Github

Portfolio Linkedin

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Profile
Let me give you a bit about myself. I have 5 years of experience in software development. I received my Master of Science degree in Computer Engineering. Started working as an instructor since 2012 for several big companies academies like VMware, Cisco and Huawei. I possess a hands-on experience in Blockchain, Deep Learning, Fullstack and Internet of Things. At the mean time I am becoming interested to learn more in Decentralized Finance (DeFi) in terms of economy. You gain by letting me in your team as you would be receiving a quality level thought and codewise. Please check my full LinkedIn Profile under the name: Mahmoud Fathy

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Education

Arab Academy for Science & Tech   **Cairo, Egypt**   **Jul 2018**

Master of Science in Computer Science, GPA: 3.63

Coursework
Advanced Computer Architecture, Computer Networks & Security, Systems Science and Engineering, Advanced Programming Languages, Network Security, Sensor Networks, Pattern Recognition, Computer Security.

Thesis
Gained extensive programming experience and exposure to wireless networks as the project was about security in Cognitive Radio Networks.

Ain Shams Faculty of Engineering   **Cairo, Egypt**   **Jun 2011**

Bachelor of Science in Electronics & Communication Engineering, Distinction (Honors)

Coursework
Have been educated at the beginning of school years about general topics from electrical engineering. Aftermath, I majored in Electronics and Communication which is a program provided by my school at the time aiming at understanding various communication systems, required electronic implementations to achieve them and microwaves and optics as a way for transmission. In the core of the program we have been exposed to various techniques from mathematics to aid in simulation and modeling and understanding field physics.

Thesis
Exposure to photonics and hands-on experience on Matlab as the project was in Photonics.

Work Experience

Blockchain Developer   **Zokyo**   **2021- present**

Blockchain Developer at Zokyo
Being a Blockchain developer at Zokyo, my task is to audit projects of other startups and companies, compiling a report for this auditing process. By writing tests, I took note of several critical issues of the audited projects. Also contribute to developing DeFi project based on Set-protocol.
Techstack: Solidity, Mocha Javascript

Audited
IXS: Been a part of the team auditing IXS a DeFi project, gave notice to the team about one critical finding.
LayerZero: A cross-chain project which I audited and wrote tests for.
Kasta: A DeFi project audited and wrote tests for, spotted one critical finding that might lead to lost funds.
Ferrum: Auditing a part of the Ferrum project (DeFi project), spotted few issues including one critical finding .

Academic Staff   **NTI Institute, Cairo, Egypt**   **April 2012 - Aug 2021**

Brief
Working for Governmental Institute (National Telecom Institute) as a trainer responsible for giving training sessions for freshly graduated students, other academic staff members and providing summer training for technical college students. Also participating in supervising graduation projects for some programs which require so from students involved in our training programs.

Teach
Network fundamentals
Mobile IP
Python Programming
Mobile App Development using Flutter
IoT Data Analytics by Cisco Academy
ICM 6.7 by VMware Academy
Network Virtualization by VMware Academy
Deep Learning by Huawei Academy

Projects
A list of educational projects done with the institute supervised by me:
Network Emulator - *Diploma project*
Wireless Routing protocols study via Ns-2 - *Diploma project*
IoT smart parking (ICT) - *Diploma project*
Smart School - *Diploma project*
Integrating Kubernetes with VMware NSX-T Data Center - *VMware program*

Attendance Phone Application using Flutter - *Required by Director*

Software Developer	**Independent**	**2016 - present**

Blockchain Developer for NFT Art Project: July - August 2021
As the sole developer in the project, I generated the art from base files received from the artist using python scripts. I wrote the contracts, tests, frontend web3 based, backend. The drop helped the owners raise USD 2.5M.
Techstack: Python, Solidity, React in Typescript, NodeJS, Postgres and IPFS

Blockchain Developer for NFT based game: June 2021
For most of the time was the sole developer in the project writing the contracts, tests, frontend web3 based, backend. Until the phase 1 drop was successfully undergone raising USD 865k.
Techstack: Solidity, ReactJS, NodeJS and Postgres

Proof of Concept for a blockchain fabric idea: April 2021
Based in the US, Implement an idea for a blockchain fabric mainly focusing on the message passing.
Techstack: Elixir and NodeJS

Attendance Phone Application using Flutter: 2020
Despite the project being worked on within the scope of my job, it was independent from my role and was treated separately by the director.

