Ali Hamdi

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Professional Profile

I am an accomplished AI researcher and technology executive with over 17 years of experience spanning artificial intelligence, machine learning, computer vision, natural language processing, and large language models. I currently serve as an Assistant Professor at MSA University and as Chief Technology Officer at AiTech, where I integrate academic rigor with industry-driven innovation. My expertise lies in translating state-of-the-art research into scalable, real-world applications across sectors including healthcare, agriculture, security, education, and FinTech. I maintain an active role in both scholarly research and the development of commercially impactful AI solutions.

Career Highlights

- Teaching Excellence: Designed and delivered over 15 university-level courses in AI, ML, and data science. Supervised 100+ undergraduate and postgraduate students, achieving award-winning outcomes and production-ready systems.
- Research Impact: Author of 70+ peer-reviewed publications in top-tier journals and conferences. Notable contributions include work in LLM applications, Arabic NLP, multimodal AI, and drone intelligence—earning over 500+ academic citations.
- Industrial Leadership: Led 120+ AI projects including LLM-driven chatbots, RAG, drone-based surveillance, predictive analytics, and enterprise-grade Agentic AI.
- Global Recognition: Winner of multiple best paper awards and first-place distinctions at premier competitions including SemEval 2017 & 2025, BEA@ACL 2025, and ImageCLEF 2025. Collaborations span Australia, Canada, Qatar, and Egypt.
- Innovation & Impact: Pioneered techniques in hallucination detection, cross-lingual QA, and sentiment-based engagement analytics. Known for engineering deployable AI solutions that reimagine workflows and deliver measurable business value.

Education

Period	Degree	Institution	Details
Jun 18 – Apr 22	PhD in Computer Science (Computer Vision & Pattern Recognition)	RMIT University, Australia	Efficient and Flexible Visual Representation Learning
Nov 15 – Jun 17	Master's Degree (MPhil) in Computer Science	UTM University	Hybrid Model for Sentiment Analysis of Multi-faceted Reviews
Sep 12 – May 14	Graduate Diploma in Computer Science	Cairo University, Egypt	Smart Digital Library: Web and mobile Application

Teaching & Research Experience

Assistant Professor, Computer Science

MSA University, Giza, Egypt | Sep 2023 – Present (Fulltime)

- Delivering high-level academic instruction in AI and data science disciplines.
- Supervised 40+ undergraduate and graduate theses, fostering student-led innovation in AI and machine learning.
- Spearheading curriculum development efforts integrating emerging AI technologies including LLMs, multimodal AI, and advanced ML techniques.
- Publishing in top-tier venues and building international research collaborations.
- Established academic-industry links to enhance research impact and student employability.
- Undergraduate courses taught include CS316: Artificial Intelligence, CS364: Cloud Computing, CS463: Machine Learning, CS464: Neural Networks, CS4802: Computer Vision, and CS4809: Applications of Deep Learning.

Lecturer, Computer Science

ESLSCA University, Egypt | Aug 2024 – Oct 2024 (Contract)

- Designed FinTech-focused curricula in Python, machine learning, deep learning, and data science.
- Applied real-world use cases including fraud detection, loan approvals, and algorithmic trading to enhance learning relevance.
- Delivered hands-on coding projects ensuring high practical proficiency among students.
- Postgraduate Course Taught: Artificial Intelligence for FinTech

Lecturer, Computer Science

Cairo University, Giza, Egypt | Aug 2022 – Oct 2023 (Contract)

- Conducted advanced programming and data visualization labs for postgraduate students.
- Developed original course materials, assessments, and conducted in-depth research supervision.
- Guided research methodology workshops and mentored students at the master's level.
- Postgraduate Courses Taught: DS615: Data Science for Decision Support, DS588: Advanced Programming for Data Science and DS587: Data Visualization

Postdoctoral Researcher

The University of Adelaide, Australia | Jan 2022 – Apr 2022 (Fulltime)

- Investigated deep learning applications in network protocol security, focusing on GANs and GNNs.
- Conducted interdisciplinary research on speech recognition and speaker identification.
- Prepared for publication in international journals with high-impact factor and relevance to cybersecurity and NLP domains.

