

AHMED FAROUK METWALY

Egyptian

CELL: +2 01060161211

ahmed.farouk@sci.edu.eg/ dr.ahmedfarouk85@yahoo.com

PROFILE SUMMARY

Assertive professional with a strong background in Computer Science, Mathematics and Quantum Information, complemented with a strong educational foundation and research excellence. Excel at managing multiple studies simultaneously from inception to completion along with ability in leading and carrying out all phases of research in the areas of Information Security and Quantum Information. Accustom to working with people from diverse cultures and organizational backgrounds.

PROFESSIONAL EXPERIENCE

Assistant Professor, South Valley University, Egypt	June 2021 – Present
Postdoctoral Research Fellow Cybersecurity Research Lab, Ryerson University, Canada	Oct 2018 – March 2021
Postdoctoral Research Fellow Physics and Computer Science Department, Wilfrid Laurier University, Canada	Mar 2018 – March 2021
CAS - Physics & Computing Part Time Faculty Physics and Computer Science Department, Wilfrid Laurier University, Canada	Sept 2018 – Dec 2018
Quantum Machine Learning Program Creative Destruction Lab, University of Toronto, Canada	Aug 2017 – Mar 2018
Assistant Professor Department of Information Technology, Al-Zahra College for Women, Oman	Jan 2016- Feb 2017
Lecturer Department of Computing, Middle East College, Oman	Sept 2009- Aug 2011

EDUCATION

PhD in Computer Sciences Mansoura University	2012-2016
<ul style="list-style-type: none">Thesis Title “Cryptosystem for Multicast Quantum Based Network”.	
M.Sc. in Computer Sciences Mansoura University	2006-2009
<ul style="list-style-type: none">Thesis Title “Reducing Firewall Configuration Rules Using Rough Sets”.	
B.Sc. in Computer Sciences Mansoura University	2002-2006

FUNDING

-
- BLOOMBERG BETA 2016 L.P investment for Top 20 QML with amount 20000\$, Canada ,2017
 - DATA COLLECTIVE IV CDL-QML, INC for Top 20 QML with amount 10000\$, Canada ,2017
 - SPECTRUM 28 CAPITAL I, L.P. for Top 20 QML with amount 10000\$, Canada ,2017

TRAVEL GRANTS

-
- Travel grant sponsored by IEEE computer society to cover the whole expenses of attending 1st Global Chapter Summit: Engaging with Industry, 7 December 2019 | Bologna, Italy | Università di Bologna.
 - Travel grant sponsored by Okinawa Institute of Science and Technology to cover whole expenses of attending

AWARDS AND HONORS

- Selected as one of **17 researchers** from Africa to attend the **70th Lindau Meeting of Nobel Laureates**. Our group's work for the Lindau project was highlighted in the blog of the Institute for Quantum Information and Matter at **Caltech**.
- IEEE Outstanding Chapter Award Kitchener-Waterloo 2020
- Nominated by African Academy of Science on behalf of Africa to **attend 70th Lindau Nobel Laureate Meeting (Interdisciplinary)** | 28 Jun – 03 Jul 2020 Lindau, Germany.
- **IAAM Young Scientist Medal** for the year | 2019, USA.
- Nominated by African Academy of Science on behalf of Africa to **attend 69th Lindau Nobel Laureate Meeting dedicated to Physics** | 30 Jun – 05 Jul 2019 Lindau, Germany.
- Obada Prize for the **Most Active Research in Sciences under 35 years old** by African Academy of Science and Natural Sciences Publishing, | 2018.
- Top 25 of InnovateTO150 Canada to showcase **the best of Toronto's next generation of change makers, innovators and entrepreneurs**. (Top 25 out of 200), | 2017.
- **Top 20 of Quantum Machine Learning Projects**, Creative Destruction Lab, | University of Toronto -Canada, 2017.
- **The research of my PhD is honored by the president of Mansoura University Prof. Mohamed El-Kenawy**, | Mansoura University – Egypt, 2015 (Covered by University Channel, Egyptian News, Public Egyptian Magazines and Egyptian News Websites).
- **Best researcher award**, | Al-Zahra College for Women, Oman, 2015.
- **Best researcher award**, | Al-Zahra College for Women, Oman, 2016.
- Receiving **more than 25 certificates of appreciation and acknowledgement for my efforts in the reviewing process of the papers submitted** to international conferences and journals.

