

Abdulahdy Abas Abdullah

AI Researcher

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Academic Profile

- AI Researcher specializing in **Large Language Models (LLMs)**, Generative AI, and multimodal reasoning, with an M.Sc. in Artificial Intelligence.
- Authored or co-authored **35+ publications** (published, accepted, and under review), including a **regular paper accepted at ICML 2026**, an accepted paper at the **MeMo Workshop**, and submissions to Nature Communications, AAAI, and ICLR.
- Active global collaborations with researchers at **Cambridge, MIT, Harvard, Oxford, IBM Research**, and other top-tier institutions.
- Proven track record across diverse AI domains, spanning from **LLM alignment, mechanistic interpretability**, and **robust medical AI** to **low-resource NLP and speech systems** (including the first Kurdish ASR, TTS, and LLM).

Education

- 2024–2025 **Certificate of Pedagogical