UTSA Cyber Security Ecosystem

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World-Leading Research with Real-World Impact!
Cyber Security at UTSA

A strategic priority since 2000

ACADEMIC UNITS
- College of Sciences
- College of Business
- College of Engineering
- College of Liberal and Fine Arts
- College of Education and Human Development
- School of Data Science

RESEARCH CENTERS
- Institute for Cyber Security
- Center for Infrastructure Assurance and Security
- Cyber Center for Security and Analytics
- Open Cloud Institute
- National Security Collaboration Center

NSA/DHS CERTIFICATIONS
- Center of Academic Excellence in Cyber Defense Education
- Center of Academic Excellence in Cyber Defense Research
- Center of Academic Excellence in Cyber Operations

http://www.utsa.edu/spotlights/cybersecurity/
MISSION
Sustained excellence in graduate-level sponsored research

2007-2012
Founded by start-up funding from State of Texas

2012-2017
Graduated to a self-sustaining operation

2017-2022
Major expansion by winning NSF C-SPECC grant

Situated in the College of Sciences, Department of Computer Science
Established world class laboratories for:
Secure cloud computing
Malware research

In collaboration with:
College of Engineering
College of Business
College of Education
Open Cloud Institute
Cyber Center for Security & Analytics
Partnership with 4 NISD High Schools:
Harlan, Woodson, Taft, Business Careers
The cyber-elephant problem requires Applied and Basic research Combined (ABC)
* The New ABCs of Research, Ben Schneiderman, 2016
Cyber Security Landscape

Objectives

Enable

Enforce

What?

POLICY

Why?

ATTACKS

Respond

Defend

How?

Mechanisms

PROTECT

Detect

Complement

World-Leading Research with Real-World Impact!
Divide and Conquer
Develop point solutions to point problems

Compose and Compensate
Build system level solutions from smaller component solutions

Bright
Shiny
Objects

Hard
Unapproachable
Problems
Applied and Basic Research Combined (ABC)

- Software:
  Waterfall -> Agile and DevOps

- Security:
  Waterfall -> ???

- Tech transfer:
  Technology Readiness Levels (TRLs) -> ???

* The New ABCs of Research by Ben Schneiderman, 2016
ICS Major Research Thrusts

TECHNOLOGIES
- Access Control
- Policy
- Malware
- Detection and Forensics
- Blockchain
- Artificial Intelligence/Machine Learning
- ....

APPLICATION DOMAINS
- Cloud Computing
- Internet of Things (IoT)
- Social Networks
- Big Data
- Mobile Platforms
- Enterprise
- ....

Goal: Broaden and Deepen