Ali Massoud Haidar

Professor, Computer Engineering

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PROFILE AT A GLANCE

142 PUBLICATIONS	**106** CONFERENCE PAPERS	**30** JOURNAL ARTICLES	**6** BOOK CHAPTERS
11 PHD DISSERTATIONS	**32** MASTER'S THESES	**39** YEARS IN ACADEMIA	**5** UNIVERSITY APPOINTMENTS

PROFESSIONAL SUMMARY

Professor and Chairman of Electrical and Computer Engineering at Beirut Arab University, with nearly four decades of academic leadership since 1986. A Monbusho-funded scholar trained in Japan (Ph.D., Saitama University), he has authored **142 peer-reviewed works** — including **30 journal articles** in venues such as IEEE Access, IEICE Transactions, and Micromachines — and supervised **43 graduate theses** (11 doctoral and 32 master's). His research spans multiple-valued logic and low-energy circuit design, neuro-computing, artificial intelligence, and cryptography, sustained across more than thirty years and complemented by advisory roles for the European Commission and the Central Bank of Lebanon and active international collaborations across Japan, France, and Qatar.

EDUCATION

- **Ph.D. Computer Engineering** (Excellent), March 1995
  Dept. of Computer and Information Engineering, Faculty of Engineering, Saitama University, Japan.
  Thesis: Analysis and Design of Multiple-Valued Logic.
- **M.E. Computer Engineering** (Excellent), March 1992
  Dept. of Computer and Information Engineering, Faculty of Engineering, Ryukyus University, Okinawa, Japan.
  Thesis: Multiple-Valued Logic (Theory and Applications).
- **B.Sc. Electrical Engineering** (Electronics & Communications), June 1986
  Electrical Engineering Department, Faculty of Engineering, Beirut Arab University, Lebanon.

EXPERIENCE

Academic Leadership & International Engagement

- **General Co-Chair**, International Conference on Intelligent Computing and Next-Generation Technologies (ICICNGT 2026).
- **Special Session Chair**, International Symposium on Nonlinear Theory and Its Applications (NOLTA 2026).

- **International Academic Collaboration — EFREI University, France:** Established student and faculty mobility, joint research, and academic cooperation.
- **International Research Partnerships:** Built collaborations with institutions in Qatar and MIA University (Japan), including joint PhD supervision, research, and academic exchange.
- **Director**, Engineering Consultancy Unit, Faculty of Engineering, Beirut Arab University (September 2023 – August 2025).

Academic Appointments

- **Beirut Arab University, Lebanon**
  - Teaching Assistant, Department of Electrical Engineering (1986–1988)
  - Faculty Member, Department of Electrical Engineering (1997–2003)
  - Faculty Member, Department of Computer Engineering and Informatics (2003–2013); Acting Chairman
  - Faculty Member, Department of Electrical and Computer Engineering (2013–2025); Coordinator, Computer Engineering Program
- **Hiroshima City University, Japan**
  - Assistant Professor, Faculty of Information Sciences (April 1995 – October 1997)
- **Lebanese American University (LAU), Lebanon**
  - Invited Professor (Part-time), Undergraduate and Graduate Programs (1999–2012)
- **Notre Dame University (NDU), Lebanon**
  - Invited Professor (Part-time), Undergraduate Programs (2003–2013)
- **Lebanese University (LU), Lebanon**
  - Invited Professor; supervisor of undergraduate projects and jury member for graduate theses.

Professional Consultancy

- **European Commission (EU-MEDIS Programme)**
  - Expert and Counselor to the Delegation of the European Commission to the Republic of Lebanon (February 1999 – October 2000).
- **Central Bank of Lebanon**
  - Expert and Counselor in communications, telecommunications, and computer networking (January 1999 – January 2000).

RESEARCH PROFILE

142 peer-reviewed publications — **106** conference papers, **30** journal articles, and **6** book chapters — spanning 1991 to 2026, with recent accepted works at IEEE ICC 2026 and NOLTA 2026, plus **6** research posters.

Research Areas of Expertise

- **Multiple-Valued & Ternary Logic —** a 30-year research line spanning CNTFET/CNFET circuit design, Josephson δ-gates, and ultra-low-energy ternary arithmetic.
- **Neuro-Computing & Logic-Oriented Neural Networks —** LOGO neural networks, biomimetic digital neurons, and neural-network memory (NN-SRAM).
- **Artificial Intelligence & Machine Learning —** algebraic machine learning, AI for smart cities, and biomedical AI applications.
- **Cryptography & Network Security —** post-quantum cryptography, intrusion detection, and novel key-encryption schemes.
- **Wireless Sensor Networks & Energy-Efficient Systems —** routing, tracking, and energy-aware architectures.

- **Emerging Technologies —** metaverse / extended-reality integration and quantum-powered systems.

