Ameer Hamza

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Education

Florida State University (FSU),
Tallahassee, FL
Doctorate's in Computer Science
Expected Graduation: May 2024
GPA: 3.82/4.0
Relevant Coursework: Graduate Software Engineering, Computer-Aided Verification, Advanced Algorithms

Lahore University of Management Sciences (LUMS),
Lahore, Pakistan
Bachelor's in Computer Science
Graduation: May 2018
GPA: 3.06/4.0
Relevant Coursework: Software Engineering, Program Analysis, Network-Centric Computing, High Performance Computing, Algorithms, Data Structures

Skills

Programming: C/C++, Java, C#, Python, Golang, Haskell, Matlab, TCP/IP and Network Programming, familiarity with Linux/Unix environment

Tools: SeaHorn Verification framework, LLVM, Java PathFinder (JPF), Z3 (SMT solver)

WebDev: HTML, CSS, JavaScript

Other: Git/Github, Bugzilla, JIRA bug tracker, Firebase, LaTeX

Achievements

- National Outreach Program (NOP) Scholarship Holder *LUMS*
- Speed Programming Competition, MindSweeper Runners up *Lahore, PK*
- Google Codejam Participant
- ICPC Programming Competition Participant *Lahore, PK*
- National Agahee (Awareness) Quiz Competition Winner *Karachi, PK*

Work Experience

Since May'20 **Graduate Research Assistant** FormalMethods @ FSU
- *Area of research*: Formal Methods
- *Focus of research*: Relational Cost Analysis of Equivalent Programs

Aug'18-Apr'20 **Graduate Research Assistant** SereneLab @ FSU
- *Area of research*: Software Engineering
- *Focus of research*: Performance of Language Features

Aug'19-Dec'19 **Graduate Teaching Assistant** FSU
- *Course*: Software Engineering
- *Responsibilities*: Teach recitation classes; assist students with projects and course content; grading instruments

Jun'17-May'18 **Technical Author** Educative Inc.
- Worked as a co-author for Python and JavaScript programming challenge questions
- *Responsibility*: Developed an interactive course for students eager to learn basic data structures and algorithms

Aug'17-Dec'17 **Teaching Assistant** LUMS
- *Course*: Operating Systems
- *Responsibilities*: Assisted students with programming assignments and course content; grading instruments

Research Projects

Since May'20 **Cost Analysis of Equivalent Programs** Graduate Research Project
- Proving equivalence of two software programs symbolically by converting them into CHCs (Constrained Horn Clauses)
- Appending a cost model to equivalent programs to find their performance (execution cost) for analysis, using a tool SeaCost

Aug'18-Apr'20 **Performance of Language Features** Graduate Research Project
- Studied bug reports from bug tracking systems to identify performance bugs, their causes and fixes in open-source systems
- Worked on performance evaluation and comparison of two language features - loops and lists

Nov'19-Dec'19 **Automatic Assertion Generation for Programs** Course Project
- Designing a systematic way of generating assertions about programs and using the existing tools (like CBMC) to prove/disprove these assertions on a range of benchmarks

Jan'17-May'17 **Program Analysis Group** Directed Coursework
- Worked with Java PathFinder (JPF) for Model Checking and Partial Order Reduction.
- Received a brief introduction to LLVM

Development Projects

Mar'19-May'19 **Modifying jEdit** Software Engineering Project
- Made required changes (addition, deletion and modification of functionality) in an open-source system - jEdit, while ensuring the correctness of the system all the time

Aug'17-May'18 **Peer-to-Peer File Storage System** Senior Year Project
- Developed a peer-to-peer file storage system that serves as a backup for user's data, ensuring certain efficiency and availability

Mar'17-May'17 **Pseudobot** Software Engineering Project
- Developed a retrieval-based chatbot with reinforced learning; and a personal assistant to help in common everyday tasks