



# NICE | Conference and Expo 2018

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Conference  
and Expo  
2018



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Hosted by:





# NICE | Conference and Expo 2018



# Conference Welcome

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**Randy Pestana**

Assistant Director of Research and  
Strategic Initiatives, Jack D. Gordon

Institute for Public Policy  
Florida International University  
*Conference Emcee*



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# Industry Welcome

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**John R. Hering**  
Cybersecurity Strategist, Microsoft  
Digital Diplomacy Team  
Microsoft



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# President's Panel: The Future of Education

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**José Marie Griffiths**

President

Dakota State University

**Mark B. Rosenberg**

President

Florida International University

**Ian Wallace**

Senior Fellow, International Security

Program &

Co-Director of the Cybersecurity

Initiative

New America

Moderator



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# The State of NICE

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**Rodney Petersen**  
Director of the National Initiative for  
Cybersecurity Education  
NICE



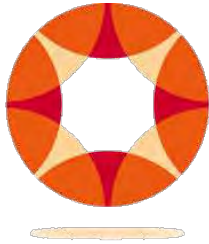
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 Cyber Seek<sup>TM</sup>

CompTIA®



burningglass  
CAREERS IN FOCUS

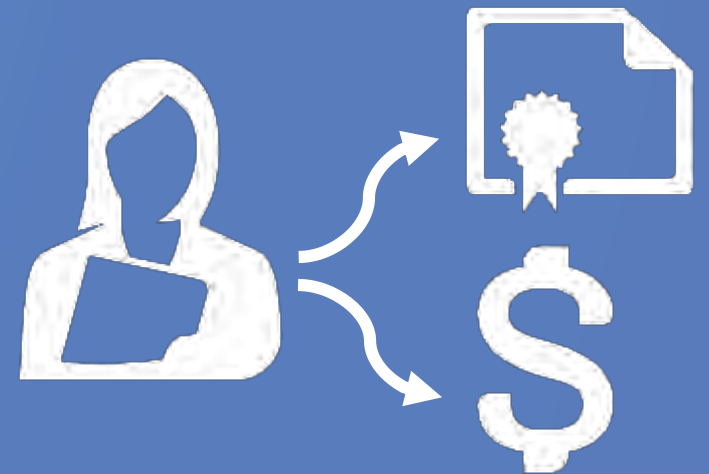
NICE  
NATIONAL INITIATIVE FOR  
CYBERSECURITY EDUCATION

Cyber Seek

1



2



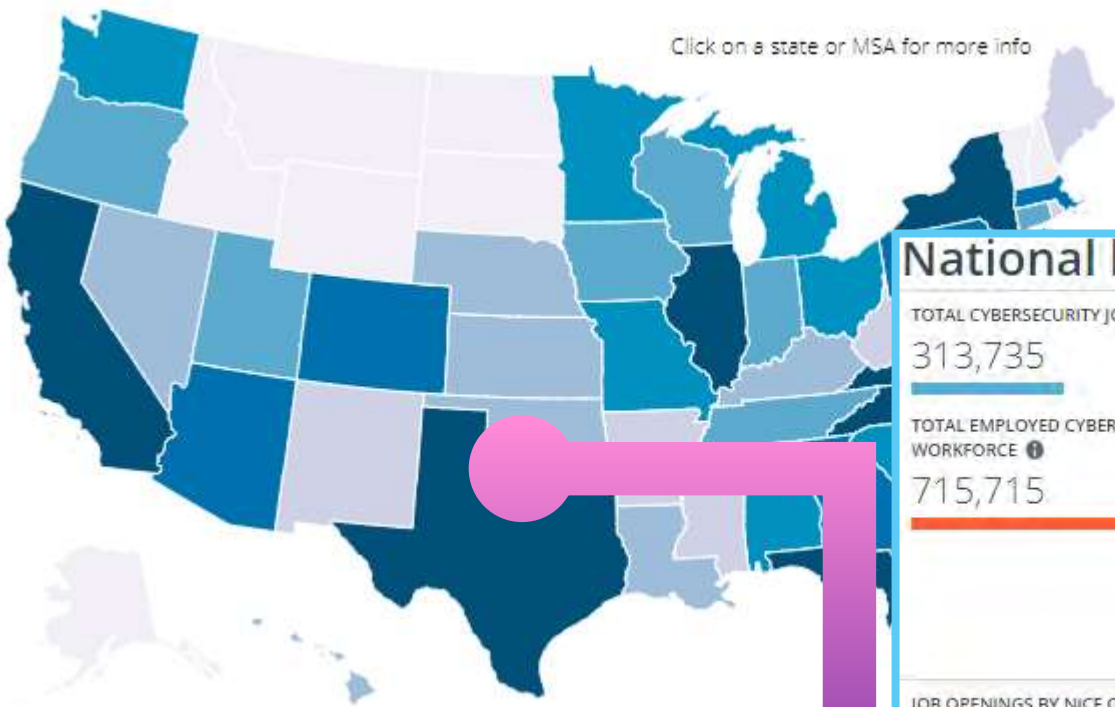
**Nearly 220,000 unique views YTD**

**Year-over-year traffic increased by 73%**

**October 2018 was CyberSeek's biggest month ever  
with over 30,000 unique views**

**Leveraged by thousands of educators, employers,  
workforce development officials, job seekers, and  
students**

Click on a state or MSA for more info



## National level

TOTAL CYBERSECURITY JOB OPENINGS ⓘ

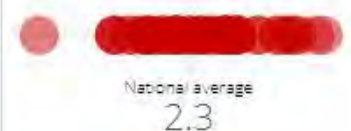
313,735

TOTAL EMPLOYED CYBERSECURITY WORKFORCE ⓘ

715,715

SUPPLY OF CYBERSECURITY WORKERS ⓘ

Very Low  
CYBERSECURITY WORKFORCE  
SUPPLY/DEMAND RATIO



GEOGRAPHIC CONCENTRATION ⓘ

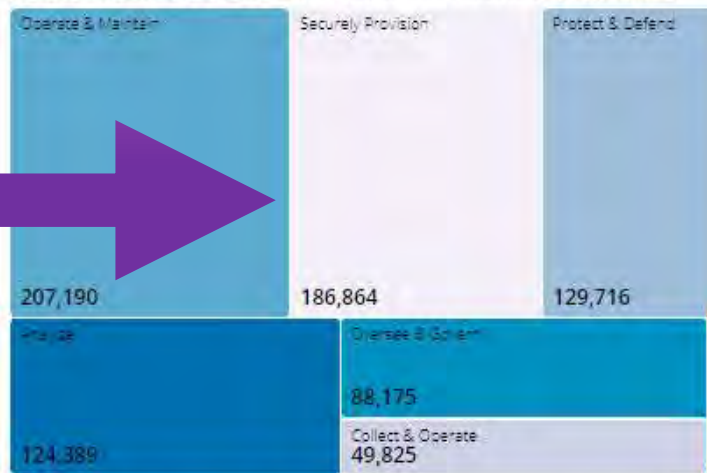
Average  
LOCATION QUOTIENT



TOP CYBERSECURITY JOB TITLES ⓘ

- Cyber Security Engineer
- Cyber Security Analyst
- Network Engineer / Architect
- Cyber Security Manager / Administrator
- Systems Engineer
- Software Developer / Engineer
- Systems Administrator
- Vulnerability Analyst / Penetration Tester
- Cyber Security Consultant

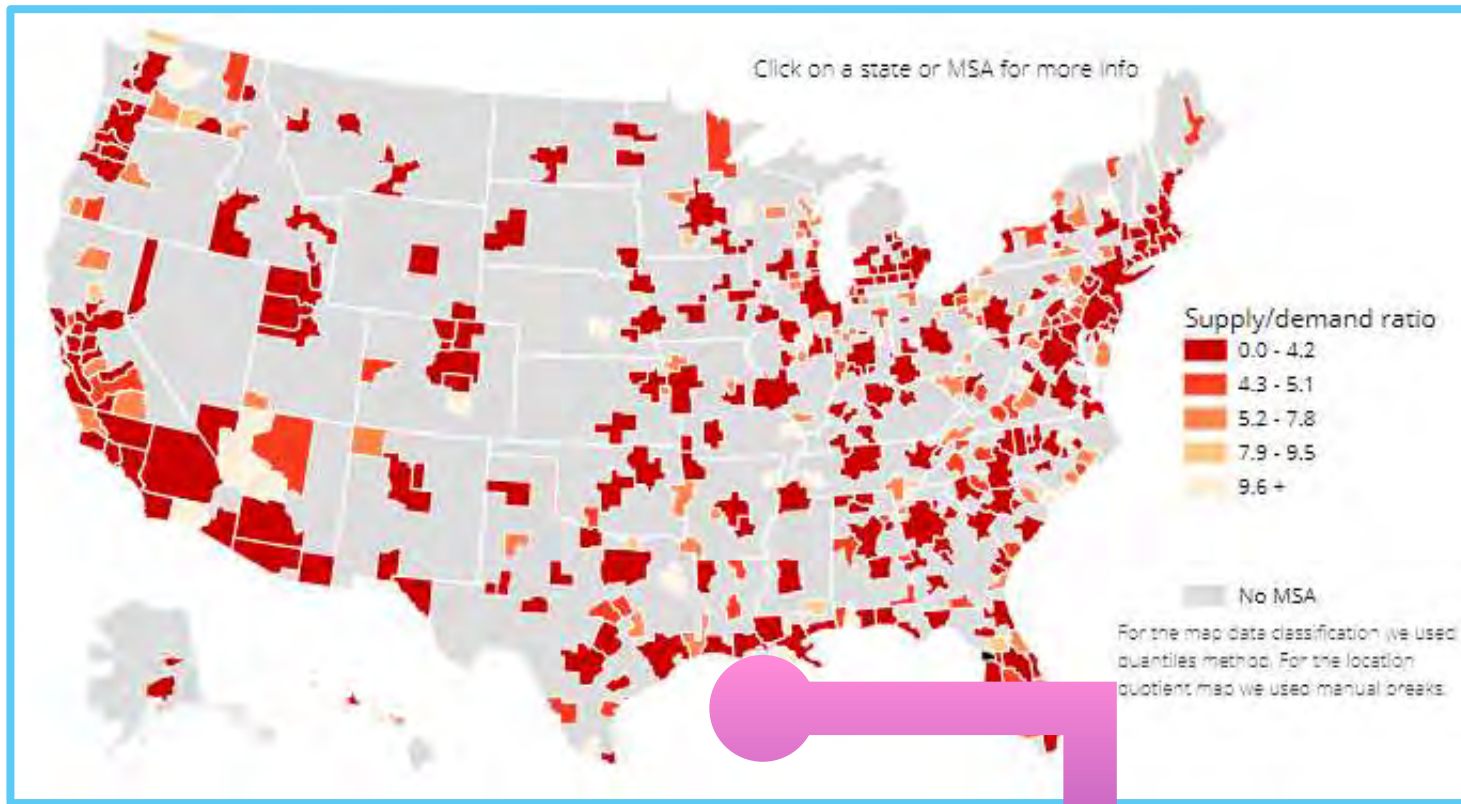
JOB OPENINGS BY NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORY ⓘ



Note: The Investigate category usually has fewer openings than other categories and may not be visible on the chart. To view data for the Investigate category, please hover over the thin line in the bottom right of the visualization.

CERTIFICATION HOLDERS / OPENINGS REQUESTING CERTIFICATION ⓘ





**76% of metro areas  
have significant supply  
shortages**

# Possible CyberSeek Enhancements

- Internationalization of CyberSeek
- Further integration with NICE Framework
- Information on local training programs
- Student completion data

# Forthcoming Burning Glass Insights Draw from CyberSeek Dataset

What factors are clogging the cybersecurity talent pipeline?

How does cybersecurity demand break out across industries?

How is automation impacting the cybersecurity workforce?





# CyberSeek

## Q+A:

The logo for CyberSeek features a stylized white location pin icon on the left, with the word "CyberSeek" in a white, sans-serif font to its right. A small "TM" trademark symbol is positioned at the top right of the word "Seek".

# CyberSeek<sup>TM</sup>

- Where: Exhibit Hall
- When: Wednesday, 9:30am – 10am

# Breakout Sessions


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Track # 1: Growing the Cybersecurity Workforce  
**Regency Ballroom**

Track # 2 : Expanding the Workforce through Diversity and Inclusion  
**Orchid CD**

Track # 3: Interdisciplinary and Cross Domain Education and  
Training  
**South Hall**

Track # 4: Talent Management and  
Workforce Development  
**Orchid AB**



# Innovations in Workforce Presentation Welcome

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**Randy Pestana**

Assistant Director of Research and  
Strategic Initiatives, Jack D. Gordon

Institute for Public Policy  
Florida International University  
*Conference Emcee*



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# Innovations in Workforce Presentation



**Ed Cabrera**  
Chief Cybersecurity Officer  
Trend Micro



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# Innovations in Cyber Workforce Development

Ed Cabrera, Chief Cybersecurity Officer





# Pace of Disruptive Technology

# Collaborate



# Innovate





# Educate

$$Q^2 = \int^3 (\frac{1}{a} + \frac{1}{a})$$

$$1+1^2 = ?(x+y^2) + \sin x - \cos,$$

$$(xz - 1y) (1+2-x)$$

$$(x+y)^2 = (\frac{x}{2})^2$$

$$= m2 \quad 1+1^2 = ?(x+y^2) + \sin x - \cos,$$

$$\infty = x^2 - z^1$$

$$\frac{mx}{z} = ?$$

Learning



$$1+1^2 = ?(x+y^2) + \sin x - \cos,$$
$$(xz - 1y) (1+2-x)$$

$$(x+y)^2 = (\frac{x}{2})^2$$
$$= m2 \quad 1+1^2 = ?(x+y^2) + \sin x - \cos,$$

$$\infty = x^2 - z^1 \quad \text{math}$$

$$\frac{mx}{z} = ?$$

$$\sin x + \cos x = ?$$



$$1x - 2y = (1a + 2a)^2 = \infty$$
$$(xz - 1y) (1+2-x)^1 = ?$$


education

$$(xz - 1y) (1+2-x)$$
$$1+1^2 = ?(x+y^2) + \sin x - \cos,$$

# Employ



# Thank You



# Networking Activity

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**Clarence Williams**

Lead for Government Engagement,  
National Initiative for Cyberscurity  
Education (NICE)

NICE



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# Breakout Sessions

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# Closing Keynote Welcome

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**William (Bill) Newhouse**  
Deputy Director of the National  
Initiative for Cybersecurity Education  
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# Closing Keynote

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**Raj Samani**  
Chief Scientist  
McAfee



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# Rihanna Changed my life

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T H E



F A C T O R

Inspiring a generation should be a combined effort of not just parents but also teachers and industry professionals like me. If it truly takes a village to raise a child, then the advent of social-technology has turned our village into a sprawling metropolis, shouldn't we look to use some of its inhabitants for their expertise?

SECRECY  
& SECURITY

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Keeping safe online



82%

Reported a shortage of cybersecurity skills.



71%

Believe the cybersecurity skills gap has a direct negative effect on their organization.



76%

Believe their government is not investing enough in cybersecurity talent.



One in three

Say a shortage of skills makes their organizations more desirable hacking targets.



One in four

Say their organizations have lost proprietary data as a result of their cybersecurity skills gap.

## 16:18 **'Carnage today': A dark verdict from London**

An anonymous NHS staffer tells us:

"Absolute carnage in the NHS today. Two Hyperacute stroke centres (the field I work in) in London have closed as of this afternoon. Patients will almost certainly suffer and die because of this.

"Had a patient that needed urgent neurosurgery referred, but unable to look at scans - stroke care is absolutely dependent on IT systems and joined up systems."

Hackers are getting smarter - so we need to get smarter



ANDY GREENBERG SECURITY 02.01.18 07:00 AM

# HACKERS HAVE ALREADY TARGETED THE WINTER OLYMPICS—AND MAY NOT BE DONE



# Innovation

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The malicious document launches a PowerShell script.

---

Script downloads and reads an image file from a remote location

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The attackers used the open-source tool Invoke-PSImage, released December 20, to embed the PowerShell script into the image file.



```
adv_s3.png is suspicious. Approximate amount of hidden data is 24787 bytes.
```



# A small history lesson



# **Fancy Bear: Russia-linked hackers blamed for exploiting Windows zero-day flaw**

Microsoft's advice is to upgrade to the latest version of Windows 10, of course



# FINFISHER SPYWARE

Suspected Government Users In 2015

Citizen Lab 2015

Bill Marczak, John Scott-Railton, Adam Senit, Irene Poetranto & Sarah McKune

# A global industry

## HACKING TEAM RCS

Suspected Government Users Worldwide

Citizen Lab 2014

Bill Marczak, Casicio Guzman, Morgan Marzulli-Boris & John Scott-Railton



### 21 SUSPECTED GOVERNMENT USERS

AMERICAS	EUROPE	MIDDLE EAST	AFRICA	ASIA
Mexico	Hungary	Turkey	Oman	Egypt
Colombia	Italy	Saudi Arabia	Ethiopia	Nigeria
Panama	Poland	UAE	Morocco	Sudan
				Azerbaijan
				Kazakhstan
				Malaysia
				Thailand
				South Korea
				Uzbekistan

### CAUSE FOR CONCERN



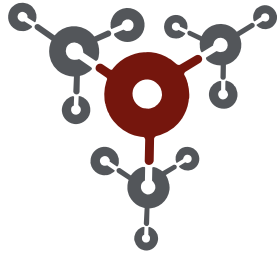
# Outsourcing Operations

We've seen an increase in nation-states contracting private companies to accomplish hacking operations and intelligence gathering. These groups operate with incredible sophistication, while enjoying a cloak of semi-protected "status" for their malicious activities.

Source: Cybereason

# Continuous Security Challenges

## Complexity



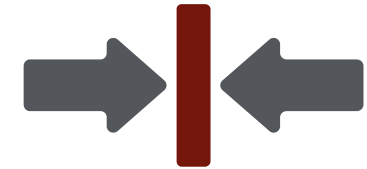
Threats are becoming more sophisticated and environments more complex

## MTTR



Mean Time to Detect and Respond

## Talent Shortage



Not enough skilled people in our Industry

# Fightback – still continues.....

## NO MORE RANSOM!

[Crypto Sheriff](#)

[Ransomware: Q&A](#)

[Prevention Advice](#)

[Decryption Tools](#)

[Report a Crime](#)

[About the Project](#)

**NEED HELP** unlocking your digital life  
without paying your attackers\*?

**YES**

**NO**

Ransomware is malware that locks your computer and mobile devices or encrypts your electronic files. When this happens, you can't get to the data unless you pay a ransom. However this is not guaranteed and you should never pay!



### GOOD NEWS

Prevention is possible. Following simple cyber security advice can help you to avoid becoming a victim of ransomware.



### BAD NEWS

Unfortunately, in many cases, once the ransomware has been released into your device there is little you can do unless you have a backup or security software in place.



### GOOD NEWS

Nevertheless, it is sometimes possible to help infected users to regain access to their encrypted files or locked systems, without having to pay. We have created a repository of keys and applications

## CoinVault

The National High  
Tech Crime Unit  
(NHTCU) of the



Netherlands' police, the Netherlands' National Prosecutors  
Office and Kaspersky Lab, have been working together to fight  
the CoinVault and Bitcryptor ransomware campaigns.

For more information please see this [how-to guide](#).

## RannohDecryptor

RannohDecryptor  
tool is designed to  
decrypt files  
encrypted by:



- Rannoh;
- Autolt;
- Fury;
- Crybola;
- Cryakl;
- CryptXXX versions 1 and 2 (files encrypted by Trojan-Ransom Win32.CryptXXX version 3 are detected, but not decrypted).

For more information please see this [how-to guide](#).

## RakhniDecryptor

## The Stats

Number of decryption tools: 52

Number of ransomware families we can decrypt with them: 84

Number of partners: 116 (including founding members, Barracuda and AWS)

- 37 LEA: new -> Germany BKA and Slovakia
- 79 non-LEA: new -> Security Advisor S.A., Equipo Antiransom, ML IT Security Pte Ltd and Temasoft

Number of languages supported: 28 (new ones -> Slovak and Persian)

Total number of unique visitors since its launch: more than 1,4 million



## Providing Opportunities

CyberFirst Adventurers (11 – 14yr olds + parents)

CyberFirst Girl Competition (Year 8 or S2)

CyberFirst Defenders Courses (15yr olds)

CyberFirst Futures Courses (16yr olds)

CyberFirst Advanced Courses (17yr olds)

CyberFirst Bursaries & degree Apprenticeship



**Bursaries:** 500 students  
awarded

**Apprenticeship:** 60  
apprentices employed (3  
from QinetiQ)

**Academy:** 100 students  
upskilled.

**Placements:** 59 in HMG

**2018 Employment:**  
13 Graduated, 12@GCHQ  
(2 NCSC, 9 CNE, 1 GTE)

**2019 Employment:**  
43 Graduating, 23@GCHQ

**NCSC Summer Courses:**  
2018, 24 courses, 1100  
free places across the  
four home nations.

**HMG Stakeholders:** 22 departments



Stay in touch

@Raj\_Samani



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Center of Academic  
Excellence in  
Cybersecurity  
Designation Ceremony  
Welcome

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**Randy Pestana**

Assistant Director of Research and  
Strategic Initiatives, Jack D. Gordon

Institute for Public Policy  
Florida International University  
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**Bradford Willke**  
Director (Acting) Stakeholder  
Engagement & Cyber Infrastructure  
Resilience, Office of Cybersecurity &  
Communications  
U.S. Department of Homeland Security



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Introduction

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**Latasha McCord**  
Cybersecurity Education & Awareness  
(CE&A) Branch's Program Manager  
U.S. Department of Homeland Security



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**Diane Janosek**  
NCS Deputy Commandant  
U.S. Department of Defense



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# Closing Remarks

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**Brian Fonseca**

Director, Jack D. Gordon Institute for Public Policy  
Florida International University



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# SAVE — THE — DATE

## NICE | Conference and Expo 2019

📍 Phoenix, Arizona

📅 November 4 - 6, 2019

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

Hosted by:

**FIU** FLORIDA  
INTERNATIONAL  
UNIVERSITY

 **NEW  
AMERICA**

# NICE

NATIONAL INITIATIVE FOR  
CYBERSECURITY EDUCATION

This event is supported by the National Initiative for Cybersecurity Education (NICE), a program of the National Institute of Standards and Technology in the U.S. Department of Commerce, under a Cooperative Agreement (Award #70NANB18H025).