Nouraldin Jaber

2550 Yeager Road, Apt 15-10, West Lafayette, IN 47906
njaber@purdue.edu (765)418-2987

INTEREST

The domain of programming languages and compilers. Research topics include verification and synthesis of parameterized distributed systems, static analysis, and programming models.

EDUCATION

Purdue University, West Lafayette, IN **August 2019**
Ph.D. in Electrical and Computer Engineering **GPA: 4.0**
Advisers: Milind Kulkarni and Roopsha Samanta
General Interest: Synthesis and Verification of Reactive Distributed Systems

Purdue University, West Lafayette, IN **August 2015**
M.Sc. in Electrical and Computer Engineering **GPA: 3.9**
Adviser: Milind Kulkarni
Awards: Fulbright Grant 2013-2015
Thesis Topic: Data Structure-Aware Computation Offloading

Islamic University Of Gaza (IUG), Gaza Strip **January 2012**
B.Sc. in Computer Engineering **GPA: 94.55 %**
Awards: Ranked as top student over Faculty of Engineering

PUPLICATIONS

N Jaber, and M Kulkarni. "Data structure-aware heap partitioning." *Proceedings of the 26th International Conference on Compiler Construction*. ACM, 2017. DOI

Y.H Lu, M Kulkarni, **N Jaber**, and J.X Zhu. "Programming language support for analyzing non-persistent data." In *IEEE Symposium on Technologies for Homeland Security (HST)*, 2016. DOI

EXPERIENCE

Research Assistant, School of Electrical and Computer Engineering **Aug. 2013 - Present**
- Area: Compilers Systems and Programming Languages

Instructor, Computer Engineering Department, IUG **Feb. 2012 - July 2013**
- Courses: Networks, Embedded Systems, and Mobile Programming (Android)

Trainer, Computer Land, Gaza, Palestine **July 2012**
- Course: Mobile Development Using Android

Volunteer, PLDI 2016, Santa Barbra, CA **June 2016**
- Helped in coordinating the logistics of the conference

Volunteer, Programming Department IUG **Jan. – June 2012**
- Administrating Document Management System and Reporting tools

COMPUTER SKILLS

Research-related:

SOOT optimization framework for Java, MPI, OpenMP, gem5 simulator, ANTLR4 tool for compiler generation, Amazon AWS, TamiFlex, Apache Storm, Coq proof assistant, Sketch, Z3
General knowledge: Hadoop, Apache Spark [Streaming], Flume, Xilinx ISE

Programming languages:

Java [and Android Programming], Scala, C++, Active-HDL, Micro Basic PIC programming

ACADEMIC PROJECTS

- Partitioning Mobile Application on Amazon AWS Cloud and Android Devices

Using Amazon elastic computing services to run a partitioned face recognition program on the cloud and its user interface on an android device. The goal is to run computation costly programs on mobiles.

- Synthesis of Coordination Skeletons for Distributed Reactive (Stream Processing) Systems

The input is state machines description for the actors and correctness specifications. Invalid global states are eliminated by generating coordination states which translates to coordination code.

- V-Way Cache Implementation in Gem5

A Variable-way (V-way) cache was implemented in C++ and Python using gem5 simulator. The goal was to reduce the average cache miss-rate in the processor.

- Compiler Program

This project involved using ANTLR4 tool to generate top-down lexer and parser for language and proceed with semantics, optimizations, and code generation for a 4-register architecture.

- Implementing MapRdeuce via OpenMP and MPI

This project's main idea was to implement Mappers and Reducers used by search engines on multiple computation nodes using MPI then optimize each node running time using OpenMP.

AWARDS & HONORS

- Fulbright Grant 2013-2015: Purdue University, Computer Engineering.
- ACM Travel Grant to Volunteer at PLDI 2016.
- Hani Qaddumi Scholarship Foundation (HQSF) for undergraduate studies 2007-2012

SELECTED COURSES

- Compiler and Translation Systems Engineering ECE573
- Programming Languages CS565
- Programming Parallel Machines ECE563
- Computer-Aided Program Reasoning CS590
- Computer Architecture ECE565
- Computer Network Systems ECE595