Selected Publications

Most recent works (2025–2026); full list of 142 publications available on request.

1. Abou Ali, M., Dornaika, F., Hotiet, H., Ali, H., Kassem, A., & Haidar, A. (2026). "Agentic AI for Autonomous Clinical Data Synthesis: Closing the Legacy Data Gap for Diabetes Risk Stratification." International Symposium on Nonlinear Theory and Its Applications (NOLTA 2026), France. (Accepted)
2. Bizri, M. E., El-Hajj, A. M., Sliman, L., & Haidar, A. M. (2026). "Channel-Adaptive Post-Quantum Cryptography for Secure and Efficient Non-Terrestrial Networks." IEEE International Conference on Communications (ICC 2026), Glasgow, UK. (Accepted)
3. Bizri, M. E., El-Hajj, A. M., Sliman, L., & Haidar, A. M. (2026). "Institutional Approaches to Post-Quantum Cryptography: A Comparative Analysis of Migration Frameworks." IEEE Access, 14, 3259–3283.
4. Bizri, M. E., Haidar, A. M., El-Hajj, A. M., & Sliman, L. (2026). "Quantum-Powered Metaverse: Opportunities, Challenges, and Future Directions in Virtual Worlds." In Metaverses: Reshaping Law, Economy, and Society, PoliTO Springer Series. Springer, Cham.
5. Qiblawi, R. A., Sliman, L., Osman, Z., & Haidar, A. M. (2026). "MirageXR: A Framework for Metaverse-Enabled Cross-Platform Integration of Physical Hardware and XR Environments." In Metaverses: Reshaping Law, Economy, and Society, PoliTO Springer Series. Springer, Cham.
6. Jaber, R. A., Kassem, A., & Haidar, A. M. (2025). "A Ternary Multiplexer Using CNTFET." 32nd IEEE International Conference on Electronics, Circuits and Systems (ICECS 2025), Marrakech, Morocco.
7. Zaahr, A., Sliman, L., & Haidar, A. M. (2025). "Towards Actionable Guidelines for Advanced iOS Software Architecture." In Software Engineering: Emerging Trends and Practices in System Development, Lecture Notes in Networks and Systems, Vol. 1562. Springer.
8. Khram, I., Hijja, F. A., Haidar, A., & Ayache, M. (2025). "AI-Driven Individual Identification Using Palm Veins: A Systematic Review, Challenges, and Future Perspectives." IEEE 8th International Conference on Advances in Biomedical Engineering (ICABME 2025), Beirut Arab University, Lebanon.

RESEARCH SUPERVISION & MENTORSHIP

Supervised **43 graduate theses** — **11 doctoral dissertations** (7 completed, 4 in progress) and **32 master's theses** (31 completed) — across the Faculties of Engineering and Science.

- **Doctoral graduates** have completed dissertations in multiple-valued logic, neural-network processors, energy-efficient wireless sensor networks, and network security, and now hold faculty and senior research positions.
- **International trajectories:** students mentored by Prof. Haidar have gone on to earn doctorates in France, Canada, Italy, and the United States.
- **Industry impact:** alumni hold senior software-engineering roles across the Middle East and academic posts internationally.
- **Award-winning student teams:** First Prize — Certificate of Excellence, IEEE Scientific Day (IEEE Lebanon Section), and multiple projects showcased at the Security Middle East Show (SMES 2015).
- **Defense committees:** jury head and member on numerous M.Sc. and Ph.D. committees at BAU, other Lebanese universities, and in France.

SCHOLARSHIPS & HONORS

- **Monbusho Scholarships** (Government of Japan) — four consecutive awards funding Japanese-language study, research, M.E., and Ph.D. (1989–1995).
- **Who's Who in the World** — listed, 1996.
- **Technical Program Committee Member** — IEEE, 2nd International Conference on Computers & Applications, Dubai, UAE, September 2017.

PROFESSIONAL MEMBERSHIPS

- **IEEE** — Institute of Electrical and Electronics Engineers
- **IEICE** — Institute of Electrical, Information, and Communication Engineering
- **Order of Engineers in Beirut**, Lebanon
- **Beirut Arab University** — Faculty of Engineering Strategic Plan 2026 (Member); Research Committee 2026 (Member)
- **European Society (CST)**; Sport, Culture and Social El-Mishaal Club, Lebanon

PROFESSIONAL DEVELOPMENT

- **Introduction to Machine Learning** — DeCAIR project, ERASMUS+ Programme, University of Genoa, Italy, Feb–Mar 2022.
- **Open Day for Data Science (ODDS'16)** — Antonine University, Lebanon, October 2016.
- **7th Franco-Japanese Conference** on Combinatorics, Optimization and Computational Geometry, Tokyo, Japan, June 1994.

LANGUAGES

Arabic · **English** · **Japanese**