Mohamad Shady Ahmad Alrahhal

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Scientific Interests:

- Artificial intelligence and deep learning.
- Data Mining and decision support system.
- Cyber security (security and privacy).
- Video and image processing.
- Agent based systems.
- Software architectures.
- High performance computing.

Webpage on Google Scholar (h-index: 8, Citations: 188)

Mohammad Shady Alrahhal - Google Scholar

Webpage on Research Gate (Impact Factor: 10, Citations: 188, Readers: 5450):

https://www.researchgate.net/profile/Mohamad_Shady_Alrahhal

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General and Personal Information
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- Birth date: 1/1/1983.
- Nationality: Syrian.
- Religion: Muslim.
- Current address: Saudi Arabia, Tabuk.
- Mother language: Arabic.
- Second language: English, Fluent.

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Academic Level
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King Abdulaziz University, Saudi Arabia, Jeddah

- PHD degree in Computer Science (2018).
- Thesis title: A robust and intelligent agent based architecture for comprehensive privacy protection in location based services.

Damascus University, branch of SVU, Syria, Damascus

- Master in web science degree (2013).
- Thesis title: Advanced steganography based technique to hide and protect secret information.

AL Baath University, Syria, Homs

- Educational Rehabilitation Diploma degree (2011).

AL Baath University, Syria, Homs

- Informatics Engineering -Software Engineering and Information Systems degree (2007).

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Current Position
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- Currently, assistant professor and postdoctoral research fellow at the American Institute of International Education Scholar Rescue Fund (IIE-SRF)-New York, hosted by Fahad Bin Sultan University as an assistant prof.
- Chair of AI research group at computing college, FBSU.
- Chair of Cybersecurity-supported AI and DL research group at computing college, FBSU.
- Chair of Quality Assurance Committee at computing college, FBSU.

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Supervision and Research Experiences
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==**Vision of my Research:**==

Cybersecurity & Deep Learning research fields are the most important ones that will lead the future of the world. Serving cybersecurity controls by advanced techniques of AI and Deep Learning is the inspiration of my scientific ambition. Involving AI and Deep Learning in (privacy protection in medical sector, developing robust authentication biometric techniques, and sentiment analysis to detect malicious actions proactively, for example) will add a great value in close future.

==**PhD and Master Supervision:**==

1. In (2020), Co-Supervising with Prof Vijy a PhD student at King Abdulazize University (KAU), Jeddah City, KSA. Thesis title: Ensuring Security of Agent Based Systems.
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2. In (2020), Co-Supervising with Prof Samir a Master student at Fahad Ben Sultan University (FBSU), Tabuk City, KSA. Thesis title: Enhanced Medical System for Diagnosing and Predicting Breast Cancer Using Deep Learning.
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3. In (2021), Co-Supervising Prof Samir a Master student at Fahad Ben Sultan University (FBSU), Tabuk City, KSA. Thesis title: Highly Secure and Robust Video Watermarking System Using Artificial Intelligence.
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4. In (2022), Co-supervising with Prof Samir a Master student at Fahad Ben Sultan University (FBSU), Tabuk City, KSA. Thesis title: Dummy-Based Approach for Privacy Protection in Location Based Services Using Deep Learning.

==**Advanced Researches (Under Processing):**==

I am working (under the supervision of Prof Samir Batainah) on three research papers, which are:

- ✓ First technical paper: it is related to use deep learning techniques to develop intelligent diagnostic system for detecting COVID-19. In this paper, we rely on an advanced deep learning technique called distill learning that enables training on less size of data. In addition, we use an augmentation technique for the purpose of enhancing the accuracy of diagnosing. The paper is still under processing.
- ✓ Second technical paper: it is related to enhance the first technical paper based on federated deep learning technique, which ensures integrating diagnosing systems among distributed hospitals as well as ensuring high robustness against poisoning of training data. The paper is still under processing.
- ✓ Survey paper: the final objective of this paper is related to collect, analyze, and extracting research gaps\challenges in the domain of employing deep learning for detection of COVID-19. This survey paper will provide a strong evidence about the importance of the research gaps of the two technical papers as well as highlighting their contribution.

Undergraduate Projects:

I have supervised three groups of projects of undergraduate students at FBSU as follows:

- ✓ First group falls in the domain of artificial intelligence entitled (Artificial Intelligence-Based Fraud Detection System for Banks). It is expected to continue in supervising for the practical and programming part of this project.
- ✓ Second group falls in the domain of cybersecurity entitled (Steganography-Based System for Protecting Textual Secret Information). It is expected to continue in supervising for the practical and programming part of this project.
- ✓ Third group falls in the domain of cybersecurity entitled (Copyright Protection Using Video Watermarking). It is expected to continue in supervising for the practical and programming part of this project.

I have (15) published research papers as follows:
- ✓ One is published in IEEEAccess (ISI, impact factor: 3.367)
- ✓ One is published in MDPI (ISI, impact factor: 2.899)
- ✓ Four are published in IJACSA-SAI (ISI, impact factor: 0.7)
- ✓ Nine are published in various Scopus-indexed journals.

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Teaching experiences

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Students of FBSU University, KSA:

1. Teaching artificial intelligence course for bachelor's degree (*NEOM students*).
2. Teaching machine learning course for bachelor's degree (*NEOM students*).
3. Teaching deep learning course for bachelor's degree (*NEOM students*).
4. Teaching final year project (I) course for bachelor's degree.
5. Teaching web design (Lab) course for bachelor's degree.
6. Teaching programming language II (Lab) course for bachelor's degree.
7. Teaching information technology course for bachelor's degree.
8. Teaching introduction to computing course for bachelor's degree.

