Sneha Sudhakaran
Assistant Professor Florida Institute of Technology

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Homepage: https://www.snehasudhakaran.com   **GitHub:** https://github.com/ssudha1/

SUMMARY PROFILE

- Computer science Assistant Professor with extensive experience in Android Reverse Engineering, Memory Forensics, and Network Security, Applied Machine Learning in Cyber Security Domain
- Knowledgeable IT security professional with **6** years of experience researching and implementing security solutions in academia and national organizations
- Expert in enhancing research accuracy and precision by carrying out system administration and network analysis
- Hands-on experience in C, Java, C++, and Python, along with Cyber Security certifications: **CEH** and **CHFI**
- Authored **16** technical papers and extended abstracts, 10 presented at premier conferences (IEEE S&P, RAID, ACSAC, AAFS, SIGCSE), 6 in reputed journals (like Digital Investigation, Elsevier) and work recognized by several awards by WiCyS, Louisiana State University and Florida Institute of Technology : **Citation 215 , hIndex 3**

EDUCATION

Louisiana State University, Baton Rouge, USA   **May 2022**
Doctor of Philosophy in Computer Science, **GPA:** 3.83/4.0

Thesis: Performing Memory Forensics for Large Object recovery from Android Application Memory- its impact and concerns

Amrita Vishwa Vidyapeetham, Coimbatore, India Master   **Aug 2011-Aug 2013**
of Technology in Cyber Security, **GPA:** 3.8/4.0

Calicut University, Calicut, India   **Aug 2006-May 2010**
Bachelor of Technology in Information Technology, **GPA:** 3.5/4.0

SELECTED SKILLS

Penetration Testing: BurpSuite, Metasploit, Nmap, Zmap
Network Security: tcpdump, Wireshark, Netcat
Skills: Reverse Engineering of Android Devices, Scada/Memory/Android/MultimediaForensics

Tools: Android – Android Studio, Apktool
Emulators like Genymotion, ADB
Memory Forensics – Volatility
Reverse Engineering – IDA PRO, GHIDRA
Decompiler – Jadx, Android Studio
Debuggers: gdb
Languages: Programming – C, C++, Python, Java **Scripting** –
 Shell and Perl
Operating Systems: Windows, Linux, Mac, Android
Security Infrastructure : SWG, UBA, DLP, EDR, NAC

PROFESSIONAL EXPERIENCE

Florida Institute of Technology, L3harris Center for Science and Engineering, Melbourne, Florida **Aug 2022- Present**

- Teach Courses like Host and Application Security
- Advise students on FITSec Security team that targets Capture the Flag security contests ● Expand security research ideas to develop Graduate security research projects

Louisiana State University, Center for Computation & Technology (CCT) Baton Rouge, USA.
Graduate Assistant under Dr. Sai Pinnepalli **Aug 2020-May2022**

- Track current security reports for network traffic at LSU and CCT
- Review status of Content Management System using framework like Drupal
- Help plan mitigation paths with special focus on Penetration testing, Network traffic monitoring

Louisiana State University, Baton Rouge, USA **Aug 2017-May 2022**
Research / Teaching Assistant under Dr. Golden G. Richard III

- Designed research and experimental studies on Memory Forensics to extract multimedia objects from process memory
- Performed in-depth research to answer complex questions in the field of Android Forensics
- Collaborated with Dr. Aisha Ali Gombe (Asst. Professor at Towson University, Baltimore) to develop a tool kit for extracting multimedia objects from process memory in Android devices and generate minimal false positive. evidence
- Mentored five graduate and three undergraduate researchers and prepared annual reports for NSF
- Analyzed large complex sets of data and performed memory analysis and reverse engineering

University of New Orleans, New Orleans, USA **May 2016-Aug 2017**
Research Assistant in Cyber Physical Systems Lab under Dr. Irfan Ahmed

- Gained in-depth knowledge on SCADA devices to perform research and solve complex problems in the field of Cyber Physical System Forensics
- Authored **2** technical papers in reputed conferences such as IEEE Security & Privacy and ACSAC

GJ Forensics, Kerala, India **Jul 2014-Aug 2015**
Cyber Security Intern under Dr. Vinod P. Bhattathirippad

