

Srujan Kotikela

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RESEARCH INTERESTS

Systems Security	Artificial Intelligence
Confidential Computing	Robust Machine Learning
Decentralized Identity and Privacy	Knowledge Representation and Reasoning

EDUCATION

University of North Texas, Denton, Texas, USA
Ph.D. in Computer Science and Engineering August 2018
Advisors: Krishna Kavi, Mahadevan Gomathisankaran

Master of Science in Computer Science December 2014
Advisor: Mahadevan Gomathisankaran

Jawaharlal Nehru Technological University, Hyderabad, India
Bachelor of Technology in Computer Science and Engineering May 2008

TEACHING

CSCI 233 Application Program Development	CSCI 415 GLB/Ethics, Law & Cybersecurity
CSCI 303 Technical Communication	CSCI 428 Object Oriented Design
CSCI 324 Software Engineering	CSCI 430 Introduction to Operating Systems
CSCI 340 Introduction to Database	CSCI 450 Computer Architecture
CSCI 345 Data Security & Privacy	CSCI 489 Independent Study
CSCI 360 Cryptography	CSCI 573 Big Data Computing and Analytics
CSCI 380 Web Programming and Interface	

WORK EXPERIENCE

Assistant Professor Texas A&M-Commerce/RELLIS
August 2019 - Present Bryan TX
Developing and delivering Computer Science courses for junior, senior, and graduate level classes. Participating in departmental and university committees as necessary. Conducting novel research in the areas of Computer Security, Decentralized Identity & Privacy, and Artificial Intelligence.

Senior Software Engineer Qualys, Inc.
March 2018 - August 2019 Foster City CA
Built containerized gateway platform to deliver security services in an efficient and effective manner. Researched and developed new innovative security solutions using *Linux containers* and *hardware virtualization*. Involved with design, development, and testing applications to overcome challenges in building distributed systems using containers and other virtualization technologies.

Senior Security Research Engineer Qualys, Inc.
August 2016 - March 2018 Foster City CA
Developed the next generation dynamic malware analysis sandbox solution which thwarts many malware evasion techniques. Using modern hardware *virtualization technologies*, engineered a completely agent-less dynamic malware analysis sandbox solution to trace the malware execution. Contributed to the research, analysis, design, and development of the sandbox platform.

Senior Security Scientist

May 2015 - May 2016

Armor Defense Inc.

Richardson TX

As a member of the R&D team, developed patents for detecting malware activity using *virtual machine introspection*. Developed various tools and processes for the Security Operations Center (SOC). Designed and developed a collective threat intelligence framework using big-data framework. Oversaw *requirements analysis* for a new security orchestration product. Conducted stakeholder interviews and facilitated extensive discussion across various teams.

Research Assistant

Sep 2012 - Apr 2015

University of North Texas

Denton TX

Designed and built Race-free on-demand integrity measurement (Radium) architecture. Radium provides a trustworthy mechanism to remotely verify the integrity of a cloud workload. Radium uses *LibVMI* virtual machine introspection library and *Volatility* memory forensics framework. Designed and built *ontology* based *vulnerability assessment* framework for cloud computing (Vulcan). Vulcan allows to model the cloud infrastructure in a simple fashion and performs efficient assessments.

Teaching Assistant

Sep 2012 - Dec 2013

University of North Texas

Denton TX

Worked as teaching assistant for various *graduate and undergraduate courses*. Notably, Introduction to Computer Security and Information Assurance Systems. Prepared virtualization based *lab and hands-on assignments* for various security courses. Prepared lab manuals with detailed steps for using virtual labs. Helped in preparation and evaluation of assignments, tests, and projects.

Software Engineer

Feb 2012 - Aug 2012

Fidelity Investments

Westlake TX

Member of CoreOps, worked with the Service Manager and AlarmPoint teams. During the AlarmPoint *migration to Linux* from Unix, responsible for converting ksh based shell scripts to bash. Tested and debugged AlarmPoint compatibility with bash scripts. Updated and maintained team website for Service Manager team and won "*On the Spot*" award.

Research Assistant

Sep 2010 - Jan 2012

University of North Texas

Denton TX

Created a framework to implement hardware security architectures in the hypervisor. The framework can be used for testing and implementing hardware architectures in virtualized environments like Cloud. Implemented *new hypercalls, user-level (ring-3) to hypervisor hypercalls*, DomU to Dom0 communication through hypercalls and VIRQs. Created Linux kernel modules and implemented system calls. Created an Ontology for National Vulnerability Database (NVD) and developed *Ontological Vulnerability Database (OVDB)*. Developed an automated vulnerability assessment tool using SCAP protocol and OVDB.

Associate Educator

Jun 2008 - July 2010

Infosys Technologies Ltd.

