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# Mahmoud Fathy

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github

## EDUCATION

**Arab Academy for Science & Tech**          Cairo, Egypt          **Jul 2018**
- **M.Sc. 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.

**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.

## WORK EXPERIENCE

**Academic Staff**          NTI Institute, Cairo          **April 2012 – Present**
- **Teaching**
  - 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**
  - Network Emulator
  - Wireless Routing protocols study via Ns-2
  - IoT smart parking (ICT)
  - Smart School
  - Integrating Kubernetes with VMware NSX-T Data Center
  - Attendance Phone Application using Flutter

## LANGUAGES AND TECHNOLOGIES

- **Javascript**
  - After discovering about designing web applications using REST-api. JS became the main frontend development tool utilizing mainly ReactJS framework, with some 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.
- **Docker**
  - Gained experience on dealing with docker containers through using it to create my development environments.
- **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.
- **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 and arduino boards.

## Seminar 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 sensing Cognitive Radio Network"* in IEEE 15th Student Conference, Malaysia.

## 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.
- **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.
- **Initiative** 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.
- **Organizes** course contents and schedule as part of my work.

## 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 Network, IEEE 15th Student Conference          M Fathy, A Tammam, A Saafan
  Dec 2017, IEEE Xplore

## Tutorials

- WebAssembly to run blockchain using Go -         Codementor
- Ethereum dapps -                                  youtube
- Solidity for Smart Contracts on Ethereum -         youtube

## Certificates

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|---|---|---|
| **Udacity** | **Nanodegree** | **JUN 2020** |

- Blockchain Developer

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|---|---|---|
| **CDAC** | **Noida, India** | **APR 2019** |

- Specialized Programme on IoT

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|---|---|---|
| **Coursera** | **University of Michigan** | **APR 2019** |

- Applied Data Science with Python

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

- Deep Learning Specialization

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

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

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

- Cloud Application Developer - Mastery Award for Students 2016

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

- Cloud Application Developer - Explorer Award for Students 2016

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

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

## SOFTWARE DESIGN PATTERNS

- Basic knowledge about different 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 experience on singleton design pattern in Angular JS and Laravel.

## RESEARCH INTERESTS

**IoT Security**
IoT security is the topic of interest; since I am intrigued about combining IoT with blockchains to achieve one of the aspects of security.

**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.

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

## HOBBIES

| Fitness | Football | Movies | Documentaries | Comics |
|---------|----------|--------|---------------|--------|

## REFERENCES

| | | |
|---|---|---|
| **Prof. Mohsen M. Tantawy**<br>National Telecommunication Institute | **mohsen.tantawy@nti.sci.eg** | **Google Scholar** |
| **Dr. Emad Abd-Elrahman**<br>National Telecommunication Institute | **emad.abdelrahman@nti.sci.eg** | **Google Scholar** |
| **Dr. Asmaa M. Saafan**<br>National Telecommunication Institute | **asmaa.saafan@nti.sci.eg** | **Google Scholar** |