SIVANA HAMER

Ph.D. Student in Computer Science | Researching Software Supply Chain Security

sahamer@ncsu.edu sivanahamer.github.io sivanahamer sivanahamer Sivana Hamer

Second-year Computer Science Ph.D. Student at North Carolina State University. I am currently researching the **state of software supply chain security** as a community **to help improve the security posture of industry and open-source projects**. I have published in top software engineering venues such as TSE and TOSEM. I look forward to opportunities to conduct software supply chain security research.

EXPERIENCE

Graduate Research Assistant — Aug 2023–Present
North Carolina State University

Research Intern — May 2025–Aug 2025
Phoenix Security

Researcher and Interim Instructor — 2020-2023
Universidad de Costa Rica

Student Visitor Research Intern — Jan 2022–Mar 2022
Carnegie Mellon University

FEATURED RESEARCH PROJECTS

Reduce your risk of being Solarwinds, Log4j, or XZ Utils

- Analyzing the attack techniques in SolarWinds, Log4j, and XZ Utils to systematically synthesize software supply chain framework tasks to provide software organizations with a recommended starter kit of tasks. Collaboration with **Yahoo**.
- **Methods:** Qualitative Analysis, Incident Analysis, Meta Synthesis.
- **Results:** Frameworks are missing tasks; hence, even if all tasks were adopted, organizations would still be vulnerable to attacks.
- **Tools:** MITRE ATT&CK, Threat Modeling, P-SSCRM, LLMs.
- **Publication:** In Submission.

Reputation Measures to Review Dependencies

- Investigated if network centrality measures, proxying contributor reputation, can be used as a signal to inform developers of dependency changes that require additional examination.
- **Methods:** Mixed-Methods, Statistical Models, Social Networks.
- **Results:** Network centrality measures are a significant factor in explaining how developers review dependencies in Rust.
- **Tools:** Python, R, SQL, GitHub API.
- **Publication:** In IEEE Transactions on Software Engineering 2025.

Comparing Vulnerabilities ChatGPT and StackOverflow

- Compared the vulnerabilities of ChatGPT and StackOverflow to help raise software developers' awareness of the security implications when selecting code snippet platforms.
- **Method:** Quantitative Analysis, Statistical Methods.
- **Results:** ChatGPT generated less vulnerable code. Yet, insecure code propagation can happen in both platforms.
- **Tools:** Python, R, ChatGPT API, StackOverflow API, CodeQL.
- **Publication:** In IEEE Security and Privacy Workshops 2024.

RESEARCH INTERESTS

Software Supply Chain Security • Software Security • Empirical Software Engineering • Software Measurement

EDUCATION

Ph.D. Computer Science
North Carolina State University
Aug 2023 – Expected 2028

Advisor: Dr. Laurie Williams

M.Sc. Computer Science
Universidad de Costa Rica
2023

Thesis: Mining software repositories to automatically measure developer code contributions. *Advisor:* Dr. Christian Quesada-López

B.Sc. Computer Science
Universidad de Costa Rica
2020

AWARDS

- *Goodnight Doctoral Fellowship (2023-2027).*
- *RSA Conference Security Scholar (2024).*
- *North Carolina State University Provost's Doctoral Fellowship (2023).*
- *Best Postgraduate Grade Universidad de Costa Rica* (2020).

SKILLS

- *Languages:* English, Spanish.
- *Programming languages:* Python, Java, R, C#, JavaScript, Bash, SQL.
- *Software tools:* Git, Jenkins, JIRA, Visual Studio Code, CodeQL, SonarQube, LLMs.
- *Frameworks and libraries:* ASP.NET, Flask, Bootstrap, jQuery, React, Unity, n8n.
- *Research methods:* Quantitative, Qualitative, Mining Software Repositories, Machine Learning, Statistical Models.

Last updated: July 28, 2025