

# Pardis Pashakhanloo

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

## Education

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**Ph.D. in Computer and Information Science** *Aug. 2017 – present*  
*University of Pennsylvania; advised by Mayur Naik.*

**M.Sc. in Engineering – Computer and Information Science** *Aug. 2021*  
*University of Pennsylvania; advised by Mayur Naik.*  
Select Coursework: Software Analysis and Testing, Software Foundations, Machine Learning, Advanced Databases, Theory of Computation.

**B.Sc. in Software Engineering** *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

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**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

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**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 and their causes in concurrency bug detection as a part of Torch Project.  
Mentors: Suman Nath, Shuvendu Lahiri

## Teaching Experience

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### 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

Program Analysis (Fall'20 – Fall'22), Software Engineering Lab (Spring'17),

Numerical Methods (Spring'15, '16), Compiler Design (Fall'15, Spring'16),

Fundamentals of Programming (Fall'13, '14)

## Select Projects

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### 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

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**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

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Computing Research Association Woman Graduate Cohort **Scholarship**

*Jan. 2018, 2020*

**National Elites Foundation** Scholarship for Outstanding Academic Success

*Feb. 2014*