Ahmed Hamdy Mahmoud

Computer Systems Engineer

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Experience

Teaching Assistant, Alexandria University. Spring, 2019

- Assisted in teaching Data Structures and Computer Networks courses.

Graphmented, BADR IT, Alexandria

Software Engineer — November till 31st, December, 2018

- Graphmented is an application to visualize data using AR Charts on iOS
- Self-learned how to use a Mac up to contributing using Swift + ARKit to production code in 8 working days

Repoxy: Replication Proxy for Trustworthy SDN Controller Operation

TrustCom 2018 - Github - IEEEXplore

- The main contribution was enabling more than one controller to obtain the network state without knowing about the existence of each other, nor did the network know about the existence of the two controllers
- Implementation required knowledge with the OpenFlow protocol besides packet manipulation and crafting. I also implemented an Ansible like software to automate testing across VMs

PI Floor: Portable Interactive Floor for Edutainment - MUM18 - Github - ACM DL

- The main contribution of this poster was enabling education in rural areas by making an Android app that used paper tiles to represent an interactive grid where students can solve MCQ questions as a game where they move on the tiles to select the answer
- The application utilized an embedded WebSockets and HTTP server to display an interactive grid on a remote for the players to track the questions and their progress

Shixy [Advertisement Robot], TMentors, Cairo - Intern Software Engineer - October 2015 to August 2016

- Shixy is operated through another endpoint in the network based on a Windows mini PC and Arduino
- My role was to re-design and implement the solutions (C#/WPF) on the pilot's PC and on the robot
- Through the internship I self learned more about serial communication, design patterns, SOLID, WPF and Dependency Injection and used them in the implementation

- **Code Assembler** in Rust, implemented parsing and transformation to intermediate code
- **Arduino Network Controller** in Java, to manage a set of Arduinos in a network, connections were established using peer discovery
- **Smart home lock** Trying to implement some ideas from Amazon lock by creating a web server which accepts One Time Passwords to open a lock controlled by an Arduino connected to the server
- **Minesweeper Robot** This was a robot that we implemented for a local competition that scans a grid area and displays the map on a PC. I was responsible for major parts in the Arduino code, designing the main Arduino Shield and the C# application
- **Ticketing system** Implemented on intel's 8051 microcontroller. I used 2 7-Segments to display the current number using timer interrupts and pin interrupts to increment the current client number

Certifications

- Computer and Communications department, Faculty of Engineering, Alexandria University [Jul, 2018]
- TOEFL(IBT) [Oct, 2018] ***Score: 106***

Languages and Technologies [Self-taught]

C++, Python, Raspberry Pi, MCS-51, Arduino, Kotlin, Rust, Android, Git, LaTeX, Linux, Machine Learning, OpenGL. **Sample Readings** Linux System programming (Robert Love), Exploring RPi (David Molloy)

Extracurricular Activities

- IEEE — Student volunteer; Taught C, Arduino courses and I was an instructor for an educational program that teaches programming (C#,Python) and Robotics (Arduino) to middle and high school students
- Participated Let's make a robot, IRC and Minesweepers robotics competitions
- Participated in a technical and soft skills internship by 1Sheeld
- Microsoft Student Partner — 2015 - 2016.
- MUM18 Organizing Student Volunteer with international volunteers and organization committee
- AIESEC Exchange Participant; Educational project in Indonesia. Volunteers were from 10 different countries