PhD Candidate & Teaching Associate

RMIT University, Melbourne, Australia | Jun 2018 – Oct 2021 (Fulltime)

- Pioneered research in visual representation learning using graph convolutional neural networks.
- Contributed to academic teaching, assessment, and research across multiple units.
- Academic Roles at RMIT:
    - Computer Science Tutor – User-Centered Design (Mar 2020 – Jul 2020) (Contract)
    - Researcher – CORE Academic Ranking System Project (Aug 2019 – Nov 2019) (Contract)
    - Examiner/Marker – School of Computing (Aug 2019) (Contract)

Research Fellow

The University of Sydney, Australia | Mar 2018 – Jun 2018 (Fulltime)

- Developed a Drone-as-a-Service (DaaS) architecture accounting for uncertainty in delivery and real-time constraints.
- Co-authored IEEE-Transaction published work on intelligent drone scheduling and real-time operations.

Research & Teaching Assistant

Qatar University, Doha, Qatar | Feb 2017 – Feb 2018 (Part-time)

- Contributed to major national research projects (NPRP, GCC grants) in sentiment analysis, smart homes, and mHealth systems.
- Delivered tutorials and lab instruction for postgraduate data science courses.

Industry Experience

Chief Technology Officer

AiTech AU | Australia & Egypt — Jan 2023–Present

- Spearheading R&D in artificial intelligence across diverse domains including education, healthcare, manufacturing, and public safety.
- Led the development of enterprise-grade AI systems integrating LLMs, OCR, multimodal sentiment analysis, and predictive analytics.
- Supervised large-scale projects focused on automated document understanding, real-time video analytics, and intelligent chatbots, enhancing cross-sector operational efficiency.
- Pioneered the use of LLM-based Retrieval-Augmented Generation (RAG) and LangChain frameworks in production environments.
- Notable Deployments:
  - AiTech Deep Meeting: An NLP-powered system enhancing online meeting effectiveness through speech and sentiment tracking.
  - AiTech Smart Vision: Computer vision-based real-time flow monitoring and hazard detection.
  - LLM-enhanced Document Summarization: Achieved >95% accuracy in summarizing complex enterprise documents.
- Academic Value: These projects inform ongoing university teaching, student theses, and collaborative grant proposals. Findings have been translated into publications and used as teaching case studies in AI and NLP courses.

Chief Technology Officer

WAKEB DATA, Egypt & Saudi Arabia | Sep 2021–Mar 2023 (Fulltime)

- Directed multidisciplinary teams in the development of AI systems with Arabic NLP, drone-based surveillance, and autism diagnostics via action recognition.
- Established WAKEB's GIS research unit, contributing geospatial analytics tools for academic and governmental research.
- Advanced cybersecurity applications using AI, including phishing detection and multilingual voice/text analysis.
- Integrated academic frameworks into commercial AI pipelines, creating opportunities for student involvement and real-world data experimentation.
- Academic Value: Developed academic collaborations and student internships; incorporated GIS and NLP modules into postgraduate curricula.

Data Scientist

Ministry of Interior, Qatar | Aug 2014–Feb 2018 (Fulltime)

- Applied machine learning and statistical modeling to public sector challenges including:
  - Drug trafficking prediction models
  - Public sentiment analysis across Arabic dialects
  - Visual answer extraction from handwritten surveys
- Created KPI dashboards for traffic and crime analysis that informed governmental policy decisions.

- Academic Value: Real-world applications shaped supervised master's and PhD research topics on social analytics, Arabic NLP, and forensic data science.

Senior Web Developer

AGEX Co., Egypt | Jun 2012–Jul 2014 (Fulltime)

- Led full-stack development of exhibition management platforms using PHP, MySQL, and scalable architecture.

Web Developer

Sama Al-Hijratin Marketing, Kuwait | Jan 2009–Dec 2012 (Fulltime)

- Delivered custom digital solutions and multilingual websites for clients in marketing and communications.

