Farzin Houshmand

Department of Computer Science
Bourns College of Engineering
University of California, Riverside

E-mail: fhous001@ucr.edu
Cell phone: +1(951)497-8225

RESEARCH OBJECTIVE	I'm a fifth-year PhD candidate and my research interest broadly spans over **programming language** and **formal methods**. I'm particularly interested in **program synthesis** and its applications in **distributed and parallel systems**.

EDUCATION

University of California, Riverside, CA
Doctorate of Philosophy, Computer Science (CS)
Expected: Winter 2023

University of California, Riverside, CA   GPA: 3.84/4.00
Master of Science, Computer Science (CS)
July 2019

Sharif University of Technology, Tehran, Iran   GPA: 3.81/4.00
Bachelor of Technology, Computer Engineering (CE)
May 2017

PROFESSIONAL AND RESEARCH EXPERIENCE

University of California, Riverside, California, USA   Sep 17 - Present
Graduate Student Researcher in Safe, Secure and Smart Software (S3) Lab
SUPERVISOR: Prof. Mohsen Lesani

Google Inc., California, USA   June 22 - Dec 22
Research Scientist Intern Google Brain
SUPERVISOR: Amit Sabne

Sharif University of Technology, Tehran, Iran   Mar 15 - Jun 17
Data Storage and Networks (DSN) Lab
SUPERVISOR: Dr. Hosein Asadi

ViraTech Sharif, Tehran, Iran   Jul 15 - Jan 16
Java Developer

PAAR Lift Co., Tehran, Iran   Feb 16 - Nov 16
Senior Software Developer

Terafast Networks, Chennai, India   May 16 - Nov 16
Freelance Java Programmer

PROJECTS

Tensorright: Provably Correct Tesnsor Computations   Google Inc.
Implemented a framework for verification of rewrite rules in the context of tensor computations.

- Design the specification language and its denotational semantics for tensor computations
- Design and implementation of Haskell module to generate verification conditions in rosette framework
- Implement Haskell module to generate C++ code

EMS: Elevator Management System   PAAR Lift Co.
Designed and implemented the system to remotely monitor and control elevators using a web interface

- Maintained Postgres database holding elevator data
- Implemented reliable real-time gateway module to send elevator data to the server
- Implemented and maintained java core module that stores elevator data in a Postgres DB for processing

TECHNICAL SKILLS	**Programming Languages :**

TECHNICAL SKILLS

Programming Languages :
- Object-Oriented Programming: Java (SE and J2EE), C++, Python, and Racket
- Functional Programming: Haskell, OCaml

SMT Solvers (SMT-LIB): Z3, CVC5, Rosette
Databases : SQL (PostgreSQL), MongoDB
Other : Version Control (Git), LaTeX, MATLAB, Alloy Modeling Language

SOFT SKILLS

Ability to **think critically**, break down a project and fully understand it.
Solid **problem solving skills** when facing new small or large challenges.
A Focused organizer who is trying to acquire **deep work** skill.
Able to clarify the **teamwork** goals whenever they go astray from the path.
Quick learner with ability to work in a fast paced environment and adapt.
Good **communication** skills able to work in small or large teams.

PUBLICATIONS

Tensorright: Provably Correct Tensor Graph Rewrites
C.Mendis, **F.Houshmand**, A.Sabne, K.Krishnamurthy, P, Narayanan, R.Bodik,
M.Lesani, M, Phothilimthana
submitted

Hasmaz: Replication Coordination Analysis and Synthesis
F.Houshmand, M.Lesani
POPL'19 Proceedings of the ACM on Programming Languages, Vol. 3, Issue POPL, Article No. 74, January 2019

Grafs: Declarative Graph Analytics
F.Houshmand, M.Lesani, K.Vora
ICFP'21 Proceedings of the ACM on Programming Languages, Vol. 5, Issue ICFP, Article No. 83, August 2021

Hamband: RDMA Replicated Data Types
F.Houshmand, J.Saberlatibari, M.Lesani
PLDI'22 Proceedings of the ACM on Programming Language Design and Implementation, July 2022

Hampa: Solver-Aided Recency-Aware Replication
X.Li, **F.Houshmand**, M.Lesani
CAV'20 (International Conference on Computer Aided Verification), 324-349

Cross-Chain Transactions
N.Shadab, **F.Houshmand**, M.Lesani
ICBC'20 (IEEE International Conference on Blockchain and Cryptocurrency)

Resilient Object Partitioning and Replication
X.Li, **F.Houshmand**, M.Lesani
S&P'22 (43rd IEEE Symposium on Security and Privacy)

Learning Quantitative Representation Synthesis
M.Patil, **F.Houshmand**, M.Lesani
MAPL'20 The Annual Machine Learning and Programming Languages Workshop

HONORS AND AWARDS

- **Professional Activity Grant ($800)** — July 22
  Association for Computing Machinery (ACM)
- **Dissertation Year Program Award ($7200)** — Mar 22
  University of California, Riverside
- **Professional Activity Grant ($1500)** — Nov 18
  Association for Computing Machinery (ACM)
- **Dean's Distiniguished Fellowship** — Fall 17

University of California, Riverside

• **Ranked 203**nd Sep 12

In nationwide university entrance exam among 500,000 participants in Iran

SERVICES

• **Artifact Evaluation Committee**: International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2022)

• **Review Committee**: Parallel Computing Conference (PARCO 2020)

• **Program Committee**: 3rd International Congress on Blockchain and Applications (Blockchain 2020)

• **External Reviewer**: 47th ACM SIGPLAN Symposium on Principles of Programming Languages (POPL 2020)

• **Public library talk**: Privacy in the Digital Age

Arlington Library - City of Riverside (Jun 2019)