

SIVANA HAMER

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

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Third-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 ICSE, TSE, FSE, 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:** International Conference on Software Engineering.

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:** IEEE Transactions on Software Engineering.

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:** IEEE Security and Privacy Workshops.

RESEARCH INTERESTS

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

EDUCATION

Ph.D. Computer Science
North Carolina State University

Aug 2023 – Present
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

- Google PhD Fellowship (2025-2027).
- 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.