Publications

Selected Publications

For all publication list: https://scholar.google.com.au/citations?user=Q5qW1rcAAAAJ

1. Hamdi, A., Shaban, K., Erradi, A., Mohamed, A., Rumi, S. K., & Salim, F. (2021). Spatiotemporal data mining: A survey on challenges and open problems. Artificial Intelligence Review, 54, 529–580. [Q1, IF: 5.747 | Citations: 156]
2. Hamdi, A., Salim, F. D., Kim, D. Y., Neiat, A. G., & Bouguettaya, A. (2021). Drone-as-a-service composition under uncertainty. IEEE Transactions on Services Computing, 14(4), 919–931. [Q1, IF: 5.823 | Citations: 34]
3. Mohammad, B., Shaban, K., & Hamdi, A. (2024). LexiSem: A re-ranker balancing lexical and semantic quality for enhanced abstractive summarization. Neurocomputing, 558, 127426. [Q1, IF: 6.0 | New]
4. Badaro, G., Baly, R., Hajj, H., El-Hajj, W., Shaban, K. B., Habash, N., Al-Sallab, A., & Hamdi, A. (2019). A survey of opinion mining in Arabic. ACM Transactions on Asian and Low-Resource Language Information Processing, 18(3), Article 23. [Q1, IF: 1.42 | Citations: 94]
5. Afnan, A., Hamdi, A., et al. (2025). CLASEG: Multiclassification and segmentation for differential diagnosis of oral lesions. Scientific Reports, 14, 889. [Q1, IF: 6.639 | New]
6. Hamdi, A., Salim, F., & Kim, D. Y. (2020). DroTrack: High-speed drone-based object tracking under uncertainty. In IEEE FUZZ-IEEE 2020. [Core A | Citations: 25]
7. Hamad, O., Hamdi, A., & Shaban, K. (2024). ASEM: Enhancing empathy in chatbots with attention-based sentiment modeling. In LREC-COLING 2024. [Core B | Citations: 11]
8. Hamdi, A., Shaban, K., & Zainal, A. (2018). CLASENTI: A class-specific sentiment analysis framework. ACM TALIP, 17(4), Article 23. [Q1, IF: 1.42 | Citations: 28]
9. Hamdi, A., Aboeleneen, A., & Shaban, K. (2021, September). Marl: multimodal attentional representation learning for disease prediction. In the International Conference on Computer Vision Systems (pp. 14-27). Cham: Springer International Publishing. [Rank B1 | Citations: 9]
10. Hamdi, A., et al. (2025). MSA at SemEval-2025: Weak labeling and LLM ensemble verification for hallucination detection. In SemEval-2025. [1st Place]
11. Baly, R., Badaro, G., Hamdi, A., et al. (2017). OMAM at SemEval-2017: Arabic sentiment analysis using topic modeling. In SemEval 2017, pp. 565–572. [ACL Shared Task | 1st Place | Citations: 31]
12. Hamad, O., Hamdi, A., & Shaban, K. (2022). Attention-based model for accurate stance detection. In TSD 2022, pp. 212–224. [Rank B1 | Citations: 4]
13. Basem, M., Oshallah, I., Hamdi, A., & Mohammed, A. (2025). Few-shot prompting for span-level Quranic QA. In Proceedings of IMSA 2025. [In Press | Cross-lingual QA]
14. Tarek, S., & Hamdi, A. (2025). Enhancing tomato leaf disease detection with deep learning. In Proceedings of IMSA 2025. [In Press | AgriTech AI]
15. Sherif, O., & Hamdi, A. (2025). Error-guided pose augmentation for rehabilitation assessment. In Proceedings of IMSA 2025. [In Press | Biomechanics/Healthcare]
16. Wael, F., Maklad, Y., Hamdi, A., & Elsersy, W. (2025). Prompt chaining for FSM extraction using agentic flows. In Proceedings of IMSA 2025.
17. Ayman, N., Hamdi, A., & Alaa, S. (2025). Health-aware path planning for asthma via environmental prediction. In Proceedings of IMSA 2025.
18. Akl, A., & Hamdi, A. (2025). Fusion strategies for embedding models across MTEB tasks. In Proceedings of IMSA 2025. [Shortlisted for Best Paper 🏅]