School Management System with Manassa: 2016
Worked with colleagues under of the umbrella of company `Manassa` on this project.
Techstack: PHP Laravel - Angular - MySql

Programming Languages & Technologies

Javascript (JS)
After deciding to adopt web applications design using REST-api. JS became the main frontend development tool utilizing mainly React JS and React Native frameworks, with exposure to VueJS.

Python
Utilizing python for countless tasks among which datascience using Networkx and Scikit. Also delved in designing deep learning networks using Tensorflow.

Solidity
Worked on writing few smart contracts and developed an erc-721 token integrated with zk-SNARKS as a part of the fulfillment of the Capstone project for Blockchain Developer Nanodegree by Udacity [github] .

Elixir
Worked with several Functional Programming languages including Elixir and Elm, here is a showcase for elixir [github] .

Docker & Kubernetes (K8s)
Gained strong almost everyday experience on dealing with docker containers through using it to create my development environments.

Also possessing fair exposure to K8s deploying EKS provisioned apps onto AWS.

Typescript (TS)

Hands-on knowledge with TS lead to personal preference to write React web applications using it instead of JS, refer to *assets* folder in showcase [github] .

Tensorflow

Deep exposure into Tensorflow, implemented several Deep Learning Architectures i.e. RNNs, CNNs. I also trained students on Tensorflow during my involvement with Huawei Academy.

PyTorch

Fair exposure into PyTorch, for researching on privacy concerns within machine learning.

Full-stack

Comfortable developing full stack applications while understanding the bits and pieces of the web app i.e. front-end and back-end.

PHP

Having a fair exposure using laravel framework to develop PHP REST-api backend.

Dart

Developed few android applications and experimented on developing a web application using flutter framework which requires dart programming.

Golang

Blockchain Fabric have been implemented in Golang. Along with a frontend written in Golang compiled into webassembly.

Distributed Systems

Fair knowledge on how to program computing tasks to run on distributed systems. Also hands-on experience working with Inter Process Communication (IPC) among concurrent processes.

Java

Possessing fair knowledge in Java mainly via Android App Development.

Matlab

During academic study years, most projects required writing m-scripts. This included projects in Machine Learning, Optical Modelling and Communication Systems.

Linux

Using linux casually in many situation when need requires writing bash scripts, navigating and running specific tools.

Bigdata Tools

Hands-on exposure dealing with Pyspark, HDFS and even writing in scala if needed as a part of my instructor role in IoT Bigdata course in Cisco Academy.

Routing Protocols

Familiar with different routing protocols RIP, ISIS, OSPF & BGP, experience gained mainly through working with Cisco Routers.

C#

In the final nanodegree blockchain developer program, I wrote a blockchain dapp frontend in C# featuring blazor.

Elm

Worked on attendance software by face recognition in which the admin frontend part implemented via Elm.

Web APIs

Hands-on experience with RESTful APIs, also gained exposure using GraphQL.

Model-view-controller (MVC)

Worked on designing app using this paradigm in the past in laravel framework also iOS development using Objective-C.

SQL
Hands-on experience working with SQL databases like MySQL and PostgreSQL
NoSql
Familiar about NoSql databases gained through working on MongoDB.
C++
Master of Science thesis required extensive work in C++ to use ns-3 for the fulfillment of my work.
C
Developing programs for Hardware, as I had exposure working on both STM (ARM processors) and arduino boards.
Cloud Developing
Developed application on Amazon's AWS utilizing several services including: Elastic Beanstalk, EKS, EC2, ECS, RDS, Dynamo DB, Serverless
Raspberry pi
Well acquainted in working on developing python and node-red modules on Rpi.
Latex
Experience in writing short reports, books and presentations in LAT_EX.