JOURNAL REVIEWER ACTIVITIES

Selected Journals

- Scientific Reports
- IEEE Communications Magazine
- IEEE Communications Letters
- Future Generation Computer Systems
- IEEE Network
- Quantum Information Processing
- Neural Computing and Applications
- Applied Soft Computing
- Quantum Information & Computation
- IEEE Internet of Things
- IEEE Access
- Multimedia Tools and Applications
- AEJ- Alexandria Journal of Engineering
- IEEE Transactions on Industrial Informatics
- The Journal of Supercomputing
- IET Quantum Communication
- Entropy
- Cryptography

JOURNAL EDITORIAL ACTIVITIES

- **Editorial Board Member for Scientific Reports (Nature, 2019-2022)**
- **Associate Editor Member for IEEE Access (IEEE, 2019-2022)**
- **Deputy Editor for Neuroscience Informatics (Elsevier, 2021-2024)**
- **Associate Editor for the Quantum Communication specialty section for journal Frontiers in Quantum Science and Technology**
- **Associate Editor Member for IET Quantum Communication (IET, 2019-2022)**
- **Associate Editor Member for Cryptography (MDPI, 2019-2022)**
- **Associate Editor Member for Alexandria Journal of Engineering (Elsevier)**
- **Associate Editor Mathematical Modelling of Engineering Problems (IIETA)**
- **Editorial Board Member of Recent Advances in Computer Science and Communications journal**
- **Editorial Board Member of ICTACT Journal on Data Science and Machine Learning**

- Lead Guest Editor/ Guest Editor for Special Issues at Neural Computing and Applications, Computer Communications, Concurrency and Computation: Practice and Experience, Journal of Intelligent & Fuzzy Systems and International Journal of Optics journals.
- Guest Editor of special issue of Selected Extended Papers from QCrypto 2020 is the 10th edition of the yearly international scientific conference presenting last year's top results in quantum cryptography.
- Guest Editor of special issue of Selected Extended Papers from the International Conference on Quantum Communication, Measurement and Computing 2020 (QCMC 2020).
- Lead Guest Editor for the special issue "Computational and Mathematical Methods in Engineering and Information Science", Applied Science Journal.
- Lead Guest Editor for the special issue "Computing and Artificial Intelligence Techniques for Healthcare Applications", Healthcare Journal.
- Lead Guest Editor for the special issue "Engineering Systems: Complexity, Availability and Reliability", Alexandria Journal of Engineering.
- Lead Guest Editor for the special issue "Advances in Quantum Communication and Cryptography", Computer Communication.

IEEE and IET VOLUNTEERING ACTIVITIES

- Chair- IEEE Computer Chapter, C16 (Waterloo-Kitchener)
- Associate Editor IEEE Canadian Review (ICR)
- IEEE Young Professional Ambassador
- IET Young Professional Ambassador
- IEEE TechRxiv Moderator
- P1913 - Software-Defined Quantum Communication (IEEE Standard)
- P7130 - Standard for Quantum Technologies Definitions (IEEE Standard)
- IEEE P2145, Standard for Framework and Definitions for Blockchain Governance
- Technical Program Committee for IEEE conferences such as of 2020 IEEE Canadian Conference on Electrical and Computer Engineering (CCECE) and 16th International Wireless Communications and Mobile Computing Conference.
- Session Chair, Future Trends and Emerging Technologies, IEEE Canadian Conference on Electrical and Computer Engineering (IEEE CCECE-2020) London, Ontario August 30 – September 2, 2020.

CONFERENCES ACTIVITIES

- **Organizing Member**, PHYSICS AND ASTRONOMY WORLD FORUM, December 04-05, 2020, Bucharest, Romania.
- **Co-Chair** workshop on Quantum Communication at IWCMC 2020 — 16th International Wireless Communications and Mobile Computing Conference, | Raphael Resort, Limassol, Cyprus - June 15 - 19, 2020
- **Vice-Chairman** for International Conference on Quantum Computation and Artificial Intelligence "ICQCAI", Aswan, | Egypt | February 5-8, 2020.
- **Chairman** for special session "Quantum Information and Quantum Computation". The V AMMCS International Conference, | Waterloo, Ontario, Canada, August 18-23, 2019
- **Chairman** for special session "Computer and Communication Security Challenges". The 18th International Conference on Circuits, Systems, Communications and Computers (CSCC 2015). | Zakynthos Island, Greece, July 16-20, 2015.

