Harrison Green

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Education

PhD	**Carnegie Mellon University**, Software Engineering	Aug 2022 to present

- Advised by Claire Le Goues and Fraser Brown
- Automating computer security, fuzzing, decompilation, and reverse engineering.

BS	**University of Pittsburgh**, Computer Science	2017 to 2021

- Minor in Chemistry

Work Experience

OtterSec, Senior Auditor — Remote — Mar 2022 to present

- Security audits for Solana, Aptos, Near, and others

Margin Research, Vulnerability Researcher — Remote — Sep 2021 to Jun 2022

- Finding bugs in code
- Presented a router jailbreak at REcon Montreal 2022

Google Brain, Software Engineer Intern — Remote — May 2020 to Aug 2020

- Expanded the capabilities of bulk inference in TensorFlow Extended while working with teams from Google Cloud and Apache Beam to ensure efficiency and interoperability

ForAllSecure, Software Engineer Inten — Pittsburgh, PA — Sep 2020 to May 2022

- Researching structure-aware fuzzing, developed GraphFuzz
- Found and reported several security vulnerabilities in popular open source projects

Lucy Labs CryptoFinance, Software Engineer Intern — Remote — May 2018 to Aug 2018

- Researching cryptocurrencies and developing software tools for blockchain analysis

Intelligent Flying Machines, Software Engineer Intern — Evanston, IL — Jun 2016 to Sep 2016

- Developing drone control interfaces that interfaced with ROS systems

ChannelIQ, Software Engineer Intern — Chicago, IL — Jun 2015 to Feb 2016

- Developed .NET MVC UIs in C# to visualize and administrate large Cassandra datasets
- Wrote Scala tasks to perform data processing with Apache Spark

Publications

FRAMESHIFT: Lightweight Biologically-Inspired Structure Inference for Fuzzing   2024

Harrison Green, Claire Le Goues, Fraser Brown

In Review

STRIDE: Simple Type Recognition In Decompiled Executables   2024

Harrison Green, Edward J Schwartz, Claire Le Goues, Bogdan Vasilescu

10.48550/arXiv.2407.02733 ↗ (Preprint)

Effective auxiliary variables via structured reencoding 2023

Andrew Haberlandt, ***Harrison Green***, Marijn JH Heule

10.4230/LIPIcs.SAT.2023.11 ↗ (SAT 2023)

GraphFuzz: library API fuzzing with lifetime-aware dataflow graphs 2022

Harrison Green, Thanassis Avgerinos

10.1145/3510003.351022 ↗ (ICSE 2022)

DeepFrag: an open-source browser app for deep-learning lead optimization 2021

Harrison Green, Jacob D Durrant

10.1021/acs.jcim.1c00103 ↗ (Journal of Chemical Information and Modeling)

DeepFrag: a deep convolutional neural network for fragment-based lead optimization 2021

Harrison Green, David R Koes, Jacob D Durrant

10.1039/D1SC00163A ↗ (Chemical Science)

Gypsum-DL: an open-source program for preparing small-molecule libraries for structure-based virtual screening 2019

Patrick J Ropp, Jacob O Spiegel, Jennifer L Walker, ***Harrison Green***, Guillermo A Morales, Katherine A Milliken, John J Ringe, Jacob D Durrant

10.1186/s13321-019-0358-3 ↗ (Journal of Cheminformatics)

Projects

GraphFuzz hgarrereyn/GraphFuzz ↗

- An experimental framework for building structure-aware library API fuzzers

SBVA hgarrereyn/SBVA ↗

- Structured Bounded Variable Addition – a preprocessor for simplifying SAT formulas in a structured way.
- Won 1st place at the SAT Competition 2023!

STRIDE hgarrereyn/STRIDE ↗

- Simple variable name and type recognition in decompiled executables using N-grams