Mohammed Al-Jawaheri

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EDUCATION

Carnegie Mellon University
B.S. in Computer Science, Concentration in Computer systems

May 2023

Relevant Coursework:

GPA: 3.93/4.00
Dean's List (8/8 semesters)

15-410 - Operating Systems Design & Implementation
15-411 - Compiler Design & Implementation
15-440 - Distributed Systems
15-441 - Computer Networks
15-445 - Database Systems

WORK EXPERIENCE

Backend Engineer — Sep 2023 - Present
Hungry Mushrooms Game studio
- Architected a backend migration for three games from previous backends/adhoc firebase storage
- Overlooking live migration of player nosql data to cockroachdb

Teaching Assistant — Aug 2023 - Present
Carnegie Mellon University
- Graded and created exams for undergraduate courses on Computer systems, Operating systems and Algorithms

Undergraduate Research Assistant — May 2021 - Sep 2021
Carnegie Mellon University
- Contributed to research software for Teams of aquatic robots for marine environmental monitoring
- Simulated robot squad communication in both 4G/Wifi in NS3 before deployment

PROJECTS AND ACHIEVEMENTS

HyperOS: OS & hypervisor | *C/x86* — Aug 2022 - Jan 2023
- Built a fully pre-emptive multi-tasking kernel on real x86 hardware
- Supported Paravirtualization interface for running guest kernels
- Implemented user-space multi-threading, and user-space hardware exception handling
- Packaged with custom made user-space thread library and synchronization primitives

C0++: Type inferring optimizing compiler | *C++17, Flex/Bison* — Aug 2021 - Jan 2022
- Built a compiler for a C-like language targeting x86-64
- Implemented optimizations such as partial redundancy elim. and str. reductions
- SSA-based, competitive with GCC -O1 on many benchmarks

FileStack: Distributed Filesystem | *Java* — Jan 2022 - May 2022
- Developed a Java RMI library and used it to implement a FS inspired by HDFS and GFS
- Implemented locking and a basic invalidation-based replication mechanism

Connect4 | *Javascript (Matter.js), Python (django)* — Mar 2021 - May 2021
- Real-time online turn based connect-4, physics simulated pieces
- Django 3.x backend, Django channels for websockets

HONORS AND AWARDS

Andrew Carnegie Society Scholar Recognition by CMU to 40 exemplary students
Qatar Campus Scholar Recognition given by CMU-Q given to one graduate of each major
Best Freshman Team prize at CarnegieApps Hackathon 2020

TECHNICAL SKILLS

Languages: C/C++17, x86/x86-64 Assembly, ARM Assembly, Java, Javascript, Python, SML.
Developer Tools: Git, Docker, Simics, GDB, CMake