SCHOOLS AND WORKSHOPS ATTENDED

- International Quantum Key Distribution (QKD) Summer School, Institute for Quantum Computing (IQC), | University of Waterloo, Ontario, Canada, 21-25 August 2017.
- Journeys in Higher Education Panel Series workshop, Career Centre, | Wilfrid Laurier University, Waterloo, Canada, May 3, 2018.
- Many-body States and Dynamics Workshop, Institute for Quantum Computing (IQC) and the Perimeter Institute

for Theoretical Physics (PI), | Waterloo, Canada, June 7, 2018.

- Workshop on "The Quantum Internet; Charting the Critical Path", | University of Toronto, June 21-23, 2018.
- Quantum Summit "Cybersecurity in a Changing World", | NXM Lab, Canada, April 24-25, 2019.
- Workshop on "Blockchain @ ACM SACMAT", | Ryerson University, Canada, June 3, 2019.
- Blockchain Technology Symposium (BTS 2020), | The Fields Institute, University of Toronto, Canada, February 18 - 20, 2020.

PROFESSIONAL SOCIETIES AFFILIATIONS

- American Physical Society (APS)
- Canadian Association of Physicists (CAP)
- IEEE Technical Committee on Security and Privacy
- Institution of Engineering and Technology (IET)
- Institute of Electrical and Electronics Engineers (IEEE)
- IEEE Young Professionals and IEEE Computer Society
- Association for Computing Machinery (ACM)
- IEEE Quantum Community
- Canadian Association of Postdoctoral Scholars (CAPS)

CERTIFICATIONS

- BTA Certified Blockchain Business Foundations
- Blockchain Overview: Business Foundations
- IBM Blockchain Essentials
- IBM Blockchain Foundation for Developers
- Blockchain Specialization from The State University of New York & University at Buffalo with four courses (Blockchain Basics, Smart Contracts, Decentralized Applications (Dapps) and Blockchain Platforms.
- Various Publishing and content delivery Certificates of Completion awarded by Elsevier.

RESEARCH INTERSETS

- Quantum Communications & Cryptography
- Quantum Information & Computation
- Quantum Secured Blockchain & IoT
- Quantum Cybersecurity
- Information Security & Privacy

COURSES TAUGHT

- Digital Signal Processing
- Introduction to Computers
- Fundamentals of Computer Hardware
- Information Security Management
- Computer Network Protocols
- Internet Administration
- Wireless Network
- Discrete Mathematics
- Data Structure and Algorithms
- Computer Architecture Computer Network and Data Transmission
- Logic Design
- Computer Applications in Research and Teaching
- Linear Algebra
- Introduction to Statistics
- Computer Network Management
- Operating System
- Advanced Computer Network
- Network Security
- Artificial Intelligent and Neural Network

FEATURED ARTICLES IN NEWS

- Farouk, A., Batle, J., Elhoseny, M., Naseri, M., Lone, M., Fedorov, A. ... & Abdel-Aty, M. (2018). Robust general N user authentication scheme in a centralized quantum communication network via generalized GHZ states. *Frontiers of Physics*, 13(2), 130306 , featured by Science Trends under the title **"User Authentication In Quantum Computing"** , <https://doi.org/10.31988/SciTrends.12835>

- Mohamed, R. I., Farouk, A., Homid, A. H., El-Kalaawy, O. H., Abdel-Aty, A. H., Abdel-Aty, M., & Ghose, S. (2018). Squeezing dynamics of a nanowire system with spin-orbit interaction. *Scientific reports*, 8(1), 10484, featured by *Science Trends* under the title “**Squeezing Dynamics In A Nanowire System**” , <https://doi.org/10.31988/scitrends.40867>, <https://sciencetrends.com/squeezing-dynamics-in-a-nanowire-system/>

