

# AMMAR AHMED NASSER AL-KAHTANI, PH.D.

**Assistant Professor**, Renewable Energy Department, College of Engineering,  
Fahad Bin Sultan University (FBSU), Tabuk, Saudi Arabia.

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[Google Scholar](#) (h-index 22, 1724 citations), [ResearchGate](#) (h-index, 21), [ORCID](#),  
and [Publon](#) (h-index 16, WoS ID: [ABF-3702-2020](#))

## KEY SKILLS

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Renewable Energy; Wind Energy; Electrical Engineering; Signal Processing; Power Electronics

## EMPLOYMENT HISTORY

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January 2023-Present	<b>Assistant Professor, Fahad Bin Sultan University, KSA</b> Responsible for teaching in a wide range of electrical and renewable energy subjects, from fundamental circuits and electronics to specialized areas like power electronics, energy storage, and wind energy systems. Also actively involved in curriculum development.
June 2018 – December 2022	<b>Head of Unit   Senior Lecturer, the Institute of Sustainable Energy (ISE), Universiti Tenaga Nasional (UNITEN), Malaysia</b> Led wind energy research team, focusing on turbine performance improvement and techno-economic evaluations. Applied AI and signal processing expertise to multidisciplinary research. Taught digital signal processing and image processing courses.
June 2016 – May 2018	<b>Senior Lecturer, Department of Electrical and Electronics, Universiti Tenaga Nasional, Malaysia.</b> Taught and supervised undergraduate/graduate students in electrical and electronics engineering. Coordinated final-year projects for electronics, communication, and computer engineering departments. Contributed to syllabus revision for digital signal processing and image processing courses. Participated in final-year project competitions.
November 2015 – May 2016	<b>Lecturer, Lincoln University College, Malaysia.</b> Instructed both graduate and undergraduate students in digital signal processing and image processing course. Contributed to the accreditation process for selected engineering courses as part of a dedicated team. Appointed as an internal examiner for several postgraduate student theses.
June 2015 – October 2015	<b>Network Engineer Supervisor, SAS Global Trading, and Services SDN. BHD. Malaysia.</b>
November 2011- May 2015	<b>Teaching &amp; Research Assistant, Universiti Tenaga Nasional, Malaysia.</b> Conducted research and experiments in failure analysis and fault identification. Taught undergraduate tutorial classes, including digital signal processing. Supervised student lab work in electrical/electronics measurements and digital signal processing. Provided consultations to final-year project students. Wrote research papers and presented findings at international conferences.

## ACADEMIC QUALIFICATION

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- Nov. 2011 - Aug. 2015 **Ph.D. In Engineering, 2015, Universiti Tenaga Nasional, Malaysia (UNITEN), Putrajaya Campus, Jalan Ikram-UNITEN, 43000, Kajang, Selangor, Malaysia.** Thesis: Incipient Fault Identification Using Support Vector Machines and Genetic Algorithm through the radiofrequency Emission of Air-Conditioners.
- Keywords:** Doctoral Research, Modeling, System Identification, Condition Monitoring, Electrical Equipment, radiofrequency Emissions, Radiated emissions, EMF Exposure limits, Artificial Intelligence, Fault Classification, Support Vector Machines, Neural Networks, Naïve Bayes, Genetic Algorithm, Feature Extraction, Feature Selection.
- Jul. 2010 - Oct. 2011 **Master of Electronics Engineering (Telecommunication System), 2011, Universiti Teknikal Malaysia Melaka (UTeM), Hang Tuah Jaya, 76100 Durian Tunggal, Melaka, Malaysia.** Thesis: Indoor Propagation Modeling at 2.4 GHz.
- Keywords:** Satellite Communication, Advanced Electronics, TCP IP, Wireless Communication, Modeling, Path loss, System Identification, Wave Propagation, Indoor Propagation, Signal Processing.
- May 2006- Jun. 2010 **Bachelor of Electronics (Hons) Majoring in Telecommunications, 2010, Multimedia University (MMU), Jalan Ayer Keroh Lama, 75450, Melaka Malaysia.**

