Feras-Ra'ed

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Research Interests

I'm interested in Machine and Deep Learning, Statistical Machine Learning Theory, Data Mining, Programming Languages and Natural Language Processing.

Education

Feb '19 – Sep '22	**Jordan University of Science and Technology JUST**

B.Sc. Electrical Engineering (Communications), Minor in Computer Science, (Accelerated Degree)
- Advisors: Ahmad Abu-El-Haija and Mahmoud Al-Ayyoub
- Thesis: Automatic detection of covert timing channels using Image Processing and Machine Learning
- Honors: Chairman Award for Best Undergraduate Thesis (Spring 2022), Walid A. Shahab Award. Rank 1 out of 90 engineering freshmen in EE320: Electronic Circuits Course (Summer 2020), National Scholarship (top 2% of high schools)
- Teaching: Course Assistant for Digital Communications and Programming in C++
- Relevant Courses: Linear Systems Theory, Random Signal Analysis, Digital Signal Processing, Digital Communications. Additional Courses at CS Department: Object-Oriented Software Modeling, Advanced Topics in Programming, Analysis and Design of Algorithms

Sep '16 – Feb '19	**Jordan University of Science and Technology JUST**

First and Second Years - Architecture
- Major GPA: 3.89/4.0, Rank: 2nd
- Advisor: Hussain Alzoubi
- Honors: Ranked 2nd Among Student Design Projects for ARCH 111: Basic Design (1) Course, National Scholarship (top 2% of high schools)
- Transferred to Faculty of Engineering after Second Year to Pursue Education in Electrical Engineering

Sep '11 – Jun '16	**Pioneer Educational High School for Science and Technology**

Pick Up the Best Student at High School
- GPA: 95.5/100, Rank: 1st (top 2% nationwide)
- Relevant Courses: Deep Classes in Mathematics, Physics, and Basics of Algorithms
- Start Coding at this School (age 14)

Selected Experience

Jun '21 – Sep '21	**EPFL (École polytechnique fédérale de Lausanne)**

Research Summer Intern - Theory of Machine Learning Lab
- Advisor: Nicolas Flammarion
- Implementation of optimization model agnostic algorithms for Meta-Learning
- Studying the robustness of machine learning models to small, worst-case changes in the inputs
- Funded by Erasmus +
- Keywords: Meta-Learning, Adversarial Robustness

Sep '22 – Present	**Microsoft - Amman**

Research Intern - Deep Learning Group
- Developing Association Rule & Frequent Itemset Mining Algorithms; Frequent Pattern -growth mining algorithm
- Keywords: Statistical Machine Learning, Data Mining

Feb '20 – Sep '22	**JUST Information and Communication Group**

Undergraduate Researcher -Machine Learning in Healthcare Lab
- Advisors: Mahmoud Al-Ayyoub and Ahmad Abu-El-Haija
- We developed methods for Diagnosis a lot of cases using Machine Learning and 3D Modeling – specifically Breast Cancer, Lumbar Disk Herniation, Brain Tumor, Sinus Diseases

- Optimization of algorithms for Natural Language and Human Activity Recognition
- Keywords: Machine Learning in Healthcare

Jun '22 – Sep '22 | **Specto Ltd**
Machine Learning Intern
- Advisor: Ahmad Abu-El-Haija
- Building machine learning and deep learning models on Google cloud platform
- Development of fast and energy efficient algorithms for specialized computer architecture
- Keywords: Self-Supervised Learning, Program Synthesis

Teaching Experience

Spring '21 | **CS Department of JUST** - *Teaching Assistant for Programming in C++ (CS115)*
- Developed problem set and exam questions
- Taught weekly tutorial problem-solving sessions to small student groups

Fall '22 | **EE Department of JUST** - *Teaching Assistant for Digital Communications (EE551)*
- Taught weekly tutorial problem-solving sessions to small student groups

Nov '20 – Aug '21 | **Focus Academy** – *Tutor for Signal & Systems (EE260), Electromagnetic (EE207), Physics (PHY102)*

Honors & Awards

2021 | **Erasmus+** - *Scholarship of the Jordan Academic Exchange*
2022 | **EE Department of JUST** - *Chairman Award for Undergraduate Research Excellence (Best Undergraduate Thesis)*
2021 | **EE Department of JUST** - *Walid A. Shahab Award. Rank 1 out of 90 Engineering Freshmen in EE320*
2021 | **Saudi Federation for Cyber Security and Programming (SAFCSP)** - *2nd Place in @Hack CTF*
16 - 22 | **EE and ARCH Departments of JUST** - *National Scholarship*

presentations

Aug '22 | **Association of Arab Universities Webinar** - *Presenter for "Information Technology and the Future"* [*Slides*]

Skills

- **Technical**: C++, Python, TensorFlow, Pytorch, Theano, Javascript, Java, C#, Objective-C, Matlab, Android, Kotlin
- **Design**: Unity, Unreal Engine, Photoshop, Microcontrollers, Illustrator
- **Languages**: English and Arabic (Proficient), French (Elementary proficiency)
- **Extra-curricular Interests**: Outdoor sports (esp. biking, soccer, running, swimming, snowboarding), Math brain-teasers and Algorithms, Board games and Traveling

Leadership, Club Activities & Volunteer Experience

Oct '20 – Oct '21 | **IEEE Computer Society Student Chapter** - *Chairman*
- Hold 5-week Artificial Intelligence and Machine Learning Courses for the freshman engineering majors in JUST University
- Organized Techno-Date which brings together students and tech startups. During the event students had the chance to listen-up numerous start-up journeys

Jul '19 – Jul '22 | **JUST Programming Chapter - JPC** - *Chairman*
- Taught JUST students problem-solving, algorithms, data structures, and math in multiple trainings, +350 attended the trainings
- Trained JUST students taking part in National and International Programming Competitions

Oct '20 – Oct '21 | **Eye On The Future_Live Your Dream** - *Volunteer*
- Organized a classrooms across the country to help educate students about research in computer science and career options as a quantitative scientist
- Supported teachers in the best high schools by mentoring students and providing yearlong technical support on web development projects

Jul '19 – Jul '22 | **IEEE Student Branch** - *Board Member*

- Organized 17th IEEE Jordan Student & Young Professional Congress in 2019 with 200 IEEE members in Jordanian Universities
- With a group of volunteering peers, we organized "Eye On The Future" which is a one-week comprehensive event for students interested in technology enterprises and startups, including seminars, workshops and entertainment

Jul '19 – Jul '22 | **IEEE Student Branch** - *Board Member*