

**COURSE OVERVIEW**  
**ARTIFICIAL INTELLIGENCE**

**Course Title** Artificial Intelligence

**Course Date/Venue** December 24-26, 2024/Jumeirah Hotel, Kuwait

**Course Reference** 13-10-2p

**Course Duration/Credits**

**Three days/9AM-12PM**



We are Infotech Institute for Private training, offering an upcoming internal course on "Artificial Intelligence". This course, conducted by Dr. Mustafa Al-Wahib, covers AI fundamentals, machine learning, neural networks, and their applications in various professional sectors, including oil and gas. Notably, this course is being offered for the second time in a row because of its popularity, it has received positive feedback and has been asked for repeatedly due to its success. - Received an excellent evaluation from KIPIC.



The highly customisable course allows participants to focus on AI applications specific to their department or line of work. Given our department's focus on Quality, Health, Safety, and Environment (QHSE), I believe the course will offer powerful AI-driven tools for predictive risk analysis, hazard detection, and real-time safety monitoring. These tools are not only essential to improving safety practices, operational efficiency, and quality control in our field but also have the potential to significantly enhance our department's performance and contribute to our overarching goals.



***this is theory/practical and highly-interactive includes various practical sessions and exercises. The course is rich with real-life relevant examples and applications.***

## Course Objectives

Establishing the participants with a solid foundation in AI.

Providing essential concepts, categories, applications & future trends of AI.

Training the participants on critical thinking of current evolving AI systems.

Studying topics on AI applications in GAS & Oil industry.

Some key highlights of the course include:

**Introduction to AI and its types:** A comprehensive understanding of AI's current landscape and future directions.

**Neural network concepts:** Practical applications in problem-solving and decision-making.

**Linking AI with Oil and Gas Applications:** Focused training on using AI to enhance safety and optimise operations in oil and gas, which is not only highly relevant to our QHSE protocols but also directly applicable to our daily operations. This ensures that the knowledge gained from the course can be immediately put into practice, benefiting our department and the company.

**Mistakes and limitations in AI:** Addressing common challenges in AI implementation.

**Customizable projects:** Each participant is tasked with developing AI-based projects tailored to their professional specialisation.

## Course Outlines

- Concepts of AI (Types and applications)
- Problem solving with AI (Game Theory)
- Machine Learning (Supervised, Unsupervised & Reinforcement Learning)
- Classifiers and Regression with real-life applications
- Convolutional Neural Network with real-life applications
- Large Language Models (LLS) and GPT
- Limitations, Implications and Future Prediction of AI
- Selective AI applications
- Introduction to building AI Model for ad-hoc applications



## AI Practical Training

- Participants are trained on selective applications in AI systems
- ChatGPT is actively utilized throughout the course
- Participants are trained on learning how-to-learn future evolving AI systems
- Each participant is required to build an ad-hoc AI system (based on his/her department/professional speciality) and present it as a compulsory assignment at the end of the course
- The course is rich with real-life relevant examples and applications





## Mustafa AL-WAHAIB, PhD

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### Summary

Mustafa AL-WAHAIB received his PhD (with DISTINCTION) in Data Hiding from University of Malaya in 2015. He was awarded the IEEE Signal Processing Best PhD Thesis award in Malaysia for 2015. He published in ISI (tier-1) journals and several IEEE conferences in addition to obtaining a patent. He was granted a full scholarship in Nagaoka University of Technology

in Japan. He contributed to the novel field of Political Intelligence in which AI (Artificial Intelligence) and political sciences are bridged. His research interests include information security, bridging (intra-correlation) AI with various branches, mathematical modeling of social sciences and information theory.

### Education

<p><b>University of Malaya, Malaysia</b> Doctor of Philosophy (<i>with Distinction</i>), awarded in February 2015 Thesis: <b>A study on Data Eembedding in Universal Domain</b> Supervisor: KokSheik Wong</p>	<p>January 2011- February 2015</p>
<p><b>Multimedia University, Malaysia</b> Master of Engineering Science, awarded in July 2008 Thesis: <b>Development of Image Compression Algorithms for Mammography Images</b> Supervisor: Teong Chee Chuah Co-Supervisor: Lee Sze Wei</p>	<p>December 2004 - July 2008</p>
<p><b>Sana'a University, Yemen</b> Bachelor of Science in Electrical Engineering (Hons.), awarded in June 2001 Supervisor: Tahir Homaid</p>	<p>September 1996 - June 2001</p>