## RESEARCH PROJECTS

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Grant Title	Funder	Project code	Year	Amount (RM)	Role
1. Real-Time Lightning 3D Imaging and Forecasting Project for Sustainable Energy Supply and Storm Disaster Early Warning	MOHE, Malaysia, JICA, Japan	TBA	2023-2028	RM20,000,000	Co-leader
2. Design and Implementation of small-scale Wind Turbine with Optimal Site Selection,	Tenaga Nasional Berhad (TNB), Malaysia	U-TV-RD-21-17	2022	RM 650,000 (~\$ 154,376)	Leader
3. Large-Scale Solar Energy Generation Forecasting Using Graph Neural Networks (GNNs) Method	Tenaga Nasional Berhad (TNB), Malaysia	U-TV-RD-21-18	2022	RM338,000 (~\$ 80,275)	Co-Leader
4. Techno-Economic Assessment of Small-Scale Wind Energy Generator	Tenaga Nasional Berhad (TNB), Malaysia	U-TE-RD-21-11	2022	RM350,000 (~\$83,125)	Co-Leader
5. Sizing and Optimization of Wind Energy Harvesting System for Electric Vehicle Charging Stations	Universiti Tenaga Nasional (UNITEN), Malaysia.	J510050002/202108 5	2021	RM20,000 (~\$4,750)	Member
6. Forecasting of a Large-Scale Solar Energy Generation using Extreme Learning Machine	Universiti Tenaga Nasional (UNITEN), Malaysia.	J510050002/202108 6	2021	RM20,000 (~\$4,750)	Member

7.	Optimal planning of hybrid and non-hybrid small-scale renewable power generation for off-grid schools in rural areas in Sabah	Universiti Tenaga Nasional (UNITEN), Malaysia.	J510050002/2021095	2021	RM20,000 (~\$4,750)	Leader
8.	Development of Wind Energy Forecasting and Control Algorithm for Renewable Energy Connected Grid	Universiti Tenaga Nasional (UNITEN), Malaysia.	J510050002/2020112	2020	RM20,000 (~\$4,750)	Member
9.	Assessing the 5G Cognitive Network Slicing for Hospital of the Future (HoF)	Fundamental Research Grant Scheme (FRGS), Ministry of Higher Education, Malaysia (MOHE)	FRGS/1/2020/TK0/UNITEN/02/14	2020	RM78200 (~\$18,572)	Member
10.	Techno-Economic Evaluation of Small-scale Wind Farm in Malaysia	Universiti Tenaga Nasional (UNITEN), Malaysia.	FRGS/1/2020/TK0/UNITEN/02/10	2020	RM20,000 (~\$4,750)	Member
11.	Detection and Mitigation of Electromagnetic Interference from Photovoltaic and Wind Hybrid System	Universiti Tenaga Nasional (UNITEN), Malaysia.	10289288/ISE/SH/2019002	2020	RM20,000 (~\$8,550)	Member
12.	Development of Smart MPPT Charge Controller with Data-logging and Cloud-connectivity for Cooperative Off-grid	Long Term Research Grant Scheme (LRGS), Ministry of Higher Education, Malaysia (MOHE)	LRGS/1/2019/UKM/01/6/2	2019	RM459,200 (~\$109,060)	Member
13.	Exploring Electromigration and Delamination Related Failures in Solar Panels under Long-Term	Fundamental Research Grant Scheme (FRGS), Ministry of Higher Education, Malaysia (MOHE)	FRGS/1/2019/TK07/UNITEN/02/7	2019	RM106,200 (~\$25,222)	Leader
14.	Implementation of a Smart Energy Management System using Big Data Analytics Solution	Universiti Tenaga Nasional (UNITEN), Malaysia.	2019001TNBEC	2019	RM60,000 (~\$14,250)	Member
15.	Investigation on Enhanced Hole Transport Property Mechanism of Copper Oxide (Cu <sub>2</sub> O) in Achieving Higher	Fundamental Research Grant Scheme (FRGS), Ministry of Higher Education, Malaysia (MOHE)	FRGS/1/2018/TK05/UNITEN/02/1	2018	RM93000.00 (~\$22,087)	Member
16.	An adaptive linear prediction for optimal control of small-scale wind turbines	Universiti Tenaga Nasional (UNITEN), Malaysia.	J510050823	2018	RM20,000 (~\$8,550)	Leader
17.	Research on Radio Frequency Energy System for Powering Low Power Devices in a Locality	Tenaga Nasional Berhad (TNB), Malaysia	U-TS-RD-17-07	2017	RM950,000 (~\$225,626)	Member
18.	Iron Lady' Handheld Body Iron Store Reader, Funded by Universiti Tenaga Nasional	Universiti Tenaga Nasional (UNITEN), Malaysia.	RJO10289176/B/1/2017/15	2017	RM20,000 (~\$8,550)	Member

