Institute for Cyber Security:
Research Vision

Ravi Sandhu
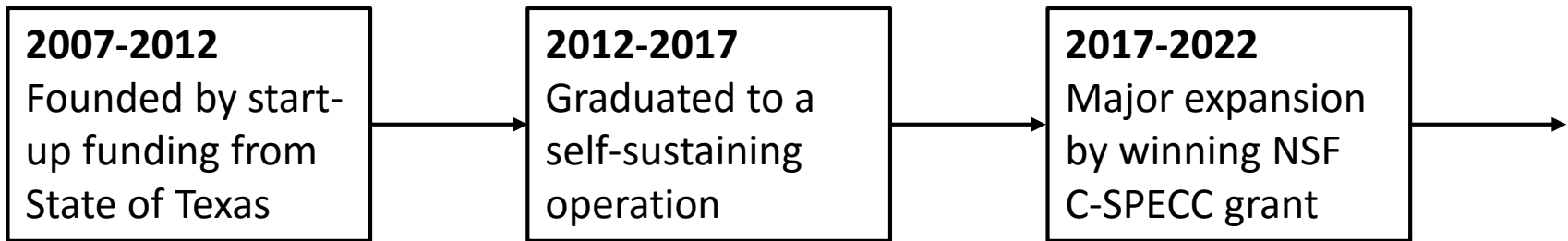### Executive Director and Chief Scientist

Professor of Computer Science
Lutcher Brown Chair in Cyber Security

ravi.sandhu@utsa.edu
www.ics.utsa.edu
www.cspecc.utsa.edu
www.profsandhu.com

I·C·S
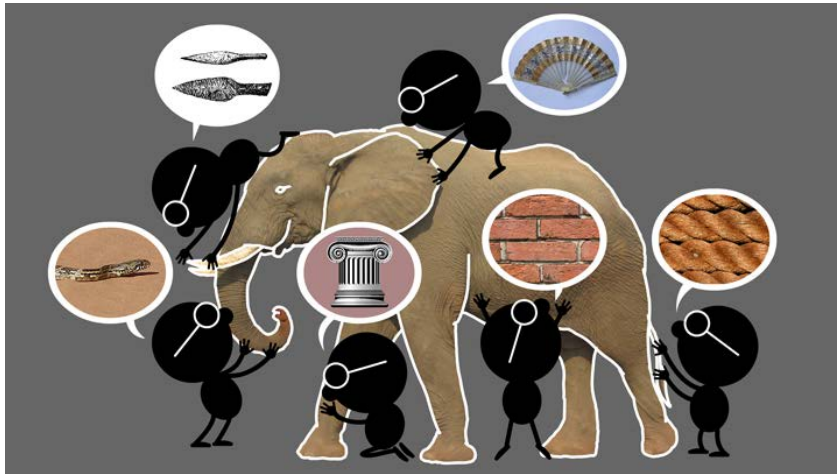The Institute for Cyber Security

C·SPECC
Center for Security and Privacy
Enhanced Cloud Computing

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 Science, Department of Computer Science
➤ Established world class laboratories for: Secure cloud computing and 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

World-Leading Research with Real-World Impact!

UTSA Computer Science

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Elephant Problem

Cyber-Elephant Problem

The cyber-elephant problem requires Applied and Basic research Combined (ABC)
  * The New ABCs of Research, Ben Schneiderman, 2016

World-Leading Research with Real-World Impact!

UTSA Computer Science

ICS Major Research Areas

TECHNOLOGIES

➢ Access Control

➢ Policy

➢ Malware

➢ Detection and Forensics

➢ Security Dynamics

APPLICATION DOMAINS

➢ Cloud Computing

➢ Internet of Things (IoT)

➢ Social Networks

➢ Enterprise

Goal: Broaden and Deepen

World-Leading Research with Real-World Impact!

Cyber Security Landscape

Objectives

POLICY   ATTACKS

Enable   What?   Why?   Respond

Enforce   Defend

How?

Mechanisms   P R O T E C T   Complement   D E T E C T

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

World-Leading Research with Real-World Impact!