JOURNAL PUBLICATIONS

Selected Published Papers

1. Metwaly, A. F., Rashad, M. Z., Omara, F. A., & Megahed, A. A. (2014). Architecture of multicast centralized key management scheme using quantum key distribution and classical symmetric encryption. *The European Physical Journal Special Topics*, 223(8), 1711-1728.
2. Farouk, A., Zakaria, M., Megahed, A., & Omara, F. A. (2015). A generalized architecture of quantum secure direct communication for N disjointed users with authentication. *Scientific Reports*, 5, 16080-16080.
3. Naseri, M., Raji, M. A., Hantehzadeh, M. R., Farouk, A., Bouchani, A., & Soleymani, S. (2015). A scheme for secure quantum communication network with authentication using GHZ-like states and cluster states controlled teleportation. *Quantum Information Processing*, Springer, 14(11), 4279-4295.
4. Wang, M. M., Wang, W., Chen, J. G., & Farouk, A. (2015). Secret sharing of a known arbitrary quantum state with noisy environment. *Quantum Information Processing*, Springer, 14(11), 4211-4224.
5. Metwaly, A. F., Rashad, M. Z., Omara, F. A., & Megahed, A. A. (2015). Architecture For Secured Centralized and Decentralized IPsec Multicast Based on Quantum Key Distribution. *International Journal of Intelligent Computing and Information Sciences* 15(3), 1-17
6. Batle, J., Ooi, C. R., Farouk, A., Alkhambashi, M. S., & Abdalla, S. (2016). Global versus local quantum correlations in the Grover search algorithm. *Quantum Information Processing*, Springer, 15(2), 833-849.
7. Zhou, Nanrun, Farouk, A., et al. (2016). Relay selection scheme for amplify-and-forward cooperative communication system with artificial noise. *Security and Communication Networks*, Wiley, 9:1398–1404
8. Batle, J., Ooi, C.H.R., Abutalib, M., Farouk, A. & Abdalla, S. (2016). Do multipartite correlations speed up adiabatic quantum computation or quantum annealing?. *Quantum Information Processing*, Springer, 15(8), 3081-3099.
9. Batle, J., Abutalib, M., Abdalla, S., & Farouk, A. (2016). Persistence of quantum correlations in a XY spin-chain environment. *The European Physical Journal B*, 89(11), 247.
10. Batle, J., Abutalib, M., Abdalla, S., & Farouk, A. (2016). Revival of Bell nonlocality across a quantum spin chain. *International Journal of Quantum Information*, 14(07), 1650037.
11. Batle, J., Naseri, M., Ghoranneviss, M., Farouk, A., Alkhambashi, M., & Elhoseny, M. (2017). Shareability of correlations in multiqubit states: Optimization of nonlocal monogamy inequalities. *Physical Review A*, 95(3), 032123
12. Zhou, N. R., Li, J. F., Yu, Z. B., Gong, L. H., & Farouk, A. (2017). New quantum dialogue protocol based on continuous-variable two-mode squeezed vacuum states. *Quantum Information Processing*, 16(1), 4.
13. Abdolmaleky, M., Naseri, M., Batle, J., Farouk, A., & Gong, L. H. (2017). Red-Green-Blue multi-channel quantum representation of digital images. *Optik-International Journal for Light and Electron Optics*, 128, 121-132.
14. Elhoseny, M., Farouk, A., Zhou, N., Wang, M. M., Abdalla, S., & Batle, J. (2017). Dynamic Multi-hop Clustering in a Wireless Sensor Network: Performance Improvement. *Wireless Personal Communications*, 95(4), 3733-3753.
15. Naseri, M., Heidari, S., Batle, J., Baghfalaki, M., Gheibi, R., Farouk, A., & Habibi, A. (2017). A new secure quantum watermarking scheme. *Optik-International Journal for Light and Electron Optics*, 139, 77-86
16. Batle, J., Ciftja, O., Naseri, M., Ghoranneviss, M., Farouk, A., & Elhoseny, M. (2017). Equilibrium and uniform charge distribution of a classical two-dimensional system of point charges with hard-wall confinement. *Physica Scripta*, 92(5), 055801
17. Elhoseny, M., Tharwat, A., Farouk, A. & Hassanien, A. E. K-Coverage Model based on Genetic Algorithm to extend WSN lifetime. *IEEE Sensors Letters*, 1(4), 1-4.
18. Heidari, S., Naseri, M., Gheibi, R., Baghfalaki, M., Rasoul Pourarian, M., & Farouk, A. (2017). A New Quantum Watermarking Based on Quantum Wavelet Transforms. *Communications in Theoretical Physics*, 67(6), 732-742.
19. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Abdalla, S., & Farouk, A. Quantum Communication Based on Simon's Algorithm. *Quantum*, 7, 8.
20. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Abdalla, S., & Farouk, A. (2018). Creating Very True Quantum Algorithms for Quantum Energy Based Computing. *International Journal of Theoretical Physics*, 57(4), 973-980.

