SAIM AHMAD

+1 (703) 438-0094 ◇ saim29@gmail.com ◇ linkedin.com/in/saim-ahmad/

EDUCATION

Ph.D. in Computer Science August 2019 - *present*
Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, VA
B.S. in Computer Science August 2015 - May 2019
Lahore University of Management Sciences (LUMS), Lahore, Pakistan.
Courses: *Data Structures, Algorithms, Operating Systems, Advanced Programming, Networks, Network and Computer Security, Topics in Computer and System Security, Data analytics, Topics in Hardware Security*

EXPERIENCE

Graduate Research Assistant - FoRTE Research Group (Virginia Tech) August 2019 - *present*
Supervisor: Dr. Matthew Hicks (PhD. University of Illinois at Urbana-Champaign)

- Researching Intermittent computation for energy harvesting devices using compiler support. Working on developing a compiler and improving existing models.

Graduate Teaching Assistant - (Virginia Tech) January 2020 - *present*

- Teaching Assistant for the CS 3604 (Professionalism in Computing).

Software Engineer, Educative Inc. January 2019 - May 2019
Educative is an online learning platform, their main product being their website educative.io

- Coordinated in teams. Used Jira to manage tasks in a sprint. Developed and tested features for the website. Used Python on the back-end, react on the front-end and selenium for testing. Worked on improving SEO rankings of our website.

Research Assistant - Networks and Systems Group (LUMS) May 2018 - May 2019
Supervisor: Dr. Muhammad Fareed Zafar (PhD. Duke University)

- Researched operating systems, kernels, microkernels, unikernels and 4g LTE networks.

Software Intern, Caramel Tech Studios. June 2018 - August 2018
Caramel Tech is one of the rising mobile game development startups in Pakistan. carameltechstudios.com

- Worked under supervisor to develop a network usage analyzer for the firm.

Undergraduate Teaching Assistant - (LUMS) August 2017 - May 2019

- Introduction to Programming, Operating Systems and Network-Centric Computing.

PROJECTS

Compiler Programming: Used LLVM to develop a compiler for energy harvesting devices. Energy harvesting devices have power on and power off cycles while executing a program. To make sure no work is wasted, we developed Camel, a compiler that adds code to save and backup the state of the program after a certain checkpoint so that when the device turns off and on again, we can restore state from the last checkpoint rather than starting execution all over again.
Kernel Specialization: Wrote an LLVM pass to parse all the system calls made by any program. Used OCCAM, a code trimmer, to remove code of all the system calls that were not being used from the source code of the kernel, hence, specializing the kernel for a program.
Network Usage Analyzer: Developed a network monitor for a firm. This listed the network and bandwidth usage of every user using the network. Developed a small web application using Python and Javascript. Used FLASK to create a back-end for the application and javascript for the front-end.
Distributed Search Engine: Used the master-slave programming model to make a distributed search engine in Python. The Master would receive the query and divide the lookup task amongst the slaves. Functionality was added to support the addition of new slaves or a slave failing (redistribution of the remaining task in both cases to the present slaves).
Programming Language Interpreter: Made a c++ lexer, parser and interpreter using Python. This interpreter could successfully interpret variables, arrays, functions, calls, structs/classes and recursive function calls.

TECHNICAL SKILLS AND TOOLS

Languages: C/C++, Python, JavaScript, GoLang, Java, SQL, x86 Assembly
Tools: Linux, LLVM, Clang, Git, Node.js, Reach.js, Selenium, Jira, Matlab, Android Studio, Google firebase
Skills: Web-development, app development, Object-oriented programming, asynchronous programming, parallel programming, functional programming