Manuscripts Under Review

1. Hamdi, A., Salim, F., Kim, D. Y., Neiat, A. G., & Bouguettaya, A. Drone-as-a-Service: Research challenges and directions. ACM Computing Surveys [Under Review | CORE Rank: A | IF: 7.990]*
2. Palliyali, A. W., Hamdi, A., & Shaban, K. Optimising early Parkinson's disease diagnosis from speech signals. Computers in Biology and Medicine [Under Review | Q1 | IF: 4.589]
3. Hamdi, A., Salim, F., & Kim, D. Y. GCCN: Global Contextual Networks. Pattern Recognition [Under Review | CORE Rank: A | IF: 7.74]*
4. Hamdi, A., Salim, F., & Kim, D. Y. flexgrid2vec: Learning flexible representations of grid-graphs. IEEE Transactions on Neural Networks and Learning Systems [Under Review | CORE Rank: A | IF: 8.793]*
5. Hamdi, A., Salim, F., & Kim, D. Y. Signature-Graph Neural Networks. IEEE Transactions on Neural Networks and Learning Systems [Under Review | CORE Rank: A | IF: 8.793]*
6. Hamdi, A., Shaaban, K., Ghanim, M., & Shaban, K. B. Weather-enhanced multi-target regression for traffic prediction.
7. Hamad, O., Hamdi, A., & Shaban, K. Benchmarking positional encoding strategies for chatbot dialogue.
8. Labib, M., & Hamdi, A. (2025). Deep augmented object detection for waste material recognition. In Proceedings of NILE 2025.
9. Nafady, M., Elfeky, S., & Hamdi, A. (2025). Benchmarking YOLO variants for drone-based cashew plant disease detection. In Proceedings of NILE 2025.
10. Labib, M., & Hamdi, A. (2025). Attentional language modeling for text to 3D generation. In Proceedings of NILE 2025.
11. Tarek, S., & Hamdi, A. (2025). Optimized deep attention model for drone-based solar fault detection. In Proceedings of NILE 2025.
12. Hikal, B., Nasreldin, A., Gomaa, W., & Hamdi, A. (2025). Uncertainty-based aggregation for educational dialogue error detection. NILE 2025.

Peer Reviewing *(Selected)*

- Intelligent Methods, Systems, and Applications IMSA'25.
- International Conference of Advanced Computing and Informatics, ICACIN 2024.
- Intelligent Methods, Systems, and Applications IMSA'24.
- The 13th biennial International Conference on Computer Vision Systems, 2021.
- Artificial Intelligence Review Journal.
- Journal of Intelligent Systems.
- The 19th Intl. Conf. on Pervasive Computing and Communications (PerCom 2021).
- Database and Expert Systems Applications, 29th International Conference, DEXA 2018, Regensburg, Germany, September 3–6, 2018.
- The 19th International Conference on Web Information Systems Engineering. November 12-15,
- 2018, Zayed University, Dubai, United Arab Emirates.
- The International Conference of Intelligent Computing and Engineering (ICOICE 2019)

Teaching Experience

Institution	Role & Period	Courses Taught	Notes
MSA University, Egypt	Assistant Professor / Lecturer (2023–2025)	Undergraduate Courses: CS316 – Artificial Intelligence CS363 – Machine Learning CS364 – Cloud Computing CS463 – Machine Learning CS464 – Neural Networks CS4802 – Computer Vision CS4809 – Apps of Deep Learning CS100 – Introduction to IT	Semesters:Summer 2025: CS316, MSE551Spring 2024: CS361, CS464Fall 2024: CS316, CS363, CS4809Summer 2024: CS363Spring 2024: CS4802Fall 2023: CS364, CS464, CS100
Cairo University, Egypt	Lecturer (2022–2023)	Postgraduate Courses: DS615 – Data Science for Decision Support DS588 – Advanced Programming DS587 – Data Visualization	Semesters:Fall 2022 – Jan 2023: DS588Summer & Fall 2023: DS615
ESLSCA University, Egypt	Lecturer – FinTech AI Track (Aug–Oct 2024)	Python for FinanceMachine Learning & Deep Learning in FinTechCredit ScoringFraud DetectionAlgorithmic Trading	Postgraduate FinTech Program
RMIT University, Australia	Tutor, Examiner, Research Instructor (2018–2021)	User-Centered Design Course	(Tutor – Spring 2020)
Qatar University, Doha	Teaching Assistant – Master's Program (2017)	Data Science TutorialsLabs in Computing and NLP	NPRP & GCC funded projects
Other Roles & Short Courses	Instructor (2012–2020)	2019–2020: ML, CV, NLP – ITI Egypt 2016–2018: Python, Data Mining – UTM & Qatar 2013–2016: Web Development (PHP, JS, MySQL) – Egypt 2012–2014: Photoshop, HTML/CSS Workshops	Short-term and national training programs