21. Nagata, K., Nakamura, T., Batle, J., Abdalla, S., & Farouk, A. (2018). Better Entanglement Witness for Genuine Multipartite Entanglement. *International Journal of Theoretical Physics*, 57(7), 2116–2120.
22. Farouk, A., Batle, J., Elhoseny, M., Naseri, M., Lone, M., Fedorov, A. ... & Abdel-Aty, M. (2018). Robust general N user authentication scheme in a centralized quantum communication network via generalized GHZ states. *Frontiers of Physics*, 13(2), 130306
23. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Abdalla, S., & Farouk, A. (2018). Kochen-Specker Theorem and the Two Quantum Measurement Theories. *Asian Journal of Mathematics and Physics*, 2(1), 29-36
24. Naeim, I. H., Abdalla, S., Batle, J., & Farouk, A. (2017). MASS AND POTENTIAL DUALITY EXPLORED VIA A POSITION-DEPENDENT MASS QUANTUM APPROACH. *Romanian Journal of Physics*, 62(9-10)
25. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Abdalla, S., & Farouk, A. (2018). Secure Quantum Key Distribution Based on a Special Deutsch-Jozsa Algorithm. *Asian Journal of Mathematics and Physics*, 2(1), 6-13
26. Batle, J., Farouk, A., Tarawneh, O., & Abdalla, S. (2018). Multipartite quantum correlations among atoms in QED cavities. *Frontiers of Physics*, 13(1), 130305
27. Elhoseny, M., Ramírez-González, G., Abu-Elnasr, O. M., Shawkat, S. A., Arunkumar, N., & Farouk, A. (2018). Secure Medical Data Transmission Model for IoT-Based Healthcare Systems. *IEEE Access*, 6, 20596-20608.
28. Sarvaghad-Moghaddam, M., Orouji, A. A., Ramezani, Z., Elhoseny, M., & Farouk, A. (2018). Modelling the spice parameters of SOI MOSFET using a combinational algorithm. *Cluster Computing*, 1-10
29. Naseri, M., Abdolmaleky, M., Parandin, F., Fatahi, N., Farouk, A., & Nazari, R. (2018). A New Quantum Gray-Scale Image Encoding Scheme. *Communications in Theoretical Physics*, 69(2), 215-226.
30. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Abdalla, S., & Farouk, A. (2018). New Method of Calculating a Multiplication by using the Generalized Bernstein-Vazirani Algorithm. *International Journal of Theoretical Physics*, 57(6), 1605-1611.
31. Abo-Kahla, D. A. M., Abdel-Aty, M., & Farouk, A. (2018). The Population Inversion and the Entropy of a Moving Two-Level Atom in Interaction with a Quantized Field. *International Journal of Theoretical Physics*, 57(8), 2319–2329.
32. Naseri, M., Abdolmaleky, M., Laref, A., Parandin, F., Celik, T., Farouk, A., ... & Jalalian, H. (2018). A New Cryptography Algorithm for Quantum Images. *Optik*, 171, 947-959.
33. Nagata, K., Nakamura, T., Batle, J., & Farouk, A. (2018). Efficient Quantum Algorithm for the Parity Problem of a Certain Function. *International Journal of Theoretical Physics*, 57(10), 3098-3103.
34. Nagata, K., Nakamura, T., Geurdes, H., Batle, J., Farouk, A., & Patro, S. K. (2018). Efficient Quantum Algorithms of Finding the Roots of a Polynomial Function. *International Journal of Theoretical Physics*, 57(8), 2546-2555.
35. Mohamed, R. I., Farouk, A., Homid, A. H., El-Kalaawy, O. H., Abdel-Aty, A. H., Abdel-Aty, M., & Ghose, S. (2018). Squeezing dynamics of a nanowire system with spin-orbit interaction. *Scientific reports*, 8(1), 10484.
36. Naseri, M., Abutalib, M. M., Alkhambashi, M., Salehi, K., & Farouk, A. (2018). Density functional theory based prediction of a new two-dimensional TeSe2 semiconductor: A case study on the electronic properties. *Chemical Physics Letters*, 707, 160-164.
37. Abulkasim, H., Farouk, A., Alsuqaih, H. et al. "Improving the security of quantum key agreement protocols with single photon in both polarization and spatial-mode degrees of freedom". *Quantum Information Process* (2018) 17: 316.
38. Abulkasim, H., Alsuqaih, H. N., Hamdan, W. F., Hamad, S., Farouk, A., Mashatan, A., & Ghose, S. (2019). Improved dynamic multi-party quantum private comparison for next-generation mobile network. *IEEE Access*, 7, 17917-17926
39. Homid, A. H., Abdel-Aty, M., Farouk, A., & Obada, A. S. F. (2019). Direct Observation of Dissipation in Dynamical Search Algorithm using Transmon Qubits. *Annalen der Physik*, 1900022.
40. Naseri, M., Alkhambashi, M., Farouk, A., & Salehi, K. (2019). First principles prediction of XI (X= Be, Mg) monolayer semiconductors: Modified Becke-Johnson approach. *Optik*.
41. Naseri, M., Abutalib, M., Alkhambashi, M., Gu, J., Jalilian, J., Farouk, A., & Batle, J. (2019). Prediction of novel SiX₂ (X= S, Se) monolayer semiconductors by density functional theory. *Physica E: Low-dimensional Systems and Nanostructures*, 113581
42. Abo-Kahla, D. A. M., & Farouk, A. (2019). Entanglement and Entropy of a Three-Qubit System Interacting with a Quantum Spin Environment. *Applied Sciences*, 9(23), 5222
43. Nagata, K., Geurdes, H., Patro, S. K., Heidari, S., Farouk, A., & Nakamura, T. (2019). Quantum Algorithm for Determining a Complex Number String. *International Journal of Theoretical Physics*, 58(11), 3694-3701
44. Heidari, S., Abutalib, M. M., Alkhambashi, M., Farouk, A., & Naseri, M. (2019). A new general model for quantum image histogram (QIH). *Quantum Information Processing*, 18(6), 17.
45. El-Hadidy, E. G., Farouk, A., Abdel-Aty, M., & Ghose, S. (2019). Controlling steady-state entanglement and quantum discord through squeezing angle. *Chaos, Solitons & Fractals*, 128, 382-389.

