Enas Abulibdeh, Ph.D.

+971564268543,+962788748869
enas.abulebdeh@gmail.com
linkedin.com/Enas Abulibdeh
scholar.google.ae/Enas Abulibdeh
Abu Dhabi, United Arab Emirates

Profile

An accomplished researcher with extensive expertise in the analysis and development of Physically Unclonable Functions (PUFs). With 12 published works, including contributions to Q1 journals, conferences, and a book chapter, I have a strong academic track record. I specialize in the design and implementation of diverse PUFs across platforms such as FPGA, ASIC, and DRAM, with notable contributions to PUF fabrication at the SoC Lab at Khalifa University.
I have represented my research group at prestigious events, including UMEX 2024 at ADNIC and Innovation Day 2024 at Khalifa University, Abu Dhabi, UAE. In addition to my PUF research, I have worked extensively in computer vision and AI, with applications in real-time traffic detection and object tracking in SEM.
With significant teaching and supervision experience at leading universities, including Khalifa University (UAE), Yarmouk University (Jordan), and JUST University (Jordan). My technical expertise includes Verilog, FPGA/ASIC design, AI/ML tools, and various programming languages, supported by over 10 years of experience in both software and hardware instruction. I excel in collaborating with interdisciplinary teams to drive innovative research and solutions.

Education

2021 – 2024 **Ph.D. Electrical and Computer Engineering, Khalifa University, Abu Dhabi, UAE** (*Distinction*)
(Khalifa University ranks 181 in the QS World University Rankings 2023)

- **Thesis title**: *Reliable and Efficient Hardware Implementation of PUFs for Secure IoT Applications*. **Supervisor:** Dr. Hani Saleh
- **Key Classes**: PUF, Physical Security, Zero Trust Architectures, FPGA, Digital ASIC Design.
- **GPA**: 3.91

2013 – 2016 **M.Sc. Computer Engineering, Jordan University of Science and Technology (JUST), Irbid, Jordan** (*Distinction*)
(Jordan University of Science and Technology ranks 554 in the QS World University Rankings 2023)

- **Thesis title**: *Target Localization in Scanning Electron Microscope (SEM)*. **Supervisor:** Dr. Inad Aljarrah
- **Key Classes**: Image Processing, Computer Vision, Fuzzy Logic.
- **GPA**: 89.2%

Education (continued)

2008 – 2013 **B.Sc. Computer Engineering, Jordan University of Science and Technology (JUST), Irbid, Jordan** (*Distinction*)
(Jordan University of Science and Technology ranks 554 in the QS World University Rankings 2023)

- **GPA**: 92.9%
- **Graduation Project**: A Prototype for a Bio-Inspired Nanotechnology Robot.

Experience

Sep 2025 – Present **Lecturer**, Computer Engineering Department, Networks and Information Security Engineering Program, Princess Sumaya University for Technology (PSUT), Amman, Jordan.

Apr 2025 – Aug 2025 **Postdoctoral Fellow**, Center for Cyber-Physical Systems, Department of Computer and Information Engineering, Khalifa University (KU), Abu Dhabi, UAE.

- Designed and implemented a hardware-based Remote Identification Module that ensures chip-to-chip zero-trust communication with a flight controller and secure communication with a remote observer.

2021 – 2024 **Graduate Research / Teaching Assistant**, System on Chip Lab, Department of Computer and Information Engineering, Khalifa University (KU), Abu Dhabi, UAE.

- Led research on PUF architectures, their implementation, and utilization at SoC Lab, opening collaboration opportunities both internally, such as with the 6G Research Center, and externally, such as with the Technology Innovation Institute (TII).
- Contributed to the fabrication of PUFs in the SoC Lab, integrated into the Shaheen chip.
- Led weekly lab sessions for undergraduate students in Database Systems (ECCE 434), focusing on hands-on experiments and practical applications. Assigned and reviewed writing assignments, provided one-on-one guidance, and offered troubleshooting assistance to students, ensuring the successful completion of lab exercises.
- Graded quizzes, midterm, and final exams for Digital Systems Design (CCEN 408), Microprocessor Systems (CCEN 316), and Digital Logic Systems (CCEN 210), ensuring consistency in evaluation based on clear rubrics.