Honors & Awards

🏅 Best Paper & Research Awards

- Best Paper Award, BEA @ ACL 2025
- Best Paper Award, Springer ICACIn 2024
- Best Paper Award, IRICT 2021
- Best Student Paper Finalist, FUZZ-IEEE 2020 at IEEE WCCI 2020
- Best Paper Award Nominee, IEEE IMSA 2024

🥇 International AI Competitions

- 1st Place, SemEval 2025 – Task 3: Hallucination Detection
- 1st Place, ImageCLEF 2025 – Multilingual Challenge (11 languages)
- 1st Place, BEA @ ACL 2025 – Track 3
- 3rd Place, AUTOCHECKOUT 2020 – Autonomous Retail Checkout Monitoring
- 1st Place, SemEval 2017 – Topic-Based Sentiment Modeling (ACL)

🎓 Academic Scholarships & Grants

- RMIT PhD Scholarship (2018–2021)
- University of Sydney PhD Scholarship (Mar–Jun 2018)
- IEEE FUZZ'20 Conference Grant, IEEE Computational Intelligence Society

💼 Innovation & Entrepreneurship

- Incubation Award, QBIC LeanStartup Program (2017)
  Team: "Kashif" – Digital and Beyond Incubator, Ooredoo Qatar

🌿 Applied Research Recognition

- ARICA23 856 Award (Feb 2024)
  Use of AI for Agricultural Yield Estimation & Pest Prediction – Yemen Pomegranate Crop

Supervision & Mentorship

1. 2024: Eman A., *PhD of Computer Science*, LLM for Text Summarisation.
2. 2024: Mohammad Basheer, *Master of Computer Science (MCS)*, Knowledge Distillation for Text Summarization.
3. 2024: Hazem Ahmed, *MCS*, Hybrid vision & language self-supervised learning for semantic segmentation.
4. 2024: Abdurrahman Antably, *MCS*, Wireless network series forecasting.
5. 2024: Bavly Salah, *MCS*, Face Anti-Spoofing.
6. 2024: Hozaifa Kasab & Ahmed Saad, *Bachelor of Computer Science (BCS)*: Speech to image retrieval and generation an algorithmic tool for innovative interior design.
7. 2024: Mohamed Abdelhamid & Aly Tarek, *BCS*, Image painting using generative adversarial network with captioning.
8. 2024: Khaled Farag, *BCS*, Plant disease detection using image and deep learning.
9. 2024: Mohamed Ibrahim, *BCS*, Customized Movement Enhancer.
10. 2024: Sarah Kamal & Rodaina Mohamed Saad Elsaid Hebishy, *BCS*, Relighting High-Resolution Night-Time Semantic Segmentation.
11. 2024: Zakaria Sameh Elemam, *BCS*, Audio Deep Fake.
12. 2024: Mohamed Basem, Islam Oshallah, Baraa Hikal, *BCS*, Optimized Quran Passage Retrieval Using an Expanded QA Dataset and Fine-Tuned Language Models.
13. 2024: Kamal Mohamed, Lillian Wassim, *BCS*, LLM-DaaS: LLM-driven Drone-as-a-Service Operations from Text User Requests.
14. 2024: Nada Ayman & Shaimaa Alaa, *BCS*, Health-aware Heuristic Modelling for Asthma-friendly Route Optimization.
15. 2024: Mohamed Hussein, BCS, Context-Aware Pathfinding in Urban Environments Using Real-Time Weather and Traffic Data.
16. Osama Abdellatif, Abdelrahman Hassan, BCS, LMRPA: Large Language Model-Driven Efficient Robotic Process Automation for OCR.
17. 2024: Ahmed Abdelmoneim Mazrou, Haidy Maher El-Amir, BCS, BLM-SGAN: Bidirectional Language Modeling for Semantic-Spatial Text-to-Image Generation.
18. 2024: Osama Abdellatif, Ahmed Ayman, BCS, LMV-RPA: Large Model Voting-based Robotic Process Automation.
19. 2024: Marena Anis, BCS, Attentional Language Modeling for Real-world Camera Trajectory and 3D Scene Generation from Text.
20. 2024: Shahd Tarek, BCS, Optimized Attentional Deep Learning Model for High-Precision Drone Image Recognition in Solar Panel Fault Detection.
21. 2022: Heba A. PhD in mathematics. Research topic: Optimal dynamic resource allocation for large crowd planned events.
22. 2022: Fathy A. MCS (Computer Vision). Research topic: Human action recognition for industrial manufacturing.
23. 2022: Omama H. MCS (text mining). Research topic: Stance detection in tweets & empathetic chatbots.
24. 2021: Palliyali A. MCS (speech recognition). Research topic: Deep attentional transformers for early diagnosis of Parkinson's disease from speech signals.
25. 2020: Samir A. PhD in computer science (Computer Vision). Research topic: Hierarchical Deep Visual Segmentation of Oral Cancers.
26. 2019: Roza H. PhD in computer science (NLP). Research topic: Learning bag of concepts for sentiment analysis.
27. 2019: Essam A. machine learning course project (required for master in computer science). Re search topic: Multimodal attentional representation learning.