46. Abulkasim, H., Farouk, A., Hamad, S., Mashatan, A., & Ghose, S. (2019). Secure dynamic multiparty quantum private comparison. *Scientific reports*, 9(1), 1-16
47. Salah, R., Farouk, A. M., Farouk, A., Abdel-Aty, M., Eleuch, H., & Obada, A. S. F. (2020). Entanglement control of two-level atoms in dissipative cavities. *Applied Sciences*, 10(4), 1510
48. Mohamed, A., Farouk, A., Yassen, M. F., & Eleuch, H. (2020). Quantum Correlation via Skew Information and Bell Function Beyond Entanglement in a Two-Qubit Heisenberg XYZ Model: Effect of the Phase Damping. *Applied Sciences*, 10(11), 3782.
49. Mohamed, A. B. A., Farouk, A., Aty, A. H. A., & Eleuch, H. (2020). Robustness of Generated Geometric Phase of Quantum Wells in Two Open Waveguide-Coupled Optical Cavities. *IEEE Access*, 8, 158745-158751.
50. Farouk, A., Alahmadi, A., Ghose, S., & Mashatan, A. (2020). Blockchain platform for industrial healthcare: Vision and future opportunities. *Computer Communications*, 154, 223-235.
51. Zhu, F., Zhang, C., Zheng, Z., & Farouk, A. (2021). Practical Network Coding Technologies and Softwarization in Wireless Networks. *IEEE Internet of Things Journal*, 8(7), 5211-5218.
52. Adil, M., Song, H., Ali, J., Jan, M. A., Attique, M., Abbas, S., & Farouk, A. (2021). EnhancedAODV: A Robust Three Phase Priority-based Traffic Load Balancing Scheme for Internet of Things. *IEEE Internet of Things Journal*.
53. Adil, M., Jan, M. A., Mastorakis, S., Song, H., Jadoon, M. M., Abbas, S., & Farouk, A. (2021). Hash-MAC-DSDV: Mutual Authentication for Intelligent IoT-Based Cyber-Physical Systems. *IEEE Internet of Things Journal*.
54. Adil, M., Ali, J., Attique, M., Jadoon, M. M., Abbas, S., Alotaibi, S. R., ... & Farouk, A. (2021). Three Byte-Based Mutual Authentication Scheme for Autonomous Internet of Vehicles. *IEEE Transactions on Intelligent Transportation Systems*.

