# Roy Mattar

SOFTWARE DEVELOPER

## Details

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## Links

linkedin.com/in/roy-mattar
github.com/RoyMattar
RoysCodeVenture.com

## Skills

C/C++
Data Structures
Performance Tuning
Low-Level Programming
Linux/Unix
Bash
Object-Oriented Design (OOP)
SOLID
STL & Template Programming
Multithreading & Concurrency
TCP/UDP
Full Life Cycle Development
Test-Driven Development (TDD)
Makefile
Git
Generic Programming
Modular Programming

## Hobbies

• Practicing Yoga
• Reading Philosophy
• Playing the piano and the handpan

## Languages

Hebrew

English

Arabic

French

Italian

## Profile

• C & C++ developer on Linux/Unix and in multi-threaded environments.

• Qualified in all phases of software development cycle including requirements analysis, design, implementation, test, maintenance and debugging.

• My legal & business background has allowed me to develop strong analytical skills, a methodological approach to problem-solving and an eye for detail, alongside time management & organizational skills.

• I am a highly inquisitive and motivated individual.

## Projects

### 'SmartHome': A smart building management platform
APRIL 2020 — MAY 2020

• SmartHome is a next generation platform for managing IoT-enhanced smart buildings. The system includes a central hub (server) and sensor/controller agents. Sensor agents generate events which are routed through the central hub to the controller agents interested in acting upon them.

• I worked on this project independently: I produced a project requirements analysis and high-level and detailed-level designs (using UML, class & sequence diagrams, and use cases); then I implemented the project's design, alongside unit-testing, integration testing and debugging; finally I put together an SDK for developing new agents.

• I implemented SmartHome in C++ for a POSIX compliant system, making effective use of multithreading (incl. Thread Pooling), synchronization mechanisms (Mutex, Semaphore, CondVar, etc.), object-oriented SOLID design (incl. interfaces, ABC's), shared objects (.so), advanced data structures (Hashing, STL, etc.) and more (see github).

### 'COVID-911': A covid-19 tweet locator (Hackathon project)
MARCH 2020 — APRIL 2020

• This project was presented by my team, SavageRNA, at Hackorona – a hackathon organized in collaboration with Microsoft.

• COVID-911 is an intelligent search interface of covid-19 related tweets, filtering them by different criteria including topic, and displaying them on an interactive map.

• I was in charge of implementing the Client side, which used ReactJS for the UI and communicated using RESTful API with a server making use of ML & NLP.

### 'CDR': A management system of mobile customer charges
FEBRUARY 2020 — MARCH 2020

• This system manages the processing of CDR (Charging Data Record) data files for aggregating customer charges in the mobile operator's databases, and for querying for them later.

• I managed a team of two developers working on this project, and took part in the implementation which used: C++, OOP, Data Structures (Hash, Queue, etc.), synchronization mechanisms (Mutex, Semaphore, CondVar, etc.), Multithreading, IPC and Networking.

### 'Group Chat': Client/Server applications for group instant messaging
JANUARY 2020 — FEBRUARY 2020

• A group chat platform composed of client & server applications.

• I implemented, tested and debugged this project in C, using Networking, Signaling, Piping and other IPC mechanisms.

• I used TCP for the communication between Client and Server, and UDP for sending and receiving messages between users. I used IPv4 Multicasting for the instant messaging within a group chat.

### 'STS': A single-threaded scheduler of tasks
DECEMBER 2019 — DECEMBER 2019

• The STS is a facility that can execute periodic recurrent tasks, and behaves like a single- threaded scheduler for running tasks.

- I implemented the STS using advanced C programming, data structures (Heap, Priority Queue, etc.) and efficient algorithms.

- I used a Priority Scheduling algorithm, and implemented a smart logger to log all details about running and completed tasks.

### 'Hearts': Card game
NOVEMBER 2019 — NOVEMBER 2019

- A platform for the classic card game "Hearts".

- I implemented the game using advanced C programming, procedural programming and modularized design.

- My API allows for human and/or computer players, the latter playing either with a system-defined or a user-customized strategy.

### 'MyMalloc'
DECEMBER 2019 — DECEMBER 2019

- I implemented a memory allocator in C, using a first-fit algorithm, a self-implemented linked list and Unix system calls.

### 'MyShell'
DECEMBER 2019 — DECEMBER 2019

- I implemented a shell program in C, simulating a Bash shell and using Unix system calls.

## Employment History

### Software Engineering Trainee, Experis Software Ltd., Tel Aviv
OCTOBER 2019 — MAY 2020

A full-time program lasting six months and aimed at retraining excellent graduates into software engineering, equivalent to 2 years of work experience. The program is designed according to the demands of the industry, and incorporates intensive daily learning alongside hands-on practical training (extensive projects and real-world case studies).

### Regulatory Affairs Associate & Business Developer, QualiTechTop Ltd.
FEBRUARY 2018 — SEPTEMBER 2019

### Legal Intern, Gornitzky & Co., Tel Aviv
MARCH 2017 — FEBRUARY 2018

### Research Assistant, Prof. Aeyal Gross, Tel-Aviv University
AUGUST 2015 — MARCH 2017

### Private Tutor, Self-Employed
JUNE 2011 — SEPTEMBER 2015

In various subjects such as Math, Physics and Philosophy, including preparations for international examinations.

## Education

### Bachelor of Laws, LL.B., Tel Aviv University, Tel Aviv, Israel
OCTOBER 2013 — MARCH 2017

### Students Exchange Program, Università Bocconi, Milano, Italy
AUGUST 2016 — MARCH 2017

### Baccalauréat Français, Collège des Frères, Tel Aviv, Israel
SEPTEMBER 2008 — JUNE 2012

A diploma awarded by the French Ministry of Education. Graduated with the highest distinction ("Summa Cum Laude"), in the Math & Science orientation (Série S).

## Extra-curricular activities

### Blogger, RoysCodeVenture.com
MAY 2020 — PRESENT

### Participant and Presenter, Hackorona (Hackathon)
APRIL 2020 — APRIL 2020

### Member, Debate Club, Tel-Aviv University
NOVEMBER 2014 — JANUARY 2017