Mysore, India

Trained employees of Infosys in variety of computer science and engineering topics such as: Object Oriented Programming (OOP), RDBMS, web technologies, analyzing, designing, and development of *enterprise applications using JEE technology*. Deploying and maintaining applications on Tomcat/JBOSS servers was taught on both Windows and UNIX/Linux platforms. Prepared training material, assessments, conducted classroom training, and provided assistance to students during lab sessions. Conducted *remote training* sessions on building enterprise applications and infrastructure monitoring.

ACADEMIC SERVICE

Cybersecurity program curriculum development and **ABET** certification
TAMUC Cybersecurity Undergraduate **Curriculum Committee** Member
Thesis advisor for the Honors Scholar at TAMUC Computer Science Department
Faculty Advisor for the Students' Technology And Computing Club (STACC)
Texas A&M University-Commerce **Export Control** Committee Member
Faculty member and researcher for the **RELLIS Cyber Alliance**
Faculty Fellow at the **Texas A&M Cyber Security Center**

PROFESSIONAL SERVICE

National Science Foundation (NSF) **SBIR/STTR Grants** - Panel Member
OASIS **Threat Actor Context** (TAC) - Technical Advisory Board Member
OASIS **Cyber Threat Intelligence** (CTI) - Technical Advisory Board Member
Special issue on Cloud Computing for **MDPI Computation Journal** - Guest Editor
National CyberWatch Center **Cybersecurity Skills Journal** - Program Committee Member
Journal of **Forensic and Investigative Accounting** - Editorial Advisory Board Member
Computers & Security Open Access Journal, Elsevier Ltd. - Review Committee Member
Advances in Science, Technology and Engineering Systems Journal (**ASTESJ**) - Reviewer
Computer and Information Science Journal, Canadian Center of Sci. & Edu. - Reviewer

EXTERNAL REVIEWS

- [1] Cybersecurity Risk Disclosure Quality: Does It Affect The Cost Of Debt? (2022) for Journal of Forensic and Investigative Accounting.
- [2] Cybersecurity Out-of-School Time Activities Impact on Broadening Student Participation and Interest (2021) for Cybersecurity Skills Journal by the National CyberWatch Center.
- [3] Cybersecurity and Data Privacy: The Rising Expectations Within Internal Audit (2021) for Journal of Forensic and Investigative Accounting.
- [4] Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Grants Panel (2020) for National Science Foundation (NSF).
- [5] Address Anonymity And Data Security In Multi-hop Multicast Wireless Sensor Networks by *Chitra R.* (2020), Visvesvaraya Technological University, Belagavi, PhD Dissertation.
- [6] Forging a Partnership Between Education and Industry: Why We Should Create Research Based Curriculum in Public Education that Aligns with Cybersecurity Industry Job Requirements (2020) for Cybersecurity Skills Journal by the National CyberWatch Center
- [7] The focus of Cybersecurity Education and the NICE Framework: A professions based model (2020) for Cybersecurity Skills Journal by the National CyberWatch Center

PATENTS

- [1] Schilling, J. R.; Cunningham, C. C.; Shah, T. M.; **Kotikela, S. D.** Detecting Malicious Instructions in a Virtual Machine Memory, US 15/169,230
- [2] Schilling, J. R.; Cunningham, C. C.; Shah, T. M.; **Kotikela, S. D.** Detecting Malicious Instructions on a Virtual Machine, US 10/210,324
- [3] Schilling, J. R.; Cunningham, C. C.; Shah, T. M.; **Kotikela, S. D.** Detecting Malicious Instructions on a Virtual Machine Using Profiling, US 10/255,432
- [4] Schilling, J. R.; Cunningham, C. C.; Shah, T. M.; **Kotikela, S. D.** Extracting and Detecting Malicious Instructions on a Virtual Machine, US 10/210,325
- [5] Schilling, J. R.; Cunningham, C. C.; Shah, T. M.; **Kotikela, S. D.** Extracting Malicious Instructions on a Virtual Machine, US 15/169,248
- [6] Schilling, J. R.; Cunningham, C. C.; Shah, T. M.; **Kotikela, S. D.** Extracting malicious instructions on a Virtual Machine in a network environment, US 10/157,276