19. Privacy-Aware Smart Metering using the Concept of Software Defined Networking	Universiti Tenaga Nasional (UNITEN), Malaysia.	RJO10289176 /B /1/2017/14	2017	RM20,000 (~\$8,550)	Member
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## AWARDS

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- Teaching Excellence Award & Blended Learning Best Practices Award for Semester 2, Academic Year 2020/2021.
- Best Paper Award, the 8<sup>th</sup> international conference on information technology and multimedia (ICIMU 2020).
- Best Paper Award, 5<sup>th</sup> International Conference on Energy and Environment, 2019 (ICEE 2019).
- Competition of Invention and Innovation of Private Higher Education Institutions (PERINTIS), Malaysia, Dewan Seri Sarjana, Universiti Tenaga Nasional, 2016, Project title: **'IRON LADY' Handheld Body Iron Store Reader.**
- Competition of Invention and Innovation of Private Higher Education Institutions (PERINTIS), Malaysia, Dewan Seri Sarjana, Universiti Tenaga Nasional, 2016, Project title: **Incipient Fault Identification System.**
- Third prize winner, 3 Minute Thesis Presentation, 2015, Universiti Tenaga Nasional.
- Bronze medal, Malaysian Technology Expo (2015), project title: **Incipient Fault Identification System (MATLAB GUI).**
- Silver medal, Competition of Invention and Innovation of Private Higher Education Institutions (PERINTIS), Malaysia, Dewan Seri Sarjana, Universiti Tenaga Nasional, 2016, project title: Incipient Fault Identification System (MATLAB GUI)

## PROFESSIONAL MEMBERSHIP

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- Professional Technologist, Malaysia Board of Technologists (MBOT).
- Board of Engineers Malaysia (BEM: 2018-present)
- IEEE **Senior Member** (2016-PRESENT)
- IEEE Power Electronics Society (2019-present).
- IEEE Signal Processing Society (Member) 2016-Present)
- IET (2019-present)

## SELECTED PUBLICATIONS

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1. Alkahtani, Ammar Ahmed, Alfalahi, Saad T.Y., Athamneh, Abedalgany A., Al-Shetwi, Ali Q., Mansor, M., Hannan, M A., Agelidis, Vassilios G., & . (2020.0). Power Quality in Microgrids Including Supraharmonics: Issues, Standards, and Mitigations. *IEEE Access*, 8.0(0), 127104 - 127122.
2. Noman, Fuad, Alkawsy, Gamal, Alkahtani, Ammar Ahmed, Al-Shetwi, Ali Q, Tiong, Sieh Kiong, Alalwan, Nasser, Ekanayake, Janaka, Alzahrani, Ahmed Ibrahim, & . (2021.0). Multistep short-term wind speed prediction using nonlinear auto-regressive neural network with exogenous variable selection. *Alexandria Engineering Journal*, 60.0(1), 1221-1229.