Certificates

Udacity	**Nanodegree**	**APR 2021**
Deep Reinforcement Learning		
Udacity	**Nanodegree**	**DEC 2020**
Cloud Developer		
Coursera	**CalArts**	**NOV 2020**
Visual Elements of User Interface Design		
Coursera	**HKUST**	**OCT 2020**
Front-End Web UI Frameworks and Tools: Bootstrap 4		
Udacity	**Nanodegree**	**JUN 2020**
Blockchain Developer		
VMware	**NTI**	**DEC 2019**
VMware vSphere 6.7 Foundations		
IELTS	**British Council**	**OCT 2019**
IELTS Score - 7.5		
CDAC	**Noida, India**	**APR 2019**
Specialized Programme on IoT		
Coursera	**University of Michigan**	**APR 2019**

Applied Data Science with Python

| **Coursera** | **deeplearning.ai** | **JUL 2018** |

Deep Learning Specialization

| **Coursera** | **IBM** | **FEB 2018** |

A developer's guide to the Internet of Things (IoT)

| **IBM** | **Cairo University** | **MAY 2017** |

Cloud Application Developer - Mastery Award for Students 2016

| **IBM** | **Cairo University** | **MAY 2017** |

Cloud Application Developer - Explorer Award for Students 2016

| **GRE** | **ETS - Reasoning Test** | **SEP 2014** |

GRE Analytical Score - 163 out of 170

| **TOEFL** | **ETS - English Test** | **DEC 2012** |

TOEFL Score - 96 out of 120

| **iOS App Development** | **Amit Learning** | **Summer 2011** |

iPhone App development using Objective-C

| **Mentor Graphics** | **Ain Shams University** | **Summer 2010** |

VHDL Digital Design Course - by Dr. Watheq El-Kharashi

Software Developer Foundation

Academic Foundation
• Understanding is built on a solid foundation i.e. Data Structures, Algorithms, Computer Architecture and Theory of Computation gained from Academic Study.
• Academic focus on security topics through coursework and thesis. Topics included and not limited to Cryptography, Encryption Algorithms and Network Security.

Software Engineering & Design Patterns
• Hands-on experience on state management design patterns using Redux, Scoped Model and Business Logic Component (BLoC) pattern.
• Hands-on experience on abstract factory pattern using BuiltValue library provided for Dart and ObjectFactory provided for C++ by Ns-3 toolkit.
• Hands-on knowledge on singleton design pattern from working with older versions of Angular JS and Laravel.
• Familiar with agile software development practices.

Seminars & Presentations

• Presented seminar on "Mitigating the impact of malicious node in cooperative sensing Cognitive Radio Networks" for the fulfillment of M.Sc. degree.

• Presented a seminar on "Mitigating the impact of malicious behavior via utilizing multiple routes in a cooperative sens- ing Cognitive Radio Network" in IEEE 15th Student Conference, Malaysia

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Created Tutorials

WebAssembly to run blockchain using Go	[Codementor](#)
Ethereum dapps	[youtube](#)
Solidity for Smart Contracts on Ethereum	[youtube](#)

Personal Traits

• **Fast learner** as at some point during a training period, I self-studied flutter framework in relatively short period to finish the client part in the final project of the Specialized Programme on IoT at Noida, India. This helps me to keep myself up-to-date with the latest technologies in IT.

• **Managed** students as a part of my work to fulfill their diploma project "smart parking system" and it was eligible to be presented at Cairo ICT technology fair.

• **Initiated** to kickstart a LoRa-based radio lab at workplace.

• **Curiosity** lead me to discover Sage which is a great framework that helped me fulfill final parts of my Master thesis.
• **Problem solver** as I understand that developer's job is about problem solving along with critical thinking.

Publications

• Influence of relaying malicious node within cooperative sensing in cognitive radio network, Wireless Networks, Springer US M Fathy, A Tammam, A Saafan Feb 2018, [Wireless Networks](#)

• Mitigating the impact of malicious behavior via utilizing multiple routes in a cooperative sensing Cognitive Radio Net- work, IEEE 15th Student Conference M

Fathy, A Tammam, A Saafan Dec 2017, [IEEE Xplore](#)

Research Interests

Blockchain
Forensic blockchain is one interesting research topic that is still a hot topic and it will definitely quench my passion towards Cryptography.

Reinforcement Learning
Reinforcement Learning is the topic which gets my attention within the umbrella of Machine Learning as optimizing different engineering applications using Reinforcement Learning is a technique which I think I might need to utilize in upcoming research.

IoT
IoT is a topic of interest; since I am intrigued about combining IoT with blockchains.

Hobbies

Fitness   Latin Dancing   Football   Movies   Documentaries   Comics

References

Prof. Mohsen M. Tantawy   mohsen.tantawy@nti.sci.eg   [Google Scholar](#)
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