

MAJED BADAWI

SOFTWARE ENGINEER

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EDUCATION BACKGROUND

Lebanese American University (Byblos Campus)

BACHELOR OF COMPUTER SCIENCE, WITH HONOURS (SEP 2016 - MAY 2019)

- Certificates: Distinction List (Fall 2018) and Honours List (Spring 2019)

COMMUNITY INVOLVEMENT

- Member at ACM, Robotics, Book, and Music Clubs at LAU
- Lebanese Red Cross - Youth Department
- GC LAU MUN

SKILLS & KNOWLEDGE

- Problem solving (OOP, Data Structures, and Algorithms)
- Java, JavaFX, JDBC
- Back-end development (PHP7, Node.js, ASP.NET Core)
- Front-end development (HTML5, CSS3, Bootstrap, jQuery, Angular.js + Material)
- Databases (MySQL, PostgreSQL, MongoDB)
- Operating systems (Windows, Linux)
- Parallel Programming (OpenMP, OpenACC, CUDA)
- Game development (Unity, C#, Firebase, Analytics, Monetization)
- Internet of Things (Raspberry Pi)
- Machine Learning (Scikit-learn)
- Other languages and tools (C, Python, C#, Git, OpenCV)
- Computer Networking, Software Engineering, System Programming, Computer Architecture, Research Writing

PROJECTS

- Mobile Arcade Game

Implemented the back-end of this game using Unity3d and C#. The main tasks were Authentication using Google Play and Game Center, Database, and monetization plans using Admob and In-app purchases. It will be published on Android and IOS in the near future.

- Home Automation & Security System

Designed and built this project for an Internet-of-Things class using Raspberry Pi and Python. The main functionalities were face detection (using OpenCV) to show intruders, remote control from the phone using the LAMP stack, python's HTTP server on the product-end, LCD screen for display, RFID sensor for authentication, and a machine learning model for predicting plant watering according to various weather data from sensors (using KNN and SVM).

- 3D Fighting Game

Developed this project for a Game Programming class using Unity and C#. Some of the main features were an SQL database, game settings and audio, AI for the enemy, and the difficulties with the proper animations and graphics.

- HTTP Proxy Server

Built a fully functional multi-threaded HTTP web proxy server using C for a system programming class. The project was tested to act as a local proxy on the web browser. The product acted as a cache system that hugely improved the loading time of websites and simplified the communication with the server.

- Security-related Projects

Solved a group of interesting system programming projects that focus on finding security flaws in software like buffer overflow and Return-oriented programming (ROP) attacks mainly using Linux shells and GDB.

- Implementing Tomasulo's Algorithm on a Pipelined Processor

Implemented an instruction set architecture that uses pipelining and out-of-order execution through the dynamic scheduling algorithm of Tomasulo in C for a Computer Architecture class.

- Night-life Platform

Created a full-stack web platform to explore nightclubs, discover events and entertainers, and connect with other people using HTML5, CSS3, Bootstrap3, JQuery, and the LAMP stack.

- Black Scholes Algorithm Optimisation

Optimized this famous algorithm that is used as a model of price variation over time of financial instruments. Results were 7.5 times more efficient than the normal version. This project was done for a Parallel Programming and Multi-core course using C, OpenMP, OpenACC and CUDA.

- Employee Management System

Collaborated in the back-end development of a web and mobile solution that helps a hosting agency in Lebanon in managing employees and events. This project was done for a software engineering class using the MEAN stack.

WORK EXPERIENCE

I. UNDERGRADUATE RESEARCH ASSISTANT

LEBANESE AMERICAN UNIVERSITY | SEP 2018 - MAY 2019

- Researched optimizing a hybrid heuristic that is based on a steady-state genetic algorithm for the NP-hard Maximum Clique problem
- The sequential/CPU model was written in C according to a previous publication
- The optimization approach was done using shared-memory and GPUs using OPENMP and OPENACC, after studying the accelerated regions using time measurements and PGI Profiler
- The development was done using DIMACS benchmarks on a Xeon processor and NVIDIA GeForce GTX 980 GPU
- Results showed a 9 times acceleration

II. FREELANCE DEVELOPER

SELF-EMPLOYMENT | 2017 - PRESENT

- Developed a full-stack web application for "SAFA Group for Marble & Granite" in their machine maintenance and tasks scheduling using the LAMP stack and Google Calendar API
- Delivered full-stack web applications for startups and clients
- Supported a team of data analysts in data manipulation and developing analytics algorithms for a healthcare-related project using PostgreSQL
- Collaborated with computer software that runs facility planning algorithms for other students using Java and JavaFX

III. SOFTWARE ENGINEERING INTERN

TECHPUNTO | JUN 2018 - JUL 2018

- Designed and implemented a scalable election management system by optimizing a previous version using the LAMP stack
- Main tasks achieved were: database design, back-end security, front-end design, and client training