### Professional Experiences

<p><b>Political Intelligence Research Center (PolitIQs)</b> Founder and CEO</p> <ul style="list-style-type: none"> <li>• Leading PolitIQs, Setting the Views and Objectives</li> <li>• Managing Research</li> <li>• Supervising Systems Design and Production</li> <li>• Handling Consultations &amp; Training</li> </ul>	<p><b>ISTANBUL, TURKEY</b> November 2018 - to date</p>
<p><b>Universiti Sains Islam Malaysia (USIM)</b> Head of Research and Postgraduate Studies Program in Turkey</p> <ul style="list-style-type: none"> <li>• Putting the general framework of research policy for the university</li> <li>• Administrating all research activities and publications</li> <li>• Overseeing the supervision and other academic aspects for postgraduate students</li> </ul>	<p><b>ISTANBUL, TURKEY</b> March 2017 -to- June 2019</p>
<p><b>Head of Computer Science Program in Turkey</b></p> <ul style="list-style-type: none"> <li>• Teaching computer science subjects within the department (e-commerce, Network Security, C Programming, Operating Systems, Digital Forensic)</li> <li>• Supervising postgraduate students at the department and overseeing their research and publications</li> <li>• Administrating the academic activities, contributing to the development of the curriculum and conducting the academic management of the department members</li> </ul>	
<p><b>Multimedia University</b> Research Fellow</p>	<p><b>CYBERJAYA, MALAYSIA</b> July 2015 -to- February 2017</p>

- Conducting research in Security, Format Preserving Encryption and the theory of randomness
- Generating and publishing articles in the journals and conferences relevant to the research fields
- Participating in seminars, conferences, group discussions relevant to the research fields

**University of Malaya**

**KUALA LUMPUR, MALAYSIA**

**Research Assistant**

*September 2011 -to- February 2015*

- Conducting research in data embedding, inventing algorithms and studying the theory of universal data embedding
- Generating and publishing articles in the journals and conferences relevant to the research fields
- Participating in seminars, conferences, group discussions relevant to the research fields

**Nagaoka University of Technology**

**NIIGATA, JAPAN**

**Researcher**

*August 2014 – September 2014*

- Conduct research in High Dynamic Range images and inventing layer coding algorithm for scalable visual quality control
- Generate and publish articles in the journals and conferences relevant to the research field
- Participate in seminars and group discussions relevant to the research field

**International Islamic University Malaysia**

**KUALA LUMPUR, MALAYSIA**

**Lecturer**

*June 2009 – April 2010*

- Teaching subjects (IT Security and Computer Organization)
- Prepare educational materials, lectures, slides, on-line resources, examinations
- Provide consultations and supervise projects

**University of Science and Technology**

**SANA'A, YEMEN**

**Lecturer**

*June 2002 – May 2004*

- Teaching subjects (Pascal, C programming, Oracle database design and programming, Logic circuits analysis and design)
- Prepare educational materials, lectures, examinations
- Supervising student projects

**Patents**

[1] A Method of Embedding Data in a Digital Signal, Patent number: PI 2014 703659.

**List of Publications**

**Journals:**

- [1] M. S. Abdul Karim, K. Wong, Data embedding in random domain, *Signal Processing* 108 (0) (2015) 56 – 68. (ISI-Cited Publication)(Tier 1).
- [2] M. S. Abdul Karim, K. Wong, Data fusion in universal domain using dual semantic code, *Information Sciences* 283 (0) (2014) 123 – 141. (ISI-Cited Publication)(Tier 1).
- [3] M. S. Abdul Karim, K. Wong, Universal data embedding in encrypted domain, *Signal Processing* 94 (2014) 174–182. (ISI-Cited Publication)(Tier 1).
- [4] M. S. Abdul Karim, Raphael Phan, K. Wong, Format Preserving Encryption in Universal Domain, *IEEE Transactions on Information Forensics and Security (TIFS)* (under review).
- [5] K. Wong, Simying Ong, M. S. Abdul Karim, Susanto Rahardja, Unified Information Hiding - The Marriage of Two Fields, *ACM Transactions on Embedded Computing Systems* (under review).