2018: Om A. PhD in computer science (NLP and text mining). Research topic: Aspect based sentiment analysis.

Research Funding & Grant Writing

- June 2024 (Submitted): FAHES: Intelligent Fault and Health Estimation Framework for Optimal Maintenance of Outdoor High-Voltage Insulators in Qatar - ARG02-0317-240015.
- April 2021 (Submitted): “DeIN: Drone-based Inspection System for Outdoor Insulators”. QNRF– 4 years – $600K USD.
- May 2020: “SocialTeleHealth: Understanding Multi-modal Medical Content from Social Media”.
- Jan 2020 (Granted): “DroneCMS: Flying Infrastructure for Intelligent Crowd Management and Security for Mega Events”. NPRP12S-0313-190348. QNRF – 2 years – $300K USD.
- July 2019: “Object Recognition and Data Analysis for Prevention of Vulnerable Road Users”.

Professional Memberships

- IEEE Student Member
- IEEE Young Professionals
- IEEE Computational Intelligence Society Member
- ACM Student Member
- Australian Civil Aviation Safety Authority – Certified Remote Pilot License

Invited Talks & Guest Lectures

- Sep 2020 – Machine Learning, College of Engineering, Qatar University (Remote)
- Feb 2018 – Data Science in Practice, Faculty of Graduate Studies, Cairo University
- Feb 2018 – Python for Data Mining, TahaWorld, Egypt
- Nov 2017 – ML Algorithms & Applications, UTM, Malaysia
- Apr 2014 – Web Design & Development, Faculty of Applied Arts, Helwan University

Certifications & Executive Training

- **2023**: Leadership & Management: Being a CTO, Leading Teams, Tech Leadership.
- **2023**: Commercial Topics: Marketing, Sales & Customers, Compliance & Legals, Partnerships, Strategy, Selling a Business.
- **2023**: Technology Management: The Crucial Stuff, Choosing the Technology.
- **2023**: Personal Development: Personal Branding, Board Level Skills, Negotiation Skills, Communication.
- **2023**: HR for IT Managers: Management for IT Managers, Employment Practices.
- **2023**: Operations: Testing, Systems & Processes, Objective & Key Results (OKRs).
- **2023**: Mindset & Wellness: Mindset Development, Wellness Practices.
- **2023**: Funding & Finance: Budgeting, Accounting Basics, Funding Strategies.
- **2023**: Start-Up & Fast Growth: Funding for Start-Ups, Start-Up Life.
- **July 2020**: Multiple Object Tracking (MOT), a Massive Open Online Course on edX.
- **Dec 2019**: Leveraging Cloud-Based Machine Learning on AWS: Real-World Applications, LinkedIn Learning.
- **Dec 2019**: Amazon Web Services Machine Learning Essential Training, LinkedIn Learning.