Experience (continued)

2016 – 2020 **Computer Engineer / Lab Coordinator**, Department of Computer Engineering, Yarmouk University (YU), Irbid, Jordan.

- Led weekly lab sessions for undergraduate students in Introduction to Programming (CPE 150L), Digital Logic Design (CPE 231), Advanced Programming (CPE 360L), and Operating Systems (CPE 466L), focusing on hands-on experiments and practical applications.
- Designed the examination process, including practical assessments and written tests, aligned with course objectives. Developed grading rubrics and ensured consistent, objective evaluation of student performance.
- Developed the syllabus for the Advanced Programming (CPE 360L) lab component, aligning it with course objectives and academic standards. Designed both theoretical and practical content to provide students with a comprehensive understanding of key concepts in Object-Oriented Programming (OOP) and Windows Forms (WinForms).

2013 – 2015 **Research Assistant / Teaching Assistant**, Nanotechnology Center and Department of Computer Engineering, Jordan University of Science & Technology (JUST), Irbid, Jordan.

- Graded quizzes, midterm, and final exams for Digital Image Processing (CPE 750), Artificial Intelligence Systems (CPE 480), and Data Communication (NES 311), ensuring consistency in evaluation based on clear rubrics.
- Led research on the Multi-Robot Navigation System at the Nanotechnology Center, distributing tasks across the technical team, proposing algorithms, and leading the evaluation process.

2012 **Trainee**, Networking Department, King Abdullah University Hospital (KAUH), Irbid, Jordan.

- Drafted technical specifications for data center infrastructure design.
- Monitored network activities and troubleshot connectivity issues.

Professional Activities

- **Conference Organization**:
  1. IEEE International Conference on Microelectronics (ICM 2023).
  2. IEEE International Conference on Artificial Intelligence Circuits and Systems (IEEE AICAS 2024).
  3. IEEE Middle East Conference on Communications and Networking (IEEE MECOM 2024).
- **Participation**:
  1. TII Summits 2021, 2022, and 2024, and GENZERO Workshop 2024.
  2. UMEX 2024 Exhibition – Presented a demo on the fabricated PUF.
  3. Innovation Day 2024 at Khalifa University (2023) – Presented a demo on the fabricated PUF.
  4. International Conference on Very Large Scale Integration (VLSI-SoC 2023).

5. First Sustainability E-Gaming Competition at Khalifa University (2023) – Awarded 3rd Place.

- **Workshop Instructor / Facilitator**:

1. AI and Machine Learning and its Application Workshop 2019, Yarmouk University. Irbid, Jordan.

Research Publications

Journal Articles

1. E. Abulibdeh, H. Saleh, B. Mohammad, and M. Al-Qutayri, "Algorithmically optimized configurable ring oscillator puf for iot devices," *submitted toJournal of Parallel and Distributed Computing*, 2025.
2. E. Abulibdeh, H. Saleh, B. Mohammad, and M. Al-Qutayri, "Security analysis of digital-based physically unclonable functions: Dataset generation, machine learning modeling, and correlation analysis," *submitted to IEEE Communication Magazine*, 2025.
3. E. Abulibdeh, H. Saleh, B. Mohammad, and M. Al-Qutayri, "Shehana: An efficient puf-based key generator with use cases in end–edge–cloud systems," *submitted to Internet of Things and Cyber-Physical Systems*, 2025.
4. E. Abulibdeh, H. Saleh, B. Mohammad, M. Al-Qutayri, and V. Asif, "Kernel-based response extraction approach for efficient configurable ring oscillator puf," *Scientific Reports*, vol. 15, no. 5938, 2025.
5. L. Younes, E. Abulibdeh, B. Mohammad, H. Saleh, and M. Al-Qutayri, "Dcdc-puf: An enhanced implementation of ring oscillator based puf," *Scientific Reports*, 2025.
6. E. Abulibdeh, L. Younes, B. Mohammad, K. Humood, H. Saleh, and M. Al-Qutayri, "Dram-based puf utilizing the variation of adjacent cells," *IEEE Transactions on Information Forensics and Security*, vol. 19, pp. 2909–2918, 2024.
7. L. Younes, E. Abulibdeh, B. Mohammad, H. Saleh, and M. Al-Qutayri, "Multi-voltage configuration impact on puf response for analyzing vulnerability and attack resilience," *submitted to Nature Scientific Data*, 2024.
8. T. Assaf, A. Al-Dweik, Y. Iraqi, *et al.*, "High-rate secret key generation using physical layer security and physical unclonable functions," *IEEE Open Journal of the Communications Society*, vol. 4, pp. 209–225, 2023.
9. A. H. Alomari and E. A. Lebdeh, "Smart real-time vehicle detection and tracking system using road surveillance cameras," *Journal of Transportation Engineering, Part A: Systems*, vol. 148, no. 10, p. 04 022 076, 2022. DOI: 10.1061/JTEPBS.0000728.

