

Abdel-Rahman Elsayed Ahmed

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EDUCATION

Alexandria University — Bachelor of Engineering in Computer and Communication Engineering | GPA: 3.16/4.0

TECHNICAL SKILLS

Programming: Python, Java, C, LaTeX, SQL, MATLAB | **Quantum Computing:** Qiskit, PennyLane, Quantum Circuits, VQE, QAOA, QML | **ML:** TensorFlow, PyTorch, Scikit-learn | **Tools:** Git, Linux, Docker, Jupyter

PROJECTS

CLIQLang - Quantum Programming Language | [Website](#)

- Created custom quantum programming language with intuitive syntax for quantum circuit design and execution
- Developed comprehensive features: standard gates, parametric rotations, oracles, real-time state visualization
- Built complete ecosystem with parser, interpreter, and documentation for global quantum programming adoption

Interactive Quantum Computer Simulator (Javantum V2) | Graduation Project

- Developed Java GUI for quantum circuit simulation with real-time visualization including Bloch spheres
- Implemented quantum algorithms: Deutsch-Jozsa, Shor's, Grover's, QFT, QPE and comprehensive gate operations
- Integrated custom QNN simulator achieving benchmark performance comparable to PennyLane

Easy-VQE Python Package | [GitHub](#)

- Developed open-source Python library simplifying VQE implementations with Qiskit/PennyLane integration
- Created intuitive interface for quantum chemistry calculations, reducing setup time for researchers
- Integrated with multiple quantum backends for flexible experimentation

Quantum Machine Learning Applications

- Built Quantum Neural Network (QNN) for MNIST digit classification (85% accuracy) using PennyLane
- Implemented Quantum Support Vector Machine (QSVM) for IRIS dataset achieving 95% accuracy
- Compared classical vs. quantum performance metrics, demonstrating quantum kernel advantages

RESEARCH & LEADERSHIP

Publications & Research

- **Abdel-Rahman E. Ahmed**, "An N-Qubit Teleportation Protocol with Generalized GHZ State," *NILES 2025*, Cairo
- Collaborating with Quantum Tensor Network on CFD PDEs using quantum algorithms

Mentorship & Competitions

- **Mentor** — Alexandria Quantum Hackathon 2025 (Egypt's first national quantum hackathon), guided QML teams
- Participant — [Air Quality Quantum Computing Competition](#), Nile University

CERTIFICATIONS

Qiskit Advocate (IBM Quantum Network) | **QGSS2025** Participant | **WomaniumQuantum 2025** | **QML Workshop** (QPoland) | **ADEQUATE** (Qureca) | **QCourse 501-2** (Latvia University) | **QNickel**, **QBronze** (QItaly, QEgypt)

PROFESSIONAL EXPERIENCE

- **Technical Leadership:** Led quantum software development teams from conception to deployment with focus on scalable architectures
- **Open Source Contributor:** Active in quantum computing community with multiple GitHub repositories and international conference participation
- **Research Focus:** Quantum advantage in ML/optimization, novel communication protocols, scientific computing algorithms, hybrid architectures

AWARDS & RECOGNITION

Selected mentor for Egypt's inaugural quantum hackathon | NILES 2025 conference acceptance | IBM Qiskit Advocate recognition | Featured quantum programming language developer

LANGUAGES

Arabic: Native | English: Advanced (C1)