- **Dec 2019**: AWS Essential Training for Developers, LinkedIn Learning.
- **Dec 2019**: Debiasing AI Using Amazon SageMaker, LinkedIn Learning.
- **Dec 2019**: Introduction to Deep Learning with OpenCV, LinkedIn Learning.
- **Feb 2019**: Internet of Things (IoT) Industry Forum, RMIT University, Australia.
- **Dec 2018**: A joint Textron/RMIT Grand Challenges Workshop covering mapping, GPS denied environments, UAV/RPAS sensing platforms, and scalable big data analytics, RMIT University, Australia.
- **Nov 2018**: Telstra 2018 Redback Innovation Challenge: Tracking Animals, RMIT University, Australia.
- **Sep 2018**: Developing Global Leadership, License RMIT-15173218, RMIT University.
- **Aug 2018**: Deep Learning and Computer Vision A-Z:OpenCV, SSD & GANs, Udemy.
- **Aug 2018**: Master Computer Vision & OpenCV3 in Python & ML, Udemy.
- **Apr 2017**: Deep Learning A-Z™: Hands-On Artificial Neural Networks, Udemy.
- **Feb 2017**: Pattern Discovery in Data Mining, Coursera.
- **Dec 2016**: Deep Learning Workshop, Qatar University, Doha, Qatar.
- **Nov 2016**: Data Analytics: Prediction Methods using RapidMiner, UTM, Malaysia.
- **Jun 2016**: Data Science and Machine Learning with Python – Hands on, Udemy.
- **Mar 2016**: Systematic Literature Review (Academic Research), UTM, Malaysia.
- **Nov 2015**: Learning Python for Data Analysis and Visualization, Udemy.
- **Nov 2015**: Introduction to Natural Language Processing, Coursera.
- **Sep 2015**: Practical Machine Learning, Coursera.
- **Apr 2011**: Web Design & PHP Programming Diploma, Egypt.
- **Feb 2011**: W3Schools HTML Developer, Online Exam.
- **Sep 2010**: Diploma in Management Business Administration (9 months), Kuwait. Modules included: Leadership & Management, Marketing, Compliance & Legals.

Patent Filed / Disclosure

2017: Ali Hamdi Fergani, Khaled Bashir Shaban and Anazida Zainal. Multi-facet Multi-class Classification Framework. US 62/588, 315 (Patent is filed in the United States).

References

Name	Affiliation	Role	Contact
Prof. Khaled Shaban	College of Engineering, Qatar University, Qatar	Master Supervisor	📧 khaled.shaban@gmail.com 📞 +974 6608 8573
Prof. Ammar Moahmed	Department of Computer Science, MSA University & Cairo University, Egypt	Faculty Colleague	📧 ammar@cu.edu.eg 📞 +20 100 035 4582
Prof. Flora Salim	School of Computer Science, UNSW, Australia	PhD Supervisor	📧 flora.salim@unsw.edu.au 📞 +61 430 438 181
Dr. Du Yong Kim	School of Engineering, RMIT University, Australia	PhD Supervisor	📧 duyong.kim@rmit.edu.au 📞 +61 481 174 449
Prof. Anazida Zainal	School of Computing, Universiti Teknologi Malaysia (UTM)	Master Supervisor	📧 anazida@utm.my 📞 +60 13 712 2991
Assoc. Prof. Abdel Karim Erradi	College of Engineering, Qatar University, Qatar	Faculty Collaborator	📧 erradi@qu.edu.qa 📞 +974 5575 1582

Statement of Teaching Philosophy

My teaching philosophy is rooted in the belief that learning is an active, collaborative, and transformative process. As a scholar-practitioner working at the intersection of artificial intelligence, data science, and software systems, I strive to establish a learning environment where students become not just consumers of knowledge, but also creators, innovators, and critical thinkers.

🌱 Learner-Centered and Mentorship-Driven

I view teaching as a form of mentorship. From supervising PhD candidates on cutting-edge topics like LLM-based summarization and computer vision for medical diagnostics, to guiding undergraduate students through capstone projects that integrate AI and robotics, I see education as a two-way journey. I encourage students to ask “why” and “how,” promoting an atmosphere of intellectual curiosity and peer learning.

