
PROFESSIONAL SUMMARY

Experienced cybersecurity researcher and engineer with a solid foundation in secure backend and web application development using Java, Python, and JavaScript. Initially contributed impactful SCADA/ICS security research (2016–2018), resulting in well-cited publications and novel forensic tools. After strengthening my expertise in system modernization, CI/CD pipelines, and containerized deployments, I have re-engaged with academic research, collaborating with university teams on mobile authentication vulnerabilities and social engineering threat detection.

Currently working with Dr. Phani Vadrevu (LSU) on exposing weaknesses in mobile Single Sign-On (SSO) authentication workflows and reviewing platform security standards. In parallel, contributing to a Georgia Tech research initiative with Dr. Roberto Perdisci's lab focused on developing large-scale detection methods for malicious ad-driven social engineering attacks. These efforts directly support U.S. national cybersecurity priorities in protecting mobile ecosystems and public-facing digital platforms.

My work integrates academic rigor with practical, real-world applicability, aiming to improve threat visibility, policy formation, and cyber resilience in critical and emerging technologies. I remain committed to continuing impactful research that bridges industry and academia in the service of public interest and infrastructure protection.

EDUCATION

New Orleans, LA	University of New Orleans	August 2015 – August 2017
• M.S. in Computer and Information Science, August 2017. GPA: 3.87		
Chennai, TN, India	Anna University	August 2008 – May 2012
• B.TECH. in Information Technology, May 2012. GPA: 8.52/10		

PUBLICATIONS AND PRESENTATIONS

Denial of Engineering Operations Attacks in Industrial Control Systems

AUTHORS: Saranyan Senthivel*, Shrey Dhungana, Hyunguk Yoo, Irfan Ahmed, Vassil Roussev

PUBLICATION TYPE: Conference Paper

SUMMARY: Introduced a novel attack technique that can interfere with the normal cycle of engineering operations. The study also presented 'Laddis,' the first deception-based tool for threat elimination.

LINK: Denial of Engineering Operations Attacks in Industrial Control Systems

PUBLISHED IN: the Eighth ACM Conference, March 2018

SCADA Network Forensics of the PCCC Protocol

AUTHORS: Saranyan Senthivel*, Irfan Ahmed, Vassil Roussev

PUBLICATION TYPE: Journal Article

SUMMARY: Conducted a comprehensive forensic analysis of Programmable Controller Communication Commands (PCCC) to understand the security risks in SCADA systems and build effective defenses.

LINK: SCADA network forensics of the PCCC protocol

PUBLISHED IN: Digital Investigation 22:S57-S65, August 2017

A SCADA System Testbed for Cybersecurity and Forensic Research and Pedagogy

AUTHORS: Irfan Ahmed, Vassil Roussev, William Johnson, Saranyan Senthivel*, Sneha Sudhakaran

PUBLICATION TYPE: Conference Paper

SUMMARY: Developed a SCADA testbed for cybersecurity research and education, simulating real-world industrial control environments to study security threats and defenses.

LINK: A SCADA System Testbed for Cybersecurity and Forensic Research and Pedagogy

PUBLISHED IN: the 2nd Annual Industrial Control System Security Workshop, December 2016

CURRENT RESEARCH ACTIVITIES

1. Detection of Malicious Advertising and Social Engineering Campaigns (University of Georgia)

- **Focus Area:** Working with Dr. Roberto Perdisci and Spencer King from University of Georgia's School of Computing.
- **Technical Contribution:** Contributing to the analysis and validation of browser extension data that identifies deceptive ad-based SE attacks.
- **Research Impact:** Paper accepted for presentation at ACSAC 2025, focusing on large-scale social engineering campaign detection.

2. Security Evaluation of Mobile App Authentication Mechanisms (LSU)

- **Focus Area:** Collaborating with Louisiana State University (LSU) under Dr. Phani Vadrevu on evaluating vulnerabilities in mobile app Single Sign-On (SSO) implementations.
- **Technical Contribution:** Developing test apps to validate authentication flaws missed during Android/iOS App Store reviews.
- **Research Impact:** Research outcomes aim to inform mobile security policy and harden user-facing authentication flows.

