UTSA's New Center

Center for Security and Privacy Enhanced Cloud Computing (C-SPECC)

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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

In collaboration with:
College of Science
College of Engineering
College of Business
College of Education and Human Development
Open Cloud Institute
Cyber Center for Security & Analytics
The Cyber-Elephant Problem
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 Areas

TECHNOLOGIES
- Access Control
- Policy
- Malware
- Detection and Forensics
- Security Dynamics

APPLICATION DOMAINS
- Cloud Computing
- Internet of Things (IoT)
- Social Networks
- Enterprise

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NIST Cloud Computing 3-4-5 Definition

5 Essential Characteristics

- On-demand self service
- Broad network access
- Resource pooling (multi-tenant)
- Rapid elasticity
- Measured service

3 Service Models

- Software as a Service (SaaS)
- Platform as a Service (PaaS)
- Infrastructure as a Service (IaaS)

4 Deployment Models

- Public
- Private
- Community
- Hybrid/Multi

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Cyber Security Landscape

Objectives

POLICY
ATTACKS

Enable
Enforce

What?

Why?

Respond
Defend

How?

Complement

Mechanisms

PROTECT

DETECT

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World-Leading Research with Real-World Impact!
Cyber Security Landscape

- Policy
  - Synergy Integration
    - Enforcement: Protection
    - Enablement: Detection
    - Complement

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C-SPECC Overview

C-SPECC Management
PI: Ravi Sandhu (Director and Chief Scientist)
Participants: 4 Co-PIs + 1 Lead

Education and Outreach Initiatives (E&O)
Co-PI: Guadalupe Carmona
Participants: Elizabeth Pate, Ravi Sandhu

Sub-Project 1
Protection
Access Control
Private Computing
Protected Computing
Co-PI: Ram Krishnan
Participants: Shouhuai Xu
Meng Yu
Ravi Sandhu

Sub-Project 2
Detection
System Monitoring
Host Monitoring
Cloud Forensics
Co-PI: Nicole Beebe
Participants: Raymond Choo
Ram Krishnan
Palden Lama
Ravi Sandhu

Sub-Project 3
Policy
Policy Specification
Policy Composition
Policy Verification
Lead: Jianwei Niu
Participants: Nicole Beebe
Ram Krishnan
Meng Yu
Ravi Sandhu

Multi-Cloud Laboratory (MCL)
Co-PI: John Prevost
Participants: Yusheng Feng, Ravi Sandhu

Partners
Industry
Rackspace
John Engates
Chief Technology Officer

Industry
NSS Labs
Jason Brvenik
Chief Technology Officer

High Schools
NISD
Anthony Jarrett
Executive Director of High School Instruction

Federal
NIST
Matthew Scholl
Chief, Computer Security Division

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i. Achieve national recognition for research, innovation and education in secure cloud computing

ii. Increase participation of underrepresented groups in high tech computing

iii. Pursue innovative research-based educational strategies for high school through doctoral level
C-SPECC Scholarships

C-SPECC MS & PhD RESEARCH SCHOLARSHIPS AVAILABLE

Interested in
Security and Privacy Enhanced Cloud Computing?
Scholarships are now available

Scholarships will provide tuition, fees, and/or stipends for research assistantships with C-SPECC faculty.

Interested students must meet the following criteria:
- Be classified as a U.S. citizen or permanent resident.
- Be enrolled full-time as a UTSA PhD graduate student or a masters student with interest in pursuing a PhD in Computer Science (CS), Electrical & Computer Engineering (ECE), or Information Systems & Cyber Security (ISCS).

Not a graduate student
- Limited scholarships available for Junior and Senior undergraduates interested in continuing their education towards graduate degrees.

Email REQUIRED documents to Suzanne.Tanaka@UTSA.edu:
- Your Letter of Interest with related experience, and employment commitment.
- Your unofficial transcripts from MyUTSA/ASAP.
- Your Resume/Curriculum Vitae, and
- A Letter of Recommendation from a C-SPECC faculty member in CS, ECE, or ISCS.

Direct questions to
Suzanne.Tanaka@UTSA.edu

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