🧠 Bridging Theory and Practice

My courses—ranging from Machine Learning, Neural Networks, and AI, to Cloud Computing and Computer Vision—emphasize project-based learning and real-world applicability. I often integrate open-source datasets, competitions (e.g., SemEval, ImageCLEF), and hands-on labs to connect algorithms to impact. Students develop not only technical mastery but also an understanding of ethical implications, societal relevance, and design considerations in AI.

🧰 Tools for Lifelong Learning

I make deliberate use of modern pedagogical tools (e.g., GitHub, Jupyter, LLM toolkits, cloud platforms) to equip students for the dynamic tech landscape. At both undergraduate and postgraduate levels, I embed scaffolded challenges that promote experimentation, teamwork, and reflection, aligned with outcomes-based education frameworks.

🌍 Diversity, Accessibility, and Global Relevance

With international teaching experience in Australia, Egypt, Qatar, and Malaysia, I’ve seen how context shapes learning. I strive to decolonize curriculum design, integrate multilingual tools, and support students from varied educational backgrounds, especially in low-resource language technologies and accessible AI.

🎯 My Commitment

Whether I am designing a new curriculum module, coaching students for research publication, or explaining convolutional layers to undergraduate students, my objective is consistent: to empower learners to question deeply, think broadly, and build responsibly.

Research Statement

🔍 Overview & Vision

My research is driven by a fundamental question: How can artificial intelligence systems meaningfully perceive, understand, and interact with complex, uncertain, and multimodal environments—especially in low-resource and high-impact domains?

I focus on applied AI, with emphasis on:

- Natural Language Processing (LLMs, summarization, multilingual sentiment, stance detection)
- Computer Vision (biomedical imaging, drone perception, object tracking)
- Multimodal and Spatiotemporal Learning (graphs, time-series, attention)
- Responsible AI (fairness, hallucination detection, low-resource representation)

🧠 Key Research Themes

1. Large Language Models (LLMs) & NLP Applications

My work explores optimizing LLM outputs for summarization, sentiment, and QA, including:

- LexiSem, a hybrid re-ranker balancing semantic depth with lexical quality (Neurocomputing 2024)
- Arabic NLP advancements via surveys, frameworks (e.g., CLASENTI), and SemEval wins
- Current focus: LLM alignment, hallucination detection (SemEval 2025), and multilingual fine-tuning

2. Multimodal Perception & Decision Systems

I explore learning across modalities—text, speech, time, space:

- MARL: Attentional fusion for clinical diagnosis (ICCV Systems)
- CLASEG: Oral lesion detection integrating classification & segmentation (Scientific Reports)
- Drone-based tracking (DroTrack) and predictive modeling in uncertain settings

3. Graph-Based and Spatial AI

My research introduces novel graph neural architectures for contextual learning:

- Proposed representing spatial-temporal dynamics in crowd and infrastructure monitoring
- Designed dynamic graph applications in health and traffic

4. Applied AI in Societal Contexts

Collaborating on cross-disciplinary projects:

- Health-aware route planning (Asthma AI)
- LLMs in drone operations, education, and automation (LMV-RPA, Quranic QA)
- AI for agriculture, natural language understanding, monitoring and inspection

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🌎 Impact & Recognition

- Published 70+ peer-reviewed papers (AI Review, IEEE TSC, Neurocomputing, ACL)
- 1st Place Winner, SemEval-2025 Shared Task (LLM hallucination detection)
- Supervised 5 PhDs, 15+ master's, 50+ bachelor's projects
- Research featured in CORE A/Q1 venues* and applied in production AI systems
- Led or co-led grants totaling $900k+ (QNRF, ARG, collaborations across MENA & ANZ)

🚀 Future Research Trajectory

1. LLM Evaluation & Alignment → Multilingual hallucination & bias detection
2. Augmented Perception for Robotics → Drones, medical wearables, and human-AI symbiosis
3. Spatiotemporal Learning for Resilient Cities → Graph AI for traffic, infrastructure, and health