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,
Deep & Reinforcement Learning

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, High Performance Computing, Algorithms, Data Structures

Skills

Programming: C/C++, Java, C#, Python, Golang, Haskell, MATLAB, familiarity with Linux/Unix environment, System Programming, Network Programming

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

Graduate Research Assistant

Since May'20 — *Field*: Formal Methods — FormalMethods @ FSU
Project: Automated Alignment for Equivalence Checking

Jun'19-Apr'20 — *Field*: Software Engineering — SereneLab @ FSU
Project: Performance of Language Features

Graduate Teaching Assistant

Spr'21 & Fall'19 — *Course:* Software Engineering — FSU
Responsibilities: Teach recitation classes; assist students with assignments and course content; grading instruments

Jun'17-May'18 — **Technical Author** — Educative Inc.
Developed an interactive course for students eager to learn basic data structures and algorithms using Python and JavaScript

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

Publications

• **A. Hamza** and G. Fedyukovich, "*Automated Alignment for Equivalence Checking,*" in Computer-Aided Verification, 2021 - Under Review

Research Projects

Since May'20 — **Automated Alignment for Equivalence Checking** — Research Project
• Reducing a task of equivalence checking (relational verification) to a task of safety checking of a product program
• Introducing a novel technique for equivalence checking of two programs containing loops that require a nontrivial alignment (not in lockstep composition) inside product program

Jun'19-Apr'20 — **Performance of Language Features** — Research Project
• Performance evaluation of two language features in C# - loops and lists

Nov'19-Dec'19 — **Automatic Assertion Generation for Programs** — Course Project
• Designed a systematic way of generating assertions for programs and used CBMC to prove/disprove these assertions on a range of benchmarks from SV-COMP
• Experimented with multiple fuzzers

Jan'17-May'17 — **Program Analysis Group** — Directed Coursework
• Worked with Java PathFinder (JPF) for Model Checking and Partial Order Reduction of concurrent Java programs

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 distributed P2P 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