PUBLICATIONS

- [1] August Worden, Ian McCloskey, Greg Jones, **Srujan Kotikela** (2021) Comparison of Semantic Web And Distributed Ledger Approaches To Decentralized Identity In: The 2021 International Conference on Security & Management (SAM 2021) Springer Nature.
- [2] **Srujan Kotikela** (2021) Invited Column: Cybersecurity challenges and opportunities in Oil, Gas, and Energy In: Oil, Gas & Energy Quarterly Journal, Volume 70, Issue 1
- [3] **Srujan Kotikela** (2018) Secure and Trusted Execution for Virtualization Workloads, UNT Dissertation Computer Science and Engineering, Denton, Texas.
- [4] **Srujan Kotikela**, Tawfiq Shah, Mahadevan Gomathisankaran, Gelareh Taban (2015) Radium: Race-free On-demand Integrity Measurement Architecture In: International Conference on Privacy, Security, Risk and Trust (PASSAT) ASE.
- [5] Patrick Kamongi, **Srujan Kotikela**, Mahadevan Gomathisankaran, Krishna Kavi (2013) A methodology for ranking cloud system vulnerabilities In: 2013 Fourth International Conference on Computing, Communications and Networking Technologies (ICCCNT),1-6.

- [6] Patrick Kamongi, **Srujan Kotikela**, Krishna Kavi, Mahadevan Gomathisankaran, Anoop Singhal (2013) VULCAN : Vulnerability Assessment Framework for Cloud Computing In: 2013 IEEE 7th International Conference on Software Security and Reliability (SERE), 218-226.
- [7] Satyaajeet Nimgaonkar, **Srujan Kotikela**, Mahadevan Gomathisankaran (2012) CTrust : A framework for Secure and Trustworthy application execution in Cloud computing Academy of Science and Engineering (ASE) Science Journal 1: 4. 152-165.
- [8] **Srujan Kotikela**, Krishna Kavi, Mahadevan Gomathisankaran (2012) Vulnerability Assessment in Cloud Computing In: The 2012 International Conference on Security & Management (SAM 2012) 67-73 CSREA Press.
- [9] Satyaajeet Nimgaonkar, **Srujan Kotikela**, Mahadevan Gomathisankaran (2012) CTrust : A Framework for Secure and Trustworthy Application Execution in Cloud Computing In: 2012 International Conference on Cyber Security (CyberSecurity), 24-31.
- [10] **Srujan Kotikela**, Satyaajeet Nimgaonkar, Mahadevan Gomathisankaran (2011) Virtualization Based Secure Execution and Testing Framework In: 7th International Association of Science and Technology for Development (IASTED) Parallel and Distributed Computing Systems, Secretariat, B6, Suite 101, 2509 Dieppe Ave. SW, Calgary, AB, Canada T3E 7J9: ACTA PRESS.

PRESENTATIONS

- [1] **Srujan Kotikela** (2021) Root of Trust for Decentralized Identity In: Five-Day International Short Term Training Program (STTP) On Blockchain for Digital Transformation.
- [2] **Srujan Kotikela**, Bin Mai (2020) Technology For Emergency Management In Educational Institutions In: 2nd Annual Disaster Management Symposium.
- [3] **Srujan Kotikela**, Tawfiq Shah, Mahadevan Gomathisankaran, Gelareh Taban (2015) Radium: Race-free On-demand Integrity Measurement Architecture In: International Conference on Privacy, Security, Risk and Trust (PASSAT) ASE.
- [4] **Srujan Kotikela**, Mahadevan Gomathisankaran (2013) Privacy Against Unlawful Surveillance (PRIUS) In: Annual Computer Security Applications Conference (ACSAC), New Orleans, Louisiana.
- [5] **Srujan Kotikela**, Satyaajeet Nimgaonkar, Mahadevan Gomathisankaran (2011) : Virtualization Based Security Framework (vBASE) In: Annual Computer Security Applications Conference (ACSAC), Orlando, Florida.

TECHNICAL SKILLS

Systems Development: Assembly, C, Go; Intel: TXT, VT-x, VT-d.
Software Development: Python, Java, Agile methodologies.
Web Development: HTML5, CSS3, JavaScript, Bootstrap, React.
Courses Development: D2L, Blackboard, Moodle, MS Office.
Cloud Computing: OpenStack, Xen, Citrix, Docker.

AWARDS & HONORS

Blackhat USA **student scholarship** award for the years 2014, 2015.
Annual Computer Security Applications Conference **student conferenceship** award.
1st place in **digital forensics** workshop by Sandia National Labs at ACSAC 2013.
3rd place in South West **Collegiate Cyber Defense** (CCDC) Competition.
18th place in **National Cyber League** (NCL) Midwestern Gold Brackets.

MEMBERSHIPS

Institute of Electrical and Electronics Engineers (**IEEE**) - **Professional Member**.
Association for Computing Machinery (**ACM**) - **Professional Member**.
Phi Kappa Phi (PKP) honor society (**top 10%** graduate students).
Founder and President of Club for Cyber Security and Intelligence (CCSI).
Vice President of **Collegiate Entrepreneurship** Organization (CEO).