (NSA), Office of Management and Budget (OMB), Cybersecurity and Infrastructure Security Agency (CISA), and the Director of National Intelligence (DNI) and:

- define "critical software" by **June 26, 2021**, and
- publish guidance outlining security measures for critical software by **July 11, 2021**.
- NIST's definition of critical software will provide criteria that include level of privilege or access required to function, integration and dependencies with other software, direct access to networking and computing resources, performance of a function critical to trust, and potential for harm if compromised.

#### ADDITIONAL RESPONSIBILITIES

The EO assigns additional responsibilities to NIST, including:

- initiating two pilot labeling programs related to secure software development practices and the Internet of Things (IoT) to inform consumers about

Fact Sheet: EO on Improving the Nation's Cybersecurity | May 2021

# "Executive Order on Improving the Nation's Cybersecurity"

Presented by: Matt Scholl, Chief of Computer Security Division, NIST

<https://www.nist.gov/itl/executive-order-improving-nations-cybersecurity>

# IX. Closing Remarks and Next Meeting Reminder

The next NICE Community Coordinating Council Meeting will be  
June 23, 2021, at 3:30 p.m. ET