- Analyzed system risk on Windows to identify and implement appropriate security countermeasures
- Recommended POSAR extensions for water mark inclusions and published a technical paper in ADFSL-2015 conference

MG University, Kochi, Kerala, India **Jul-Aug 2014**
Assistant Professor

- Collaborated with professors to design teaching plans, adapted methods of instruction and classroom materials to address individual student needs, and managed educational projects
- Developed course syllabus for Information Risk Management and Cyber Forensics, outlined standards, materials, grading procedures for students
- Evaluated and supervised student activities and performance levels to provide reports on academic progress

CERTIFICATIONS

- Certified Ethical Hacker (CEH), Credential id : ECC27124931769, Expires Dec 2027

- Certified Hacker and Forensic Investigator (CHFI), Credential Id : ECC67147118876, Expires Apr 2028

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PROFESSIONAL SERVICES

- WiSec Poster Chair 2024 **https://wisec2024.kaist.ac.kr/organization-committee/**
- Access Computing Faculty Institutional Partner Florida Institute of Technology **https://doit-prod.s.uw.edu/accesscomputing/about/partners**
- Florida Institute of Technology Women in Cyber Security Student Chapter Founder and Faculty Advisor **https://www.wicys.org/initiatives/student-chapters/**
- Florida Institute of Technology FITSEC Faculty Co-Coach https://www.congress.gov/congressionalrecord/volume-168/issue-199/extensions-of-remarks-section/article/E1324-3
- Amrita Vishwa Vidyapeetham Curriculum Development Board of Supervisors 2020-2026
- Cyber Security Journal Editorial Board

REVIEWER and PROFESSIONAL MEMBERSHIP

- ICCWS - Reviewer and Conference Committee Executive (2021 - present)
- Elseivier - Reviewer - Internet of Things and Cyber-Physical Systems(2022- Present)
- Elseivier - Reviewer - Computer and Security(2022- Present)
- Board of Studies Member - Amrita University 2020-2022 (Cyber Security Curriculum Developement)
- Women In Cyber Security - Student Member (2019 - 2022)-Louisiana State University
- Women In Cyber Security - Faculty Advisor (2023 - present) - Florida Institute of Technology
- Access Computing - Academic Affiliate (2023-present) - Florida Institute of Technology
- ACM - Association for Computing Machinery (2020 - present)
- IEEE (2020 - present)
- American Association for Forensic Science - Student Affiliate (2019 - 2022)
- American Association for Forensic Science - Trainee Affiliate and Reviewer (2022 - present)
- IEEE PAINE Reviewer 2022- present
- ACM WiSec 2023-24 Reviewer and Poster Chair 2023-2024
- SIGCSE 2023-2024

AWARDS

- WiCyS (Women in Cyber Security) Student Scholarship 2021
- EC-Council Item Writer 2021 Digital Badge Achievement
- Amrita Cyber Security Board of Studies Member 2020-2022
- WiCyS (Women in Cyber Security) Student Scholarship 2020
- WiCyS Graduate Student Travel Stipend Scholarship 2020

ORAL PRESENTATION

- <u>Sneha Sudhakaran</u>, Aisha Ali-Gombe, Golden G. Richard III, "Correlating Garbage Collection and Android Object Recovery", **2022 74th AAFS Annual Scientific Meeting**

- <u>Sneha Sudhakaran</u>, Aisha Ali-Gombe, Golden G. Richard III, "Evaluating the impact of External Runtime Factors on Android forensic tools", **2021**, **73rd AAFS Annual Scientific Meeting**

- Aisha Ali-Gombe, <u>Sneha Sudhakaran</u>, Andrew Case, Golden G. Richard III, "Proving Database Tampering Through InMemory Object Reconstruction", **2019**, **71st AAFS Annual Scientific Meeting**

CONFERENCES

- Suarez, Logan, Dakhilallah Alshubrumi, Tj O'Connor, and <u>Sneha Sudhakaran</u>. "Unsafe at any Bandwidth: Towards Understanding Risk Factors for Ransomware in Higher Education." Data Driven Security Workshop 2024, Elsevier

- OConnor, T. J., Alex Schmith, Chris Stricklan, Marco Carvalho, and <u>Sneha Sudhakaran</u>. "Pwn Lessons Made Easy With Docker: Toward an Undergraduate Vulnerability Research Cybersecurity Class." In *Proceedings of the 55th ACM Technical Symposium on Computer Science Education V. 1*, pp. 986-992. 2024.

