



Prof. Ahmed Younes

Professor of Quantum Computer Science, Alexandria University, and Alamein International University - Egypt.

Keynote title

Scaling Quantum Research, Education and Industry in Egypt

Biography

Ahmed Younes is Professor of Quantum Computer Science, Alexandria University, and Alamein International University. He is the founder and leader of Alexandria Quantum Computing Group (AleQCG), the coordinator of QEgypt (QWorld cousin), the representative of Egypt in World Quantum Day (WQD), the founder of the Professional Master in Quantum Computing and Quantum Information, the Center of Excellence for Quantum Computers, Faculty of Science, Alexandria University, and the representative of the Arab States in the International Year of Quantum Science and Technology (IYQ2025) Steering Committee endorsed by UNESCO.

He is the former Vice Dean of Education and Student Affairs, Faculty of Science, Alexandria University. The former Manager of the International Scientific Publishing Center, Alexandria University, and also the former Academic Supervisor of the Faculty of Computers and Data Science, Alexandria University. He is a former Honorary Research Fellow at School of Computer Science, University of Birmingham, United Kingdom.

He obtained his PhD from University of Birmingham, United Kingdom in 2004 in quantum circuits and quantum algorithms. He introduced techniques in amplitude amplifications and quantum search algorithms, known as 'Partial Diffusion Operator' and made contributions in representing Quantum Boolean circuits as Reed- Muller logic. He published many papers in Quantum Algorithms, Quantum cryptography and Reversible Circuits.

Abstract

This talk outlines a comprehensive strategy for establishing a robust quantum science and technology (QST) ecosystem in Egypt. The talk begins by analyzing the current research landscape, identifying both existing strengths and critical gaps in Egypt's QST topics. The talk then presents a multi-tiered educational blueprint, from core undergraduate foundations to specialized graduate paths, designed to cultivate a skilled quantum workforce. Furthermore, the talk maps these academic programs to both "ready" and "missing" industry clusters—from quantum computing and cryptography to advanced materials and pharmaceuticals—highlighting concrete opportunities for economic growth and technological innovation. The work of the Alexandria Quantum Computing Group (AleQCG) and QEgypt is showcased as a successful model for grassroots educational development, demonstrating a scalable pathway for Egypt to actively participate in the global quantum revolution.