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List of Additional Certificates

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Cyber security foundation professional certified (CSFPC), United States.

1. Certificate holder of Cyber security foundation professional certificate (CSFPC), (2021).

Ilearn Innovative Company, Official Training Center for Governance, Auditing, Compliance, and Programs Management (United States)

2. Certificate holder of course entitled "COBIT® 2019 Foundation", (2021).

3. Certificate holder of course entitled "Big Data Analytics", (2020).

4. Certificate holder of course entitled "Machines VS Doctors: Deep Learning and the Future of Medical Physics", (2018).

5. Certificate holder of the High Performance Computing (HPC) conference for big data (2017).

6. Certificate holder of the first program entitled "Towards a University Distinguished Teaching", (2014).

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List of Publications

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1. Mona Alfifi, Mohamad Shady Alrahhal, Samir Bataineh and Mohammad Mezher, "Enhanced Artificial Intelligence System for Diagnosing and Predicting Breast Cancer using Deep Learning" International Journal of Advanced Computer Science and Applications(IJACSA), 11(7), 2020. http://dx.doi.org/10.14569/IJACSA.2020.0110763

2. B. Alluhaybi, M. S. Alrahhal, A. Alzahrani and V. Thayananthan, "Dummy-Based Approach for Protecting Mobile Agents Against Malicious Destination Machines," in IEEE Access, vol. 8, pp. 129320-129337, 2020, doi: 10.1109/ACCESS.2020.3009245.

3. Alrahhal, Hosam, et al. "A symbiotic relationship based leader approach for privacy protection in location based services." ISPRS International Journal of Geo-Information 9.6 (2020): 408.

4. Mohamad Shady Alrahhal, Maher Khemakhem and Kamal Jambi, "Agent-Based System for Efficient kNN Query Processing with Comprehensive Privacy Protection" International Journal of Advanced Computer Science and Applications(IJACSA), 9(1),2028, http://dx.doi.org/10.14569/IJACSA.2018.090108.

5. Alrahhal, Mohamad Shady, Maher Khemakhem, and Kamal Jambi. "A survey on privacy of location-based services: Classification, inference attacks, and challenges." Journal of Theoretical and Applied Information Technology 95.24 (2017): 6719-6740.

6. Bandar Alluhaybi, Mohamad Shady Alrahhal, Ahmed Alzhrani and Vijey Thayananthan, "A Survey: Agent-based Software Technology Under the Eyes of Cyber Security, Security Controls, Attacks and Challenges" International Journal of Advanced Computer Science and Applications(IJACSA), 10(8), 2019. http://dx.doi.org/10.14569/IJACSA.2019.0100828

7. Mohamad Shady Alrahhal, Muhammad Usman Ashraf, Adnan Abesen and Sabah Arif, "AES-Route Server Model for Location based Services in Road Networks" International Journal of Advanced Computer Science and Applications (IJACSA), 8(8), 2017. http://dx.doi.org/10.14569/IJACSA.2017.080847

8. Al-Rahal, M. Shady, Adnan Abi Sen, and Abdullah Ahmad Basuhil. "HIGH LEVEL SECURITY BASED STEGANORAPHY IN IMAGE AND AUDIO FILES." Journal of Theoretical & Applied Information Technology 87.1 (2016).

9. Fouz, Fadi, et al. "Optimizing Communication And Cooling Costs In Hpc Data Center." Journal of Theoretical and Applied Information Technology 85.2 (2016): 112.

10. Alrahhal, Mohamad Shady, Maher Khemekhem, and Kamal Jambi. "Achieving load balancing between privacy protection level and power consumption in location based services." International Research Journal of Engineering and Technology 5.3 (2018): 619-625.

11. Alrahhal, Mohamad Shady, and Majed Abdullah Albarrk. "A Survey of the COVID-19 Epidemic Through the Eyes of Artificial Intelligence and Deep Learning: Challenges and Research Questions." IRJET journal, Volume: 03 Issue: 05 | Feb 2020

12. Alrahhal, Mohamad Shady, and Eftkhar Alqhtani. "Deep learning-based system for detection of lung cancer using fusion of features." IRJET journal, Volume: 01 Issue: 09 | Sep 2021

13. Alrahhal, Mohamad Shady, and Adnan Abi Sen. "Data mining, big data, and artificial intelligence: An overview, challenges, and research questions." IRJET journal, Volume: 05 Issue: 07 | Jan 2020

14. Alluhaybi, Bandar, et al. "Achieving self-protection and self-communication features for security of agent-based systems." IRJET journal, Volume: 05 Issue: 03 | Mar-2018

15. Albarrk, Majed Abdullah, and Mohamad Shady Alrahhal. "Web Applications Security: More Collaboration." IRJET journal, Volume: 08 Issue: 01 | Jan 2021

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Papers under processing:

16. Using distill deep learning technique to develop intelligent diagnostic system for detecting COVID-19.

17. Enhancing distill deep learning based diagnosing system of COVID-19 based on federated deep learning.

18. Covide-19 through the eyes of deep learning techniques: A survey.

19. Agent based system for privacy protection in location based services.