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
North Carolina State University
📅 Aug 2023–Present

Security Research Intern
Phoenix Security
📅 May 2025–Aug 2025

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

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

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

Advisors: Dr. Laurie Williams & Dr. William Enck

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

FEATURED AWARDS

- *Google PhD Fellowship (2025-2027).*
- *Goodnight Doctoral Fellowship (2023-2027).*
- *ICSE Distinguished Shadow Reviewer (2026).*
- *RSA Conference Security Scholar (2024).*
- *North Carolina State University Provost's Doctoral Fellowship (2023).*

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.