3. Noman, Fuad, Alkaws, Gamal, Abbas, Dallatu, Alkahtani, Ahmed, Ammar, Sieh, Kiong Tiong, Ekanayake, Janaka, & . (2020.0). Comprehensive Review of Wind Energy in Malaysia: Past, Present, and Future Research Trends. *IEEE Access*, 8.0(0), 124526 - 124543.
4. Alsarayreh, Sarah A, Radzi, Nurul Asyikin Mohamed, Alkahtani, Ammar Ahmed, Azmi, Kaiyisah Hanis Mohd, & . (2023.0). Intelligent reflecting surface-UAV systems in the internet of things network: A survey. *IEEE Access*, (0), .
5. Umar, Dallatu Abbas, Alkaws, Gamal, Jailani, Nur Liyana Mohd, Alomari, Mohammad Ahmed, Baashar, Yahia, Alkahtani, Ammar Ahmed, Capretz, Luiz Fernando, Tiong, Sieh Kiong, & . (2023.0). Evaluating the efficacy of intelligent methods for maximum power point tracking in wind energy harvesting systems. *Processes*, 11.0(5), 1420.
6. Jailani, Nur Liyana Mohd, Dhanasegaran, Jeeva Kumaran, Alkaws, Gamal, Alkahtani, Ammar Ahmed, Phing, Chen Chai, Baashar, Yahia, Capretz, Luiz Fernando, Al-Shetwi, Ali Q, Tiong, Sieh Kiong, & . (2023.0). Investigating the power of LSTM-based models in solar energy forecasting. *Processes*, 11.0(5), 1382.
7. Alammari, Ammar, Alkahtani, Ammar, Riduan, Mohd, Noman, Fuad, Esa, Mona Riza Mohd, Sabri, Muhammad Haziq Mohamad, Mohammad, Sulaiman Ali, Al-Khaleefa, Ahmed Salih, Kawasaki, Zen, Agelidis, Vassilios, & . (2020.0). Kalman Filter and Wavelet Cross-correlation for VHF Broadband Interferometer Lightning Mapping. *applied Sciences*, 10.0(12), 4238
8. Noman, Fuad, Alkaws, Gamal, Alkahtani, Ammar Ahmed, Al-Shetwi, Ali Q, Tiong, Sieh Kiong, Alalwan, Nasser, Ekanayake, Janaka, Alzahrani, Ahmed Ibrahim, & . (2021.0). Multistep short-term wind speed prediction using nonlinear auto-regressive neural network with exogenous variable selection. *Alexandria Engineering Journal*, 60.0(1), 1221-1229.
9. Alfalahi, Saad TY, Alkahtani, Ammar Ahmed, Al-Shetwi, Ali Q, Al-Ogaili, Ali Saadon, Abbood, Afaneen A, Mansor, Muhamad Bin, Fazea, Yousef, & . (2021.0). Supraharmonics in power grid: Identification, standards, and measurement techniques. *IEEE Access*, 9.0(0), 103677-103690.
10. Al-Barazanchi, Israa, Hashim, Wahidah, Ahmed Alkahtani, Ammar, Rasheed Abdulshaheed, Haider, Muwafaq Gheni, Hassan, Murthy, Aparna, Daghighi, Erika, Shawkat, Shihab A, Jaz, Zahraa A, & . (2022.0). Remote Monitoring of COVID-19 Patients Using Multisensor Body Area Network Innovative System. *Computational Intelligence and Neuroscience*, 2022.0(1), 9879259.
11. Abdelrahim, Misbah, Alkahtani, Ammar Ahmed, Alkaws, Gamal, Baashar, Yahia, Tiong, Sieh Kiong, & . (2022.0). Development of a Mobile Application for Scheduling Electric Vehicle Charging in Wind Energy Powered Facility. *International Conference on Emerging Technologies and Intelligent Systems*, (0), 287-297.
12. Abdelrahim, Misbah, Alkaws, Gamal, Alkahtani, Ammar Ahmed, Alhasan, Ali MW, Khudari, Mohammad, Abdul Kadir, Mohd Rizuan, Ekanayake, Janaka, Tiong, Sieh Kiong, & . (2022.0). Techno-economic analysis of a wind-energy-based charging station for electric vehicles in high-rise buildings in Malaysia. *Energies*, 15.0(15), 5412.
13. Baharin, Shamsul Ammar Shamsul, Ahmad, Mohd Riduan, Al-Shaikhli, Taha Raad Khaleel, Sidik, Muhammad Abu Bakar, Sabri, Muhammad Haziq Mohammad, Al-Kahtani, Ammar Ahmed Nasser, Mohammad, Sulaiman Ali, Lu, Gaopeng, Zhang, Hongbo, Cooray, Vernon, & . (2022.0). Microwave radiation associated with stepped leaders of negative cloud-to-ground flashes. *Atmospheric Research*, 270.0(0), 106091.
14. Alkaws, Gamal, Baashar, Yahia, Abbas U, Dallatu, Alkahtani, Ammar Ahmed, Tiong, Sieh Kiong, & . (2021.0). Review of renewable energy-based charging infrastructure for electric vehicles. *Applied Sciences*, 11.0(9), 3847.