### International Peer-Reviewed Conferences:

- [1] M. S. Abdul Karim, K. Wong, Defining Redundancy in Histogram of Any Signal for Reversible Data Embedding, in: International Symposium on Intelligent Signal Processing and Communications Systems (ISPACS), IEEE, 2014.
- [2] M. S. Abdul Karim, K. Wong, A novel paradigm of lossless image compression by reversible data embedding, in: Image Electronics and Visual Computing Workshop (IEVC2014), 2014.
- [3] M. S. Abdul Karim, K. Wong, Re-conceptualization of applications achieved by data hiding, in: International Symposium on Intelligent Signal Processing and Communications Systems (ISPACS), IEEE, 2012, pp. 447–451.
- [4] M. S. Abdul Karim, K. S. Wong, K. Tanaka, Reversible data embedding for any digital signal, in: 5th International Symposium on Communications Control and Signal Processing (ISCCSP), IEEE, 2012, pp. 1–4.
- [5] M. S. Abdul Karim, K. Wong, K. Tanaka, Reversible data embedding in Golomb-Rice code, in: IEEE International Conference on Signal and Image Processing Applications (ICSIPA), IEEE, 2011, pp. 515–519.
- [6] K. Wong, M. S. Abdul Karim, K. Tanaka, Improvements of data embedding in DCT compressed domain, in: IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PacRim), IEEE, 2011, pp. 268–273.
- [7] M. S. Abdul Karim, K. Wong, Improvements of duplication free run-length coding for textured images, in: Image Electronics and Visual Computing Workshop (IEVC2012), 2012.
- [8] M. S. Abdul Karim, K. Wong, A lossless image compression algorithm using duplication free run-length coding, in: Second International Conference on Network Applications Protocols and Services (NETAPPS), IEEE, 2010, pp. 245–250.

### Ongoing Research Projects

- **Project name:** *Authentication for Identity Governance on Web*, - in collaboration with Echizen Lab, National Institute of Informatics, Tokyo, Japan
- **Project name:** *Detection of Malicious Activities in Network Traffic using Benford's Statistical Analysis*, a research project being conducted with my master student - in collaboration with USIM university, Nilai, Malaysia
- **Project name:** *Development of Objective Measurement of Randomness in Encrypted Signals*, - in collaboration with Multimedia university, Cyberjaya, Malaysia

### Publications in Political Intelligence

- Mustafa AL-WAHAIB, *Application of Game Theory to COVID-19 Pandemic*, AYAM, 2020
- Mustafa AL-WAHAIB, *The Foreign Policy Theory of Qatar (Principles, Models & Algorithms)*, PolitIQs, 2022
- Mustafa AL-WAHAIB, *Application of Game Theory in Gaza War*, PolitIQs, 2023
- Mustafa AL-WAHAIB, *Engineering Politics Theory (PART I): Policymaking (Concepts & Algorithms)*, PolitIQs, in press
- Mustafa AL-WAHAIB, *Engineering Politics Theory (PART II): Political Analysis (Concepts & Algorithms)*, PolitIQs, in press

## Honors & Awards

- IEEE Signal Processing Malaysia Best PhD Thesis Award for 2015 (received in May 2016)
- DISTINCTION in PhD (Computer Science) from University of Malaya (received in February 2015)

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## Memberships

- IEEE (Since January 2012)
- IEEE Signal Processing Society (Since January 2012)

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## Professional Activities

- Reviewer – Elsevier Information Sciences
- Reviewer – IEEE Transactions on Information Forensics and Security (TIFS)
- Reviewer – Security and Communication Networks

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## References

- Dr. KokSheik Wong, School of Information Technology, Monash University, Kuala Lumpur, Malaysia. E-mail: wong.koksheik@monash.edu
- Prof. Hitoshi Kiya, Graduate School of System, Tokyo Metropolitan University, Tokyo, Japan. E-mail: kiya@tmu.ac.jp
- Prof. Kiyoshi Tanaka, Faculty of Engineering, Shinshu University, Nagano, Japan. E-mail: ktanaka@shinshu-u.ac.jp
- Prof. Iwahashi Masahiro, Faculty of Engineering, Nagaoka University of Technology, Nagaoka, Japan. E-mail: iwahashi@vos.nagaokaut.ac.jp

# Artificial Intelligence



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Dr. Mustafa AL-Wahaib

Ph.D (with distinction).  
Master in Engineering.



**REGISTER NOW**

Due to the high demand for the course and the success it received, the course was repeated