Conference Proceedings

1. E. Abulibdeh, H. Saleh, B. Mohammad, and M. Alqutayri, "Computational-based advanced encryption standard (aes) accelerator," in *2023 International Conference on Microelectronics (ICM)*, IEEE, 2023, pp. 64–69.
2. E. Abulibdeh, L. Younes, B. Mohammad, H. Saleh, and M. Alqutayri, "Correlation power attacks on tea," in *VLSI-SoC 2023 PhD Forum*, 2023.
3. E. Abulibdeh, L. Younes, B. Mohammad, H. Saleh, M. Alqutayri, and K. Humood, "Dram bitline as a delay path for potential puf," in *2023 International Conference on Microelectronics (ICM)*, IEEE, 2023, pp. 248–252.

Books and Chapters

1. E. E. Abulibdeh, B. Mohammad, and H. Saleh, "In and near-memory computing using dram," in *In-Memory Computing Hardware Accelerators for Data-Intensive Applications*, Springer, 2023, pp. 39–55.

Datasets

1. E. ABULIBDEH, H. Saleh, B. Mohammad, and M. Al-Qutayri, *Cross-architecture and device puf dataset*, 2024. DOI: 10.21227/2581-8y14.
2. E. Abulibdeh, L. Younes, B. Mohammad, H. Saleh, M. Al-Qutayri, and K. Humood, *Dram-based puf*, 2024. DOI: 10.21227/rwtn-py97.
3. L. Younes, E. Abulibdeh, B. Mohammad, H. Saleh, and M. Al-Qutayri, *Dcdc-puf dataset*, 2024. DOI: 10.5281/zenodo.14162308.
4. E. ABULIBDEH, H. Saleh, B. Mohammad, and M. Al-Qutayri, *Crps dataset of ring oscillator puf*, 2023. DOI: 10.21227/6ssx-ft56.

Grants and Awards

2023 **Best Paper Award (3rd Place)**: IEEE International Conference on Microelectronics (ICM 2023).

2021 **Awarded the Khalifa University Ph.D. scholarship, recognizing outstanding academic performance and research contributions**.

2013 **Awarded the Jordan University of Science and Technology (Jordan) M.Sc. scholarship for academic excellence and research potential**.

2008 **Awarded Zain (Jordan) B.Sc. scholarship for academic excellence**.

Technical Skills

Languages	English and Arabic.
AI Algorithms and ML	Python, TensorFlow, and Keras.
Hardware:	RTL design and simulation using Verilog, FPGA Design & Implementation with Vivado, ASIC Design & Implementation with Synopsys tools.
Software:	C, C++, C#, Python, Matlab, SQL, Java, Web design tools.
OS Platform:	Windows and Linux
Misc.	LaTeX for academic writing.

References

Dr Hani Saleh
Khalifa University,
Computer and Information Engineering
hani.saleh@ku.ac.ae

Prof Baker Mohammad
Khalifa University,
Director, System-on-Chip Lab, Department Chair
Computer and Information Engineering
baker.mohammad@ku.ac.ae

Prof Mahmoud Al-Qutayri
Khalifa University,
Associate Provost for Academic Operations, Computer and Information Engineering
mahmoud.alqutayri@ku.ac.ae

Prof Osama Al-Khaleel
Jordan University of Science and Technology,
Computer Engineering
oda@just.edu.jo