## **EDITORIAL BOARD**

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I am currently an editorial member of the Southeast Europe Journal of Soft Computing.

## **REVIEWING EXPERIENCE**

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I am active in reviewing scientific research output to a number of international journals and conferences including:

<b>Journal</b>	<b>#</b>
Applied Energy, Elsevier (IF: 9.746)	3
IEEE Access	5
Applied Energy Journal	4
Clean Energy	1
Alexandria Engineering	2
Journal of Selected Topics in Applied Earth Observations and Remote Sensing	2
CMC-Computers, Materials & Continua (Q1)	2
Energies, MDPI	3
Clean Energy	1
IEEE Systems Journal	1
Applied Computing and Informatics	1
EEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing	2
Computation neuroscience, Hindawi	2
Bulletin of Electrical Engineering and Informatics (BEEI)	1
5th International Conference on Energy and Environment	4
IEEE Region Ten Conference   5-8 Nov 2017	5
IEEE International Conference on Signal and Image Processing Applications (ICSIPA), 2017.	1
EEE International Conference on Signal and Image Processing Applications (ICSIPA), 2015	3
International Conference of Technology, Science and Administration	1
International Graduate Conference on Energy, Engineering, Technology & Business Management (iGRAD2019)	1
International Graduate Conference on Energy, Engineering, Technology & Business Management (iGRAD2018)	2

## **ADDITIONAL ACADEMIC ACTIVITIES**

1. Panel for Post-Doctoral Researcher Monitoring Workshop. June 10<sup>th</sup> – 12<sup>th</sup>, 2020.
2. Postdoctoral Competition Panel Judge, UNIVERSITI TENAGA NASIONAL, September 30<sup>th</sup>, 2019.
3. External Judge: Final Year Project Awards, College of Engineering, Universiti Tenaga Nasional, representative of IEEE signal processing society, Malaysia (February 19<sup>th</sup>, 2019)
4. Professional Judge: UNITEN Green Millennial Exhibition 2019, Dewan Sri Sarjana Universiti Tenaga Nasional, Putrajaya Campus, March 23<sup>rd</sup>, 2019.
5. A panel of Judges: Final Year Project Awards, Universiti Tenaga Nasional, October 6<sup>th</sup>, 2018.
6. IEEE Signal Processing Society representative and external judge, Final Year Project Awards, Universiti Tenaga Nasional, February 6<sup>th</sup>, 2018.
7. A panel of Judges: Final Year Project Awards, Universiti Tenaga Nasional. February 24<sup>th</sup>, 2017.
8. A panel of Judges: Final Year Project Awards, Universiti Tenaga Nasional, October 7<sup>th</sup>, 2016.
9. Committee member, Final Year Project Awards, Universiti Tenaga Nasional, September 25<sup>th</sup>, 2018.
10. Session chair, 2012 IEEE International Conference on Control System, Computing and Engineering (ICCSCE 2012), November 23<sup>rd</sup>, 2012.

