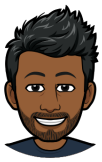

Akshith Gunasekaran

+1(541)745-9868
akshith.573@gmail.com
akshithg.xyz

Work

Research Intern - Program Analysis, *SRI International*, Melno Park, CA. **2022**

- Mining software repositories
- Graph based modeling of code evolution
- Identifying code changes that introduce security vulnerabilities
- LLVM, Static Analysis, Code Graphs

Research Intern - Intelligent Systems Lab, *PARC, a Xerox Company*, Palo Alto, CA. **2021**

- Locating and Isolating software features in binary application
- Evaluation of neural decompilation methods
- Designing search based techniques for software re-synthesis
- Methods for evaluating equivalency of software applications
- Automated test generation

Software Developer/Founding Team, *Simpl*, Mumbai, India. **2014 - 2017**

- Fintech startup, that provides a payment platform for online merchants
- Used by 5 Mil users in 2015
- Scaled the service using an event-based/pub-sub microservice architecture (1 of 4 devs)
- Built the data engineering pipeline, for Business Intelligence queries (1 of 2 devs)
- Tools: Golang, Ruby on Rails, Python, Redis, Kafka, RabbitMQ, Spark, Cassandra, Datadog

Publication

SENSOR: Graph-based Revision History Analysis for Code Evolution Introspection. **2023**

- Summer Internship at SRI International (2022)
- A graph-based approach to analyze code evolution in large open source projects.
- Identify code changes that introduce security vulnerabilities.
- LLVM, Static Analysis, Code Graphs, Mining Software Repositories.

In Pursuit of Lean OS Kernels - Examining Benefits and Barriers to Unlocking Aggressive Debloating. **2023**

- Systematic study OS Kernel Debloating techniques and a framework for evaluation.
- Improved composition for more effective debloating.
- Linux Kernel, Static Analysis, Dynamic Analysis, LLVM.

CONSTRUCT: A Program Synthesis Approach for Reconstructing Control Algorithms from Embedded System Binaries in Cyber-Physical Systems, . **2022**

- Summer Internship at PARC, a Xerox Company (2021)
- Binary decompilation, static analysis, program synthesis, evolutionary search.

Education

PhD - Computer Science, *Oregon State University*, Corvallis OR. **2017 - 2024**

- Area: System Security, Program Analysis, Applied Cryptography.
- Co-Advised by: Rakesh Bobba, Yeongjin Jang
- Coursework: CS Theory (algorithms, graph theory, distributed systems), Security (operating systems, cryptography), AI (machine learning, reinforcement learning, machine learning security), PL (Programming Languages, Functional Programming)

Activities

CTF Team, *OSUSEC*, Oregon State University, Corvallis OR. **Present**

- Skills: Pwn, Reverse Engineering, Program Analysis

Shadow Program Committee, *IEEE Security and Privacy*. **2020**

External Reviewer.

- ACM Conference on Computer and Communications Security (CSS), 2019
- IEEE Real-Time and Embedded Technology and Applications Symposium (RTAS), 2019
- IEEE International Conference on Dependable Systems and Network (DSN), 2019

Instructor, *Pacific North West Cyber Camp*. **Summer 2019**

Teaching Assistant.

- CS427 Cryptography - Winter 2021
- CS370 Introduction to Security - Fall 2021
- CS290 Web Technologies and Web Security - Fall 2017

Volunteer, *Pacific North West Cyber Camp*. **Summer 2018**