Institute for Cyber Security: Research Vision

Ravi Sandhu
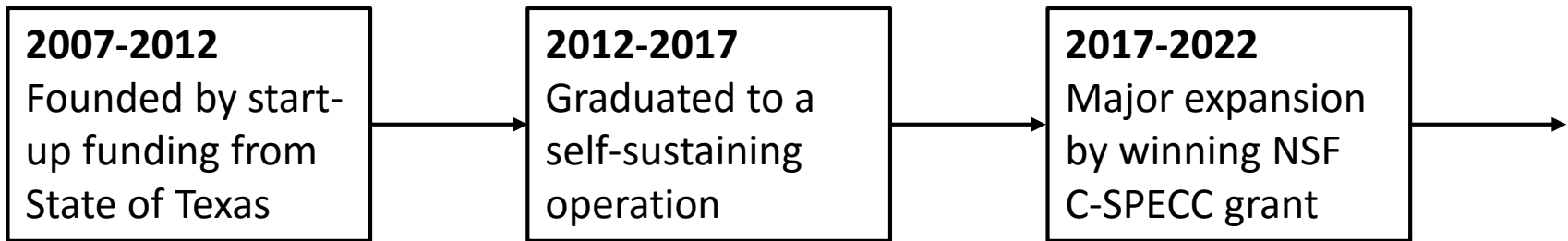### Executive Director and Chief Scientist

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Lutcher Brown Chair in Cyber Security

NSA-UTSA Partnership Briefing
October 27, 2017

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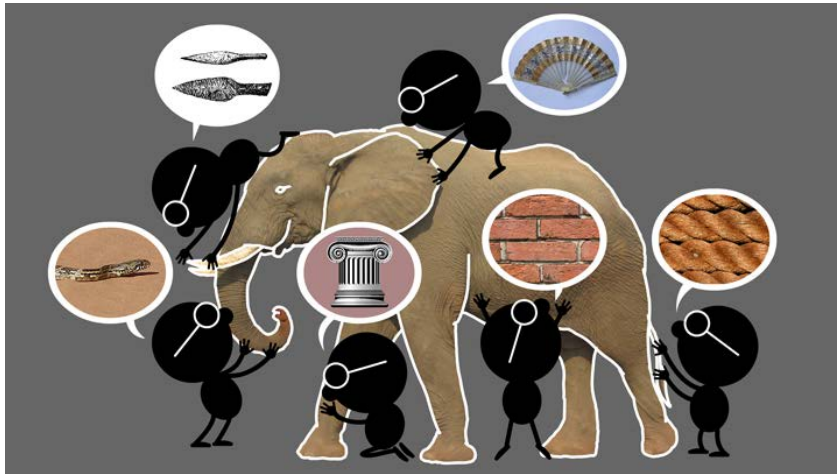www.ics.utsa.edu
www.cspecc.utsa.edu
www.profsandhu.com

ICS — 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

World-Leading Research with Real-World Impact!

UTSA Computer Science

ICS
The Institute for Cyber Security

C·SPECC
Center for Security and Privacy
Enhanced Cloud Computing

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!

UTSA Computer Science

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!

Research Approaches

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!