## **EXAMINATION OF THESES**

<b>Date</b>	<b>Student's Name</b>	<b>ID</b>	<b>Course</b>	<b>Thesis title</b>
25 August 2021	Fathi Mahdi Elsiddig Haroun	SE23072	Master of Electrical Engineering (By Coursework & Research)	Power Line Corridor Vegetation Encroachment Detection from Satellite Image Using Retinnet and Support Vector Machine.
21 February 2022	Khaled Ehab Abdullah Mohamed	(SP23164	Master of Engineering Management (Structure C)	Eliminate Big Losses by Implementing TPM Initiative in Factory at Malaysia
14 November 2019	Thiviya Barathi A/P Raja Segaran	SE22341	Master of Electrical Engineering (Structure B)	Master of Electrical Engineering (By Coursework & Research) Phased Array Beamforming for Ultrasonic Bird Deterrent
3 July 2017	Najlan Bin Ismail	SE22114	Master of Electrical Engineering (Structure A)	Detection of the Source of the Incipient Faults Produced by Single Phase Inverter using Feed forward Backpropagation Neural Network

10 November 2017	Norfahani Miskun	SE21608	Master of Electrical Engineering (Structure B)	Development of Image Processing Based Solution for Vegetation Classification using GLCM & Neural Network
3 August 2018	Sing Chee Wai	SQ22432	Master of Communication System Engineering (MCSE)	Microphone Signal Detection Method for Motorized Racking Machine

## **TAUGHT COURSES**

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1. Digital signal processing (UNITEN, undergraduate, 2016-present)
2. Digital signal processing Lab (UNITEN, undergraduate level, 2016-present)
3. Image processing (UNITEN, undergraduate level, 2016-present)
4. Advanced digital signal processing (UNITEN, graduate-level, 2017-present)
5. Electrical and electronics measurement lab (UNITEN, undergraduate level, 2016-2018)
6. Engineering diagnostic tools (UNITEN, graduate-level)
7. Final year project, Electronics and Communication Engineering (Course Coordinator, UNITEN, undergraduate level, 2017/2018)
8. Final year project, Computer and Communication Engineering (Course Coordinator, UNITEN, undergraduate level, 2017/2018)

## **TRAINING & COMMUNITY SERVICES**

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1. Workshop Committee member: Optimization using MATLAB, September 12-13, 2019, IEEE signal processing society.
2. Workshop Committee member: Signal Processing using MATLAB and Working with the DSP F28335 Experimental Board September 23-24, 2019, IEEE signal processing society
3. Invited Speaker: Workshop on Electromagnetic research, Universiti Teknikal Malaysia, Melaka (UTeM), November 25<sup>th</sup>, 2016.
4. Postdoctoral Project Competition Panel Judge, Universiti Tenaga Nasional, September 30th, 2019
5. Final Year Project Awards, organizing committee member (registration), College of Engineering, 2018/2019.
6. A panel of Judges: Final Year Project Awards, Universiti Tenaga Nasional, October 6<sup>th</sup>, 2018
7. Session Chair: IEEE International Conference on Control System and Computing and Engineering (ICCSCE 2012), November 23-25, 2012.

## **CONFERENCE ORGANIZATION**

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1. Technical Program Chair, 5th International Conference on Energy and Environment 2019, Universiti Tenaga Nasional, (1st – 3rd July 2019, 401 submissions).
2. Chair, the 4th International Symposium on Lightning Research (ISLR2019), Universiti Tenaga Nasional, Nasional, (29-30 August 2019, 125 submissions).



3. 3rd Workshop on Lightning Physics and Measurements & 1st Workgroup Meeting on Lightning Physics, Chemistry & Meteorology, Universiti Teknikal Malaysia Melaka (UTeM)
4. Technical Program Committee, 8th International Conference on Green Computing and Engineering Technologies (ICGCET'18)
5. Technical Program Committee, 8th International Conference on Recent Trends in Computer Science and Electronics (RTCSE-2018)

## **SKILLS**

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- MS OFFICE 365 SUITE
- MATLAB (Toolboxes: Image Processing, Signal Processing, Statistics, Control, Optimization, Signal Analyzer, Classification Learner, Neural Net Clustering, Regression Learner)
- Programming (Python, C, and Java)
- HOMER

## **LANGUAGES**

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- Arabic (Native speaker)
- English (Speak fluently and read/write with high proficiency)
- Malay (Speak fluently and read/write moderately)

## **REFERENCES**

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References can be furnished upon request.