Ameer Hamza

+1(850)405-8891 | ah18r@fsu.edu | a-hamza-r.github.io | linkedin.com/in/a-hamza | Tallahassee, FL

A Ph.D. candidate at Florida State University, with 5+ years of programming experience and research interests in Software Verification, Machine/Deep Learning, and Data Science

Education

Florida State University (FSU) — Tallahassee, FL
Ph.D. in Computer Science | GPA: 3.86/4.00 — May 2024
Relevant Coursework: Compiler Construction, Computer Architecture, Deep & Reinforcement Learning, Data Mining

Lahore University of Management Sciences (LUMS) — Lahore, PK
Bachelor's in Computer Science | GPA: 3.27/4.00 — May 2018
Relevant Coursework: Software Engineering, Databases, Computer Networks, Operating Systems, HPC, Algorithms

Technical Skills

Programming: C/C++ Rust, Java, Python, SQL, JavaScript, Bash Scripting, Unix/Linux System Programming
Frameworks/Tools: LLVM/Clang, Spring Boot/MVC, React.js, JUnit, Selenium, PyTorch, Keras, Git/GitHub, Docker

Work Experience

Florida State University, Tallahassee, FL — **Graduate Teaching Assistant**
Web Programming and Design (May 2023 – August 2023) | *Theory of Computation* (August 2022 – May 2023)
Software Engineering (January 2021 – May 2021) | *Software Engineering* (August 2019 – December 2019)

- *Common Duties*: Teaching recitations; Assisting students with assignments/projects; Grading course instruments

Florida State University, Tallahassee, FL — **Graduate Research Assistant**
Project: Equivalence Checking of Unbalanced Loops — May 2020 – Present

SRI International — **Computer Science Lab Intern (Remote)**
Project: Verification of eBPF Programs — October 2021 – March 2022

Black Collective, Lahore, PK — **Backend Developer**
Created REST API using Node.js web service framework, Restify, for backends — October 2017 – February 2018

Publications

A. Hamza and G. Fedyukovich, "*Lockstep Composition for Unbalanced Loops,*" in International Conference on Tools and Algorithms for the Construction and Analysis of Systems (TACAS), 2023 — *Published*

Projects

Verification of eBPF Programs *(SRI)* | C++, Type Systems, Proof-Carrying Code — October 2021 – Present

- Verifying memory and information safety of eBPF programs (kernel extensions) in user-space
- Generating proof certificates that can be trusted by the kernel, and are human-readable

Equivalence Checking of Unbalanced Loops *(FSU)* | C++, LLVM, SMT, Model Checking — May 2020 – Present

- Developing a novel technique for equivalence checking of programs where programs can have different structures
- Technique allows verification of (specific) compiler/hand optimizations by checking equivalence of a program with an optimized version

Comparative study of NLP models *(FSU)* | Python, PyTorch, Keras — April 2020 – May 2020

- Did comparative study of NLP models: BERT and XLNet, on IMDB movie reviews dataset for sentiment analysis
- Explored the pros and cons of each model and situations where one outperforms the other

HPC Application Analysis *(FSU)* | Python, Classification, Clustering — November 2019 – December 2019

- Used classification and clustering techniques on an HPC cluster dataset by NREL, with power consumption and performance data of individual jobs, to predict how to efficiently schedule the jobs
- Techniques: Clustering (Hierarchical, Centroid), and Classification (KNN, Multi-Perceptron, Random Forest)

Modifying jEdit *(FSU)* | Java, Open-Source Systems, Collaboration — March 2019 – May 2019

- Added required changes (additions, deletions, and modifications) in an open-source system - jEdit
- Collaborated with a team to ensure the correctness of the system all the time