- <u>Sneha Sudhakaran</u>, Nasheen Nur, Aeshah Zarraa - Navigating The Challenges: Understanding Anxiety Among International Graduate Students In The United States INTED Proceedings 2024

- Fernalld, Kourtnee, T. J. OConnor, <u>Sneha Sudhakaran</u>, and Nasheen Nur. "Lightweight Symphony: Towards Reducing Computer Science Student Anxiety with Standardized Docker Environments." In *Proceedings of the 24th Annual Conference on Information Technology Education*, pp. 15-21. 2023.

- Ali-Gombe, Aisha, <u>Sneha Sudhakaran</u>, Ramyapandian Vijayakanthan, and Golden G. Richard III. "cRGB_Mem: At the intersection of memory forensics and machine learning." *Forensic Science International: Digital Investigation* 45 (2023): 301564 2023

- <u>Sneha Sudhakaran</u>, Aisha Ali Gombe, Andrew Case, Golden G. Richard III, "Evaluating the Reliability of Android Userland Memory Forensics", **ICCWS March 2022**

- <u>Sneha Sudhakaran</u>, Aisha Ali Gombe, Augustine Orgah, Andrew Case, Golden G. Richard III, "AmpleDroid Recovering Large Objects from Android Application Memory", **IEEE Workshop on Information Forensics and Security Dec 2020**

- Ali-Gombe, Aisha, <u>Sneha Sudhakaran</u>, Andrew Case, and Golden G. Richard III, "DroidScraper: A Tool for Android InMemory Object Recovery and Reconstruction", **2019, 22nd International Symposium on Research in Attacks, Intrusions and Defenses (RAID 2019), pp. 547-559**

- Irfan Ahmed, Sebastian Obermeier, <u>Sneha Sudhakaran</u>, Vassil Roussev, "Programmable logic controller forensics", **IEEE Security & Privacy, 2017, 15 (6), 18-24**

- Irfan Ahmed, Vassil Roussev, William Johnson, Saranyan Senthivel, <u>Sneha Sudhakaran</u>, "A SCADA system testbed for cybersecurity and forensic research and pedagogy", **Proceedings of the 2nd Annual Industrial Control System Security Workshop, 2016, pp. 1-9**

- Polpaya Vinod Bhattathiripad, <u>Sneha Sudhakaran</u>, Roshna Khalid, "A New Cyber Forensic Philosophy for Digital Watermarks in the Context of Copyright Laws", **Association for Digital Forensics, Security and Law 2015**

- Nimisha Ajayakumar, <u>Sneha Sudhakaran</u>, "Comparison in Honda Algorithm and Neural Network for Anti Cruise Collision Avoidance System**", International Journal of Digital Application & Contemporary research,2014**
- Nishna Soman, <u>Sneha Sudhakaran</u>, "An Advanced Approach towards Shadow Detection and Restoration in VHR Images", **International Journal of Engineering Research and Technology, 2014**

POSTERS

- <u>Sneha Sudhakaran</u>, Aisha Ali Gombe, Golden G. Richard III, "On Reliability of Userland Memory Forensics", Poster Presentation**, 2021, WiCys virtual 2021**
- <u>Sneha Sudhakaran</u>, Aisha Ali Gombe, Andrew Case, Golden G. Richard III, "Extraction of Multimedia Large Objects Using Memory Forensics from the Android Runtime", Poster Presentation**, 2020, WiCys virtual 2020**

GRANTS AND FUNDING

- **Oak Ridge Associated Universities Innovation Partnership Grant 2023 , PI Sneha Sudhakaran, Co-PI TJ O'Connor $4000** "-Organizing cyber security competition Cyber Heroines 2023" (to encourage and honor women participating in Cyber security challenges across the world

- **Florida Institute of Technology Internal Grant Institutional Research Incentive grant PI Sneha Sudhakaran, Co-PI TJ O'Connor $26600**, "Developing Novel Cyber Security Research initiative using Machine Learning" 2022

REFERENCES

Golden G. Richard III
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State University, Baton Rouge, LA70803

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