






# 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**  
• *Area of research:* Formal Methods  
• *Focus of research:* Relational Cost Analysis of Equivalent Programs

FormalMethods @ FSU
- Aug'18-Apr'20

**Graduate Research Assistant**  
• *Area of research:* Software Engineering  
• *Focus of research:* Performance of Language Features

SereneLab @ FSU
- Aug'19-Dec'19

**Graduate Teaching Assistant**  
• *Course:* Software Engineering  
• *Responsibilities:* Teach recitation classes; assist students with projects and course content; grading instruments

FSU
- Jun'17-May'18

**Technical Author**  
• 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

Educative Inc.
- Aug'17-Dec'17

**Teaching Assistant**  
• *Course:* Operating Systems  
• *Responsibilities:* Assisted students with programming assignments and course content; grading instruments

LUMS

## Research Projects

- Since May'20

**Cost Analysis of Equivalent Programs**  
• 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

Graduate Research Project
- Aug'18-Apr'20

**Performance of Language Features**  
• 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

Graduate Research Project
- Nov'19-Dec'19

**Automatic Assertion Generation for Programs**  
• 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

Course Project
- Jan'17-May'17

**Program Analysis Group**  
• Worked with Java PathFinder (JPF) for Model Checking and Partial Order Reduction.  
• Received a brief introduction to LLVM

Directed Coursework

## Development Projects

- Mar'19-May'19

**Modifying jEdit**  
• 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

Software Engineering Project
- Aug'17-May'18

**Peer-to-Peer File Storage System**  
• Developed a peer-to-peer file storage system that serves as a backup for user's data, ensuring certain efficiency and availability

Senior Year Project
- Mar'17-May'17

**Pseudobot**  
• Developed a retrieval-based chatbot with reinforced learning; and a personal assistant to help in common everyday tasks

Software Engineering Project

