Musa Haydar

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Education

University of Michigan — Ann Arbor, MI
M.S. in Computer Science — *2022 - 2023*
- **GPA: 3.85**
- **Coursework**: Compilers, Programming Languages, Algorithms, Artificial Intelligence
- **Master's Thesis**: "KOMPARE: Symbolic Execution for Assured Patching"

University of Michigan — Ann Arbor, MI
B.S. in Computer Science, Minor in Music — *2019 - 2022*
- **GPA: 3.93**, James B. Angell Scholar (Mar. 2021), EECS Scholar (Apr. 2021, Apr. 2022)
- **Coursework**: Operating Systems, Distributed Systems, Computer Networks, Web Systems

Experience

Software Engineer — August 2023 - Present
Capital One — *New York, NY*
- Designed and implemented a Slack bot integrating ServiceNow and other internal platforms for improved developer efficiency. Developed in NodeJS, deployed on AWS Fargate, with RDS for metrics and S3 for configuration data
- Developed and tested new features and enhancements for internal fork of Redash (JavaScript and Python)
- Supported various applications within Capital Markets

Graduate Student Instructor — September 2022 - May 2023
EECS 370: Introduction to Computer Organization, University of Michigan — *Ann Arbor, MI*
- Topics included assembly language programming, compilation and linking, and CPU architecture
- Taught discussion sections, contributed problems to and graded exams and homework assignments

Research Assistant — May 2021 - May 2023
University of Michigan, Prof. Kasikci Lab — *Ann Arbor, MI*
- Participated in research on crash-consistency bugs in persistent memory systems
- Extended persistent memory databases and data structures, integrated into build system (C, C++)
- Contributed to research paper, currently in submission

Software Engineer Intern — June 2022 - August 2022
Capital One — *Plano, TX*
- Designed and implemented an AWS Lambda to validate data between databases (Python)
- Implemented failure detection of a loan data consumer application with automated email notifications

Projects

KOMPARE | *C/C++, LLVM, KLEE* | *Master's Thesis* — 2023
- Extended the KLEE symbolic execution engine to compare two progam versions for patch comparison
- Completed a master's thesis discussing the design, implementation, and evaluation of the work

Video Game Development | *Programming (Unity, Godot), Digital Art, Music Composition* — 2019 - Present
- Participated in 13 game-jam hackathons at the University of Michigan, awarded first place 9 times.

Other Experience

WolverineSoft | *Game Development Student Organization* — 2021 - 2023
President (2022), Officer (2021)
- Organized and hosted events, hackathons, and workshops, presented on topics in game design and development
- Coordinated and led weekly board meetings, created avenues for interested members to join leadership

Skills

Programming Languages: C, C++, Python, C#, Go, Java, JavaScript, PHP, SQL, HTML/CSS
Tools: LaTeX, Bash, Git, Shell Scripting, gdb, CMake, Docker, LLVM, KLEE
Frameworks: Unity, Godot, Flask, React, React Native, Jest

Last Updated: Dec. 2024