3. Cross-Platform Forensics Research (Florida Institute of Technology)

- **Focus Area:** Collaborating with FIT under Dr. Sneha Sudhakaran on cross-platform reliability of digital evidence acquisition and analysis across Windows and Linux, with emphasis on disk vs. memory forensics, anti-forensic obstacles, and the need for standardized procedures.
- **Technical Contribution:** Developed VM-based case studies (Windows 10/11; Ubuntu 20.04/24.04; varied RAM) with malware scenarios to evaluate acquisition and analysis tools (FTK Imager, LiME, dd, Autopsy, Volatility). Documented OS/tool-specific challenges and derived best-practice guidance for reliable investigations.
- **Research Impact:** Provides evidence-driven practices to strengthen forensic accuracy and integrity across heterogeneous OS environments. Abstract accepted for submission as a full paper at ICCWS 2026, University of North Carolina, Wilmington.

PROFESSIONAL EXPERIENCE

Senior Software Engineer

DXC Technology

March 2019 – Present

DXC Technology is a global software service provider that offers modernization and IT solutions in various industries. During my tenure, I have worked on projects for major clients such as TenX Auction Services LLC, Coca-Cola Femsa, Anheuser-Busch Inc., and Liberty Mutual Insurance.

Client: Liberty Mutual Insurance (January 2023 – Present)

- Led secure modernization of reinsurance platforms, transitioning from legacy mainframes to a Java-based architecture. Enhanced system reliability and strengthened data integrity through secure API design and optimized backend workflows.
- Rewrote **legacy ETL processes** in Java using **Spring Boot**, optimizing data handling from interface teams and reducing data processing times from **hours to less than 10 seconds**.
- Designed and implemented **RESTful APIs** to ensure seamless data integration between various financial systems, improving accessibility and reducing manual intervention in data processing.
- Using **SQL Server** for efficient data storage and retrieval, implementing indexing strategies that improved **query performance by more than 70%**, making reports and analytics more responsive.
- Spearheaded the **User Acceptance Testing (UAT) phase**, working closely with **business stakeholders and QA teams** to validate system performance and compliance with industry standards.

- Led the successful migration of **multiple custom applications**, ensuring smooth transitions and system integrity within the new architecture, mitigating operational disruptions for end users.

Client: Anheuser-Busch Inc. (April 2021 – December 2022)

- Developed and streamlined **sales data pipelines** into **Oracle Database**, integrating multiple data sources from wholesalers and retailers to provide a **centralized** and unified view of sales transactions.
- Designed and implemented **Java Spring Boot-based APIs**, ensuring real-time data access for reporting dashboards, allowing stakeholders to make faster and more informed business decisions.
- Collaborated with **cross functional teams**, including data engineers and BI analysts, to **optimize API performance**, ensuring minimal latency and **99.9% uptime** for critical dashboards.
- Built automated data validation workflows to ensure data accuracy and consistency, reducing manual intervention in data processing by more than 60%.
- Enhanced the scalability of reporting services by using **containerized microservices**, allowing efficient **horizontal scaling** to handle increased data loads.

Client: Coca-Cola Femsa (January 2020 – March 2021)

- Designed and developed **Power BI-based reports** to analyze **cybersecurity vulnerabilities** by consolidating data from **Ironport, Websense, IPS Tipping Point, and Firesight**, providing real-time insights into potential threats.
- Processed and transformed **complex security data** into **actionable insights for key stakeholders**, enabling proactive mitigation of security risks and potential **compliance violations**.
- Improved cybersecurity **incident response times** by integrating multiple vulnerability datasets into a **centralized analytics system**, reducing **threat detection time by 40%**.
- Implemented **automated alerting mechanisms** for security threats, reducing reliance on manual security assessments and improving the **response efficiency of IT security teams**.