CONFERENCES PUBLICATIONS

1. Metwaly, A., Rashad, M. Z., Omara, F. A., & Megahed, A. A. (2012). **Architecture of point to multipoint QKD communication systems (QKDP2MP)**. In *Informatics and Systems (INFOS), 2012 8th International Conference on* (pp. NW-25). IEEE
2. Metwaly, A. F., & Mastorakis, N. E. (2015). **Architecture of Decentralized Multicast Network Using Quantum Key Distribution and Hybrid WDM-TDM**. *Advances in Information Science And Computer Engineering*, 504-518.
3. Metwaly, A. F., & Mastorakis, N. E. (2015). **Architecture of Asymmetric Quantum Cryptography Based on EPR**. 19th International conference on circuits, systems, Communications and computers (CSc-2015) Zakynthos Island, Greece. 167-174.
4. Farouk, A., Omara, F., Zakria, M., & Megahed, A. (2015). **Secured IPsec Multicast Architecture Based on Quantum Key Distribution**. In *The International Conference on Electrical and Bio-medical Engineering, Clean Energy and Green Computing* (pp. 38-47). The Society of Digital Information and Wireless Communication.

BOOK CHAPTERS

1. Farouk, A., Elhoseny, M., Batle, J., Naseri, M., Hassanien, A. E & M. Abedl-Aty. (2018). Quantum Computing and Cryptography: An Overview. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 63-100). Springer.
2. Farouk, A., Elhoseny, M., Batle, J., Naseri, M., Hassanien, A. E & M. Abedl-Aty. (2018). Multi-Parties Quantum Secure Direct Communication with Authentication. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 143-184). Springer.
3. Farouk, A., Elhoseny, M., Batle, J., Naseri, M., Hassanien, A. E & M. Abedl-Aty. (2018). Different Architectures of Quantum Key Distribution Network. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 41-61). Springer.
4. Farouk, A., Elhoseny, M., Batle, J., Naseri, M., Hassanien, A. E & M. Abedl-Aty. (2018). IPsec Multicast Architectures Based on Quantum key Distribution, Quantum Secret Sharing and Measurement. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 132-142). Springer.
5. Farouk, A., Elhoseny, M., Batle, J., Naseri, M., Hassanien, A. E & M. Abedl-Aty. (2018). Quantum Key Distribution Over Multi-Point Communication System: An Overview. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 101-121). Springer.
6. Koji Nagata, Tadao Nakamura & Ahmed Farouk. (2018). New Method of Obtaining the Kochen-Specker Theorem. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 273-290). Springer.
7. Koji Nagata, Tadao Nakamura & Ahmed Farouk. (2018). Quantum Cryptography, Quantum Communication, and Quantum Computer in a Noisy Environment. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 185-205). Springer.

8. G. Resconi, K. Nagata, O. Tarawneh & Ahmed Farouk. (2018). Morphogenetic Sources in Quantum, Neural and Wave Fields: Part 1. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 317-350). Springer.
9. G. Resconi, K. Nagata, O. Tarawneh & Ahmed Farouk. (2018). Morphogenetic Sources in Quantum, Neural and Wave Fields: Part 2. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 351-385). Springer.
10. Batle, J., Elhoseny, M. & Ahmed Farouk. (2018). Proposal for a Quantum-Based Memory for Storing Classical Information and the Connection between Molecular Dynamics Simulations and the Landauer's Principle. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 291-316). Springer.
11. Naseri, M., Fatahi, N., Farouk, A., Tarawneh, O., & Elhoseny, M. (2018). Applications of Quantum Mechanics in Secure Communication. In *Quantum Computing: An Environment for Intelligent Large Scale Real Application*. (pp. 25-40). Springer.
12. Elhoseny, M., Farouk, A., Batle, J., Shehab, A., & Hassanien, A. E. (2017). Secure Image Processing and Transmission Schema in Cluster-Based Wireless Sensor Network. *Handbook of Research on Machine Learning Innovations and Trends* (pp. 1022-1040). IGI Global.
13. Farouk, A., Elhoseny, M., Batle, J., Naseri, M., & Hassanien, A. E. (2017). A Proposed Architecture for Key Management Schema in Centralized Quantum Network. *Handbook of Research on Machine Learning Innovations and Trends* (pp. 997-1021). IGI Global.

AUTHORED BOOKS

Farouk, A., Nagata, K., Nakamura, T., Diep, D.N. (2020). *Standard Algorithms in Quantum Computing and Their Applications*, Springer.

REFERENCES

References are available upon request.