

Hamzeh Abu Qamar

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EDUCATION

United Arab Emirates University (UAEU), Al Ain, UAE **2024**

B.Sc. in Electrical Engineering, GPA: 3.99/4.0

International School of Choeuifat (SABIS), Al Ain, UAE **2020**

High School Diploma, Average: 97%

ELECTRICAL ENGINEERING

IEEE Research Scholarship **Aug. 2023 – Present**

- Awarded from IEEE Antennas and Propagation Society to pursue graduation project
- Simulated digital twin for small satellite constellations via Python/MATLAB targeted at Expo City, Dubai, UAE for environmental monitoring – motivated by COP28
- Created Github repository: NetSat SpaceSim – link budget analysis calculator

Summer Intern, KAUST, Jeddah, KSA **May 2023 – Sept. 2023**

- Evaluated 3 deep learning models (WGAN, DCT, UNet) on public datasets – Python
- Investigated practical and innovative tools to continuously monitor blood pressure
- Cleaned & interpreted the results for better visualization

Research Assistant, UAEU **Oct. 2021 – Present**

- Solved problem related to SDGs 3 & 4: smart glasses that convert text to audio for visually impaired – integration of camera with Raspberry Pi and Linux OS
- Installed non-invasive heart-attack detection system using piezoelectric technology
- Conducted experiments around an artificial blood vessel to investigate the behavior of blood velocity & pressure in the presence of a clot
- Engineered a self-charging system for EVs, using electromagnetic coils and solar panels

ENTREPRENEURSHIP & LEADERSHIP

Rapporteur, World Environmental Education Congress, Abu Dhabi, UAE **Jan. 2024**

- Worked with UN & WEEC Network, taking notes in most important seminars
- Attended 6 sessions – incorporate AI/sustainability/env. into education

Young Future Energy Leaders, Khalifa University, Abu Dhabi, UAE **Dec. 2023 – Present**

- Promoted sustainability & renewable energy solutions – debates, seminars, workshops
- Networked with 110 individuals to exchange ideas & expand knowledge base
- Participated in Student Energy Summit 2023 at NYUAD as Delegate

Hack4Climate, UAE Space Agency, Expo City, Dubai, UAE **Dec. 2023**

- Four-day hackathon: Understood the different levels & bands of sat. imagery
- Plotted heatmap NO₂ conc. for Dubai: Copernicus Sentinel-5P Level-2 sat. imagery
- Calculated emissions for (1) no wind, (2) constant wind, (3) wind from ADS dataset

University Challenge, PwC, Dubai, UAE **Dec. 2023**

- Underwent climate fresk challenge – arranging pictures according to specific theme
- Learnt about value & contribution of consulting in sustainability

Innovation Camp, Lafarge, Dubai, UAE **Dec. 2023**

- Developed solutions for construction and demolition waste (CDW) recycling: plant that produces metals, plastics, & raw material for sustainable future in construction

AI in Finance Hackathon, Dept. of Finance, Dubai, UAE **Nov. 2023**

- Developed platform that provides & collects data on microfinancing solutions for locals
- Envisioned AI algorithm for budget allocation – secured 1st place & 10,000 AED fund

Experts Coordinator, Hult Prize, UAEU **Oct. 2023 – Present**

- Invited local entrepreneurs, experts, and content creators to mentor startups
- Collaborated with exec team & participants to refine startup ideas

Delegate, Global Sustainability Development Congress, Jeddah, KSA **May 2023**

- Represented UAEU – set up booth, distributed souvenirs, displayed research projects
- Explored partnerships & collaborations with other universities & corporations
- Collaborated with exec. team & conducted workshops on innovation & entrepreneurship

Youth Sustainability Hackathon, General Electric, Dubai, UAE **May 2023**

- Collaborated with teammates on strategy: solve energy transition challenges in accordance with UAE's Zero Net Emissions by 2050 – secured 3rd place
- Devised energy mix plan – added 60GW renewable power to UAE's grid

Secretary of IEEE Chapter, UAEU **Oct. 2022 – Present**

- Organized IEEE Day: invited professors to demo & showcase their research
- Arranged for students to participate in conferences: MARSS, IEEE ICM, COP28

Sheikh MBZ Scholarship, New York University, Abu Dhabi, UAE **Sept. 2022 – Apr. 2023**

- Interviewed H.E. Dr. Sultan Al Jaber – Group CEO of ADNOC and President of COP28
- Refined public speaking, critical thinking, leadership skills
- Traveled to Istanbul to learn about their culture and meet VCs & entrepreneurs
- Attended 2 networking events: Gitex Global & Sharjah Entrepreneurship Festival

Founder & CEO, Velocity Academy **Sept. 2020 – Feb. 2021**

- Operated Instagram online business with 3000 followers, tutored in math, physics, chem
- Facilitated 20 high school students' admissions into US undergraduate programs

ATHLETICS

Volunteer, Men's Arab Futsal Competition, Al Ain, UAE **Dec. 2022**

- Delivered food & facilitated transportation for total of 20 individuals

UAEU Soccer & Athletics Captain

Dec. 2020 – Present

- Represented UAE – GCC Universities 100m Sprint in Doha 2023 – secured 5th place
- 1st place in 2022 Abu Dhabi Football Competition
- Acted as liaison between coaching staff and the 25 members of soccer team

PUBLICATIONS

1. K. Mohammed, **H. A. Qamar**, R. A. Khalil and N. Saeed, "*Regional CubeSat Communication and Constellation Design Evaluation*," 2023 International Conference on Microelectronics (ICM), Abu Dhabi, United Arab Emirates, 2023, pp. 284-287, doi: 10.1109/ICM60448.2023.10378915.
2. **"No2Pollution: A Guide to Analyze Air Quality via Level-2 Satellite Imagery"**
Under Review – EuCNC & 6G Summit, Jan. 25th, 2024
3. **"Analyzing Coverage and Link Budgets in Mega-Constellations of Small Satellites"**
Under Review – EuCNC & 6G Summit, Jan. 8th, 2024
4. **"Probing Blood Dynamics: A Novel Piezoelectric Approach to Monitor Flow and Detect Clot Formation"**
Under Review – Elsevier Measurement, Jan. 5th, 2024
5. **"Clot Monitoring Through Electromechanical Analysis"**
Presented – IEEE Conference on Systems and Control (ICSC), Dec. 21st, 2023

SKILLS

- Python, AI, ML Programming
- Raspberry Pi & Arduino
- MATLAB and C++
- Public speaking, critical thinking, leadership
- Project management

CERTIFICATES & LICENSES

- Cisco CCNA: Introduction to Networks
- Google Project Management: Professional Certificate (3/6)