Mohamad Fakih (He/Him)

Preferred Name “Mo”
June 15 2000
Programming since 2011
Various Projects and excellent track record
Highly motivated and adaptable

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| Research: Robust Cyber-Physical Systems

- Currently Spearheading a solo project related to the robustness of optical and laser sensors
- Leading a team project on distributed attacks targeting control sensors, from ideation to proposal drafting to execution
- Supporting a team project on additive manufacturing path optimization using verifiable Reinforcement Learning techniques.

| Papers:

- LLM4PLC (under submission): Large Language Models for Verifiable Programming of PLCs
- Side-Channel confidentiality leaks through cross-modal sensors (under submission)
- Integrated ICM: Reinforcement Learning for V2X traffic optimization
- AudioFool: Fast, Universal and synchronization-free Cross-Domain Attack on Speech Recognition

| Academics:

- Current PhD Student at the University of California, Irvine - Expected 2027
    - Part of the Autonomous and Intelligent Cyber-Physical Systems Lab
- Received a Bachelor of Engineering with Distinction in Computer & Communications Engineering from the American University in Beirut - June 2022
- Double (French and Lebanese) Baccalaureates.

| Previous Experience and Projects:

Fall 2021- June 2022: Future Credits Platform : Final Year Project
Smart-Contract Blockchain solution for Universities to issue credits in advance.
Developed a distributed security model as well as the public smart contract.
This project was accepted to the AUB Accelerator program.
This project won the Murex Best Software Innovation Award.

December 2021- June 2022: Research group at AUB:
Researched Implicit Neural Representations for Image Harmonization

June 2021- November 2022: Research Intern at UCI (University of California in Irvine)
Proposed robust cross-domain adversarial attacks on Classification Neural Networks.

October 2020- October 2021: Machine Learning Engineer at TecFrac
Applied State-Of-The-Art Computer Vision techniques for real-world operation.
Delivered a complete Arabic OCR pipeline for Document Retrieval on Mobile Devices

Summer 2020: Littera
AI-Based Character Symbol generator.
Implements various Generative Deep Learning models to synthesize novel letters.
Built on Keras/TensorFlow with data pipelining, along with interactive showcases.

Spring 2020: E-Commerce Software

Fully fledged E-Commerce software application with a client-server architecture
Built in Java (client) and Amazon AWS, SES/MySQL (Back-End)
Created individually within 4 days

Fall 2019: Teaching Assistant
Teaching assistant for EECE 330 (Data Structures and Algorithms) in 2 sections.
Teaching assistant for EECE 231 (Intro. to Programming and Matlab) in 1 section.

Spring 2019: AUB/Anghami AI Hackathon participation
AI Music Classifier built on a Convolutional Neural Network.

2019- 2021: Coursis.org; University Course Scheduler
Lead developer and maintainer.
Launched in August 2019 and organically gained 350 users in the first two weeks.

2018: MotusVR (Affordable VR Controller)
Microcontroller-based rig using gyroscopes and flex sensors for movement capturing. This project was the runner-up for the USJ Festival of Science 2018.

2016- 2017: Neon49.com; Learning Management System (LMS)
Developed when our High School needed a low-cost LMS similar to Moodle/Canvas.

2016: ECHO B.A.T (**B**lind **A**ssistance **T**echnology)
Microcontroller-based belt, linked to a smartphone which simulates sounds to represent the immediate environment.
This project won the Bronze Medal in the 2016 National Championship of science.

Skill Set:

- Knowledgeable in State-Of-The-Art methods in Machine Learning and Computer Vision.
- Experienced in PyTorch and TensorFlow: Base Libraries, and their respective data pipelining.
- Fluent in most modern languages, mainly Python, C++, Java, JavaScript/TypeScript.
- Efficient with managing large codebases and tracking issues using VCS.

Key Strengths:

- Self-Motivated: Working on challenging problems keeps me moving forward.
- Quick Learner: I love teaching myself a new set of skills or acquiring knowledge on my own.
- Communicator: Transmitting ideas and conclusions efficiently is essential, often through charts/graphs or other compact means of communication.
- Patient: Innovation necessitates rapid iteration by going back to the drawing board and trying better ideas.

Social Projects:

2020 - 2022: Active member in the policy making teams of “Change Starts Here”, an independent student organization at AUB.

2018: Organized various social events as fundraisers for the high school prom.

2018: Produced and Edited a feature film with the Scouts of Lebanon.
The film addressed the lack of solidarity in society, and was shown in a 400 viewer theater.

2018: Took part in organizing a Woman’s Day event as part of our senior year in high school
Part of the funds raised was sent to local activist Groups.

2016: Directed a short film in high school that aimed to curb stereotypes related to gender interests
Available at https://www.youtube.com/watch?v=E7YozfO6GcE