



 **CAE**
IN CYBERSECURITY
COMMUNITY

Symposium

Louisville Kentucky USA

April 16-19, 2024

2024

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Symposium

Why are we here?

We must democratize cybersecurity!

ID#: W1082024

Via : *Democratic Cybersecurity, Pervasive Computing,
and CAE Schools*

Jen Whiting, CIRI/University of Illinois

Adel Elmaghraby, Speed Scientific School, University of Louisville

Andrew Wright, School of Business, University of Louisville

Michael Losavio, College of Arts and Sciences, University of Louisville,
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With Sharon Kerrick, Jeffrey Sun and Adrian Lauf, University of Louisville

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NOTA BENE!

- Jen Whiting & Bill Cope, CIRI/University of Illinois
- Adel Elmaghraby and Adrian Lauf, Computer Science and Engineering
- Michael Losavio, Criminal Justice
- Sharon Kerrick, Jeffrey Sun- ELEOD – College of Education
- Andrew Wright – School of Business MIS

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And with our
projects

- Many Others!
- University of North Florida
- University of Arkansas
- Etc...

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2024 CAE Abstract

- Pervasive and ubiquitous computing, especially with the Internet of Things and the Smart City, offer novel means of criminality.
- Current forms of investigation and discovery are insufficient. Cybersecurity approaches within criminal justice, criminology, and workforce development offer models to combat cybersecurity harms.
- Yet they have been largely overlooked.
- An interdisciplinary lens is needed for cybersecurity, including criminal justice and workforce development integration and employing empowerment theory.
- We demonstrate the effects from integrating cybersecurity and forensic practices into traditional law enforcement and other disciplines.
- The effects are positive as public safety will be needed to provide public safety and security in our hybrid technical world.

WE MUST!

We must “democratize” cybersecurity through its distributed availability.

We present means to achieve this and results from efforts to promote this integration through several coordinated, yet differently targeted programs.

Implementation by universities is needed.

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- Cybersecurity, like public security, is a ***physical-technical-social & behavioral*** domain.
- Current forms of investigation and discovery are insufficient to limit damages from cyberattacks
- An interdisciplinary approach to cybersecurity will significantly benefit efforts to address public cybersecurity harms
- **an interdisciplinary lens to address cybersecurity, including criminal justice and workforce development integration and employing empowerment theory.**
- **AND, YES, THERE IS SOMETHING IN THIS FOR YOU!!!**
 - *So please share your thoughts!*



TARGETED DEMOCRACY?- WHAT IS MISSING?