Client: TenX Auction Services LLC (2019)

- Assisted in **migrating on-premises deployment pipelines to AWS Cloud**, ensuring a seamless transition with minimal downtime and improved infrastructure scalability.
- Refactored **Python scripts** used for deployment automation, optimizing them for **cloud-native architectures**, enhancing deployment efficiency and security.
- Integrated **AWS services such as Lambda and S3** to automate **data archiving and processing**, reducing storage costs while ensuring compliance with regulatory requirements.
- Improved **application reliability and uptime** by implementing **continuous integration and continuous deployment (CI/CD) pipelines**, allowing faster releases and real-time monitoring.

Software Developer

Globalstar Inc.

September 2018 – March 2019

Globalstar Inc. is a satellite communications company providing voice and data services through satellite-based solutions. As a Software Developer, I contributed to various aspects of software development and automation for satellite ground systems, focusing on improving system efficiency, reliability, and scalability.

- Developed and maintained applications using **Python, Java, JavaScript, and JQuery** to support system operations and resource management tools, ensuring seamless communication between satellite components.
- Assisted in **CI/CD automation**, streamlining software deployment workflows and reducing deployment time by **30%**. Implemented automated testing and versioning strategies to enhance software quality and maintainability.
- Worked across all **project phases**, including **requirements definition, gap analysis, and software development**. Collaborated closely with system architects to align technical solutions with business needs.
- Developed, integrated, and tested **ground system software** used for satellite communication and resource management. Ensured that the software adhered to industry standards for real-time data processing and secure transmission.
- Conducted rigorous **defect resolution and testing**, employing debugging techniques and performance optimizations to enhance the stability and efficiency of ground-based applications. Coordinated testing efforts with cross-functional teams.

- Designed and optimized **various ground system/satellite configurations**, improving operational reliability and system adaptability to support evolving mission requirements.
- Collaborated with cross-functional teams to develop **automated scripts** for testing and validating satellite communication protocols, improving operational accuracy and reducing manual errors in system verification.

Software Developer

Premium Parking Services LLC

September 2017 – August 2018

Premium Parking Services LLC is a parking management company focused on innovative, data-driven solutions. As a Software Developer, I contributed to developing and optimizing parking management systems by designing scalable applications and integrating robust analytics tools. My role involved:

- Designed and developed desktop applications integral to the **Gateless Parking System** using **Python** and **JavaScript**, enhancing the company's ability to collect and process parking data for analytical decision-making.
- Utilized **Python** for backend data handling and analytics, structuring data from diverse sources into a centralized data warehouse to support strategic business decisions.
- Developed and maintained robust **API endpoints** using **Ruby on Rails**, supplemented with **jQuery** for dynamic frontend interactions, ensuring smooth operation and scalability of the parking management system's analytical capabilities.
- Collaborated with offshore development teams, leveraging **Java** and **JavaScript** expertise to streamline application development processes, ensuring successful integration and functionality.
- Provided ongoing **support and problem-solving expertise** across **Python, Java, and JavaScript** environments, enhancing system performance and user satisfaction.

SKILLS

- **Cybersecurity:** SCADA/ICS Security, Network Security, Web Security, Incident Response, Vulnerability Analysis, Threat Modeling, Secure Authentication Systems
- **Programming Languages:** Python, Java, JavaScript, SQL, Ruby, JQuery
- **Tools & Frameworks:** Spring Boot, React, Docker, Kubernetes, AWS (Lambda, S3, EC2), Azure, CI/CD (Jenkins, GitHub Actions)
- **Analytics & Databases:** Power BI, Microsoft SQL Server, Oracle SQL, PostgreSQL, PL/SQL
- **Software Development & Engineering:** API Development, Microservices, Cloud Migration, CI/CD Pipelines, Legacy System Modernization
- **Certifications:** Currently pursuing CompTIA Security+ (in progress)
- **Soft Skills:** Analytical problem-solver, effective communicator, collaborative in academic and industry settings.

PROFESSIONAL AFFILIATIONS

Active collaborations with academic research teams at LSU and Georgia Tech on cybersecurity projects aligned with U.S. national infrastructure protection.

Participating in workshops and cybersecurity research seminars to stay aligned with evolving national and academic trends.

REFERENCES

Available upon request.