Pardis Pashakhanloo

pardisp@seas.upenn.edu, pardisp.github.io

Education

Ph.D. in Computer and Information Science *Aug. 2017 – present*
University of Pennsylvania; advised by Mayur Naik and Boon Thau Loo.
Select Coursework: Software Analysis and Testing, Software Foundations, Machine Learning,
Advanced Databases, Theory of Computation

B.Sc. in Software Engineering *Aug. 2012 – Feb. 2017*
Sharif University of Technology
Select Coursework: Programming Language Design, Compiler Design, System Analysis and Design,
Object-oriented Programming and Design, Software Engineering

Research

CodeTrek: Flexible Modeling of Code using an Extensible Relational Representation
Pardis Pashakhanloo, Aaditya Naik, Yuepeng Wang, Hanjun Dai, Petros Maniatis, Mayur Naik
International Conference on Learning Representations (**ICLR'22**)

Learning to Walk over Relational Graphs of Source Code
Pardis Pashakhanloo, Aaditya Naik, Yuepeng Wang, Hanjun Dai, Petros Maniatis, Mayur Naik
Deep Learning For Code Workshop (**DL4C@ICLR'22**)

PacJam: Securing Dependencies Continuously via Package-Oriented Debloating
Pardis Pashakhanloo, Aravind Machiry, Hyon Choi, Anthony Canino, K. Heo, Insup Lee, Mayur Naik
ACM ASIA Conference on Computer and Communications Security (**AsiaCCS'22**)

Effective Program Debloating via Reinforcement Learning
Kihong Heo, Woosuk Lee, **Pardis Pashakhanloo**, Mayur Naik
ACM Conference on Computer and Communications Security (**CCS'18**)

Making Break-ups Less Painful: Source-level Support for Transforming Legacy Software into a Network of Tasks
Nik Sultana, Achala Rao, Zihao Jin, **Pardis Pashakhanloo**, Henry Zhu, Ke Zhong, Boon Thau Loo
Workshop on Forming an Ecosystem Around Software Transformation (**FEAST@CCS'18**)

Hashtray: Turning the tables on Scalable Client Classification
Nik Sultana, **Pardis Pashakhanloo**, Zihao Jin, Achala Rao, Boon Thau Loo
IFIP/IEEE Symposium on Integrated Network and Service Management (**IM'19**)

Trace-based Behaviour Analysis of Network Servers
Nik Sultana, Achala Rao, Zihao Jin, **Pardis Pashakhanloo,** H. Zhu, V. Yegneswaran, Boon Thau Loo
15th International Conference on Network and Service Management (**CNSM'19**)

Internships

Research Internship at Microsoft (Summer'19)
I extended the CheckedC compiler to verify bounds declarations using static analysis.
Mentor: David Tarditi

Research Internship at Microsoft (Summer'20)
I investigated false positives in concurrency bug detection as a part of Torch Project.
Mentors: Suman Nath, Shuvendu Lahiri

Teaching Experience

Course Development Assistant at University of Pennsylvania (Summer'20)
Supervisor: Mayur Naik
I assisted in developing lab assignments and lectures for CIS-547 (Program Analysis)

POPL'20 Tutorial: Building Program Reasoning Tools using LLVM and Z3 (Spring'20)
I introduced LLVM and Z3's architecture and conducted hands-on exercises in this tutorial.

Teaching Assistant
Software Analysis (Fall'19 – Spring'21), Software Engineering Lab (Spring'17),
Numerical Methods (Spring'15, '16), Compiler Design (Fall'15, Spring'16),
Fundamentals of Programming (Fall'13, '14)

Select Projects

CodeTrek (July'20 – Dec'21)
Deep learning approach which represents codebases as relational databases and robustly embeds programs
using guided walks.
PacJam (July'19 – July'20)
Package-oriented debloating framework for adaptive and security-aware management of an application's
dependent packages.
Chisel (July'18 – March'19)
Automated tool for debloating and customization of C programs on top of LLVM; powered by
reinforcement learning.
DoStbin (Aug'17 – Jan'18)
Data model for describing experiments involving denial-of-service attacks.

Tech Skills

Languages: C/C++, Java, Python, and SQL; familiar with Coq, CodeQL, MATLAB, and JavaScript.

Technologies: Apache Beam, Google Cloud framework; LLVM/Clang, PyTorch; git,
unix-based OS; familiar with Apache server and NGINX; familiar with MLPack, Django, and NodeJS.

Awards

Computing Research Association Woman Graduate Cohort **Scholarship**	*Jan. 2018, 2020*
National Elites Foundation Scholarship for Outstanding Academic Success	*Feb. 2014*