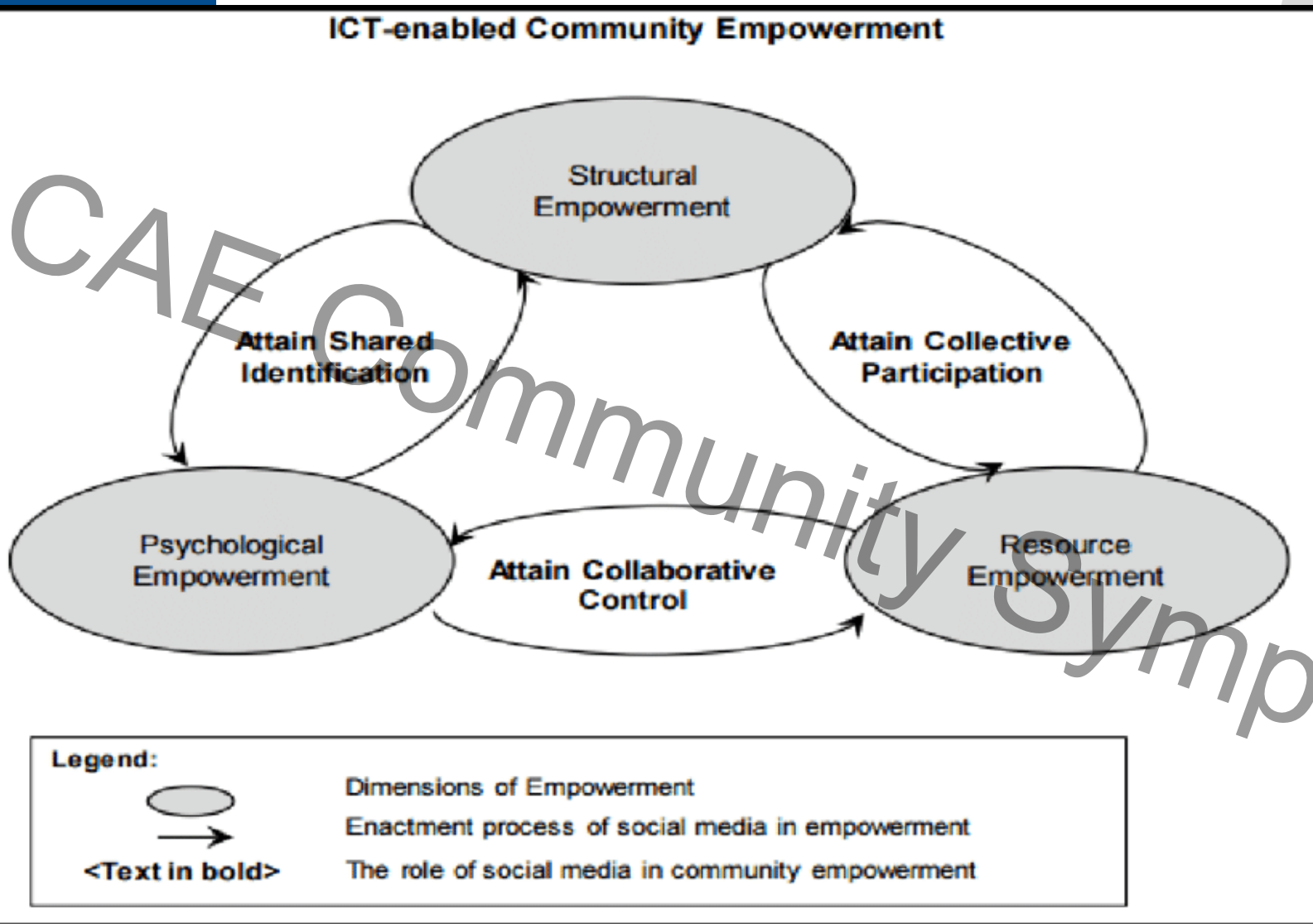


CONSIDER...

Military, Military Families, Veterans	190
First Responders/ Healthcare	200
State and Local Law Enforcement	300
High School Teachers	30 (waiting list > 150)
College faculty, staff, students (UofL + Coalition Partners, including four MSI)	
Underserved communities	>650

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NATIONAL CENTERS OF ACADEMIC EXCELLENCE CYBERSECURITY IN HEALTHCARE



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Sharon Kerrick,
Andrew Wright
Adel Elmaghraby

- Tests the use of online, mentored training
- 3 levels of depth:
 - Explorer
 - Practitioner
 - Professional
- Healthcare Cybersecurity Certificate



CYBER WORKFORCE DEVELOPMENT PROGRAM



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- Consisted of 5 modules
 - Law and Practice
 - Infrastructure Technology
 - Network Security
 - Information Security
 - Computer Forensics
- 111 participants originally enrolled from at least 18 different law enforcement occupations and 17 different states
- 32 participants completed all 5 modules
- 10 participants received scholarships and completed a Graduate Cybersecurity Certificate

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U.S. DEPARTMENT OF DEFENSE TRAINING

JEFF SUN



Objectives:

- Enable functions to shape, set, and administer cybersecurity program for military-connected participants;
 - Execute research-based cybersecurity educational pathways;
 - Empower employment search success; and
 - Grow, scale, and sustain program outcomes
- 3 phases beginning in October 2019 and ending in March 2022
 - Target participants: transitioning military service members, veterans, and dependents
 - Desired result: increased cybersecurity opportunities for Kentucky, specifically those wishing to work in these fields
 - Cybersecurity, Certifications, Careers, and Communities

NSA 2017

- Cybersecurity for State and Local Law Enforcement

- Cybersecurity Teaching and Training Testbed-
Adrian Lauf

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U.S. DEPARTMENT OF HOMELAND SECURITY 2022 LAW

ENFORCEMENT CYBERSECURITY PROJECT



• Goals:

- Increase pool of cybersecurity professionals in multiple domains through identification, recruitment, and training of practitioners and students;
 - Integrate criminal justice systems and practices into cybersecurity; and
 - Advise local law enforcement on effective ways to respond, advise, and arrest
- Online program includes 5 courses that cover IT basics, legal issues, network security, information security, and computer forensics
 - 171 participants from a variety of ranks
 - 32 states represented
 - Registration interest as widespread as Nigeria and Beirut
 - *See also Routine Activity Theory, Opportunity Theory, Displacement Theory in criminology*

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NATIONAL CYBERSECURITY TEACHING ACADEMY

ADEL ELMAGHRABY



- Three regional coalitions to provide High School Teachers with fellowships for enrollment in Graduate Cybersecurity Certificates.
- The coalitions are for the Southwest, Midwest, and Southeast with lead institutions as UALR, DePaul, and UofL.
- Recruitment yielded approximately 400 applicants with 30 offered fellowships at each regional coalitions (90 total).

OUR THOUGHTS



- Diversity of skills, backgrounds, positions, and education in participants of these programs exhibits a broad interest in cybersecurity
- Participants' willingness to add additional workloads of cybersecurity education demonstrates commitment to learn and enhance skills
- This is cybersecurity for our highly distributed, open democracy

ADD VIA CHAT...

**POST YOUR HIGHEST PRIORITY OF THESE,
OR ANY OTHERS?**

- Transferability?
- Funding?
- Interagency/intergroup/interdisciplinary Collabs? (*are we dreaming?*)
- Things we've not thought of...

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CRITICAL INFRASTRUCTURE RESILIENCE INSTITUTE, UNIVERSITY OF ILLINOIS

DHS NATIONAL CENTER OF EXCELLENCE

- Function

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How Will We Do
This?

- *Your thoughts, plans and schemes?*

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- Thank you all