



**CAE**  
IN CYBERSECURITY  
COMMUNITY

2025

# Addressing Critical Shortage of Cybersecurity Instructors

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# Introduction

- Cybersecurity threats vs. qualified cybersecurity workforce
  - **Sep 2024:** White House Cyber Initiative Aims to Fill 500,000 Open Cybersecurity Jobs
  - **ISC2's 2024 Cybersecurity Workforce Study:** Worldwide cybersecurity jobs (5.8 million) remained similar over the past year, but the shortage of workers (4.8 million) grew by 19%.
- **Quick question:** Which institutes have open cybersecurity positions? (*Hands-up please?*)
- *Let's discuss interactively.*

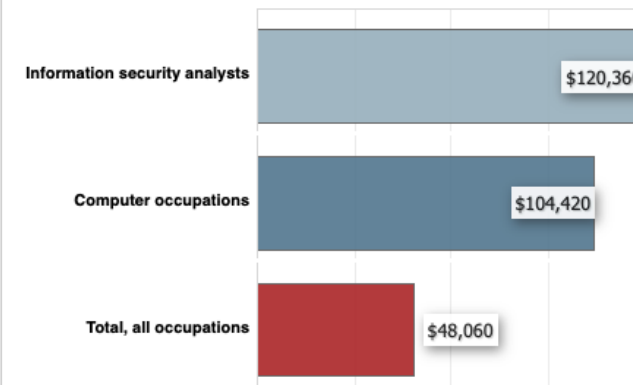
# 2025 CAE Community Symposium

## Introduction

- **Lack of workforce:**
  - Higher degree (especially PhD) graduates
  - Salary gap and disparity
  - Graduates with higher degrees may prefer industry rather than academia
- **Proposed strategic approaches**
  - (1) Transitioning professionals to academia.
  - (2) Empowering current instructors with advanced degrees.
  - (3) Increasing awareness in cybersecurity field.

### Information Security Analysts

Median annual wages, May 2023



Note: All Occupations includes all occupations in the U.S. Economy.  
Source: U.S. Bureau of Labor Statistics, Occupational Employment and Wage Statistics

### Cyber Security Salary



Cyber Security Salary Comparison by Location

Nationwide United States	\$132,962
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# Introduction

## Strategic Approaches

1. Transitioning professionals to academia.
2. Empowering current instructors with advanced degrees.
3. Increasing awareness in cybersecurity field.

## Instructor Candidates

1. Professors of Practice
2. Current community college instructors
3. Fresh (PhD) graduates



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## Professor of Practice (PoP)

- PoPs have **industrial experience**:
  - Invaluable industry experience and knowhow transfer into academia
  - How can we harness their expertise for academic purposes?
- Challenges:
  - A PhD degree: Some may not have a PhD degree, yet they are still interested in sharing their knowledge and expertise with students.
    - Some are even interested in getting a PhD degree.
    - Work/Education balance?
  - Federal agency collaboration:
    - Can we provide opportunities for federal employees (from FBI, NSA, and DHS) to pursue advanced degrees while maintaining their roles?
  - Senior people in industry: How can we recruit them?
  - Training in pedagogy for efficient information exchange.

# 2025 CAE Community College Instructors

- Community college instructors
  - Already teaching and have experience
  - PhD degree?
    - Many are interested in further professional advancement, research opportunities, intellectual challenge, broader career development, and advancing education in community.
    - Multiple challenges:
      - Moving to other cities/states for a PhD? → They may not be able to relocate because of their families or jobs.
      - Balancing work and PhD pursuits.
- Helping community college instructors by offering courses in the current and upcoming technologies
  - e.g., cloud computing, IoT, blockchain.

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## Fresh PhD Graduates

- How can we motivate fresh PhD graduates to teach?
  - Salary gap
  - Relocation requirements
  - Collaboration with industry/business and federal agencies
  - Mentoring for success in teaching and research.

Community Symposium

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## Other Challenges

- Specialized training for diverse industries:
  - Preparing instructors to train the next-generation workforce in different sectors including but not limited to gas, finance, healthcare, airlines, and automotive.
- Diversity and inclusion in cybersecurity education:
  - How about developing skilled instructors, particularly women and minorities, for future academic roles?
- Effectiveness Evaluation?:
  - Assessment/evaluation & continuous improvement & suggest curriculum improvements.





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## Action Items

(Interactive  
Discussion)

- Concerns & Suggestions?
- PhD Matchmaking
- Resources

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The background of the slide is a photograph of a city street. In the foreground, there are several tall palm trees with green fronds. Behind them, there are colorful buildings in shades of yellow, blue, and white. In the far background, a church with a tall, white steeple is visible against a clear blue sky. A large, semi-transparent blue rectangle is overlaid on the left side of the image, containing the main text.

# Thank you for attending Addressing Critical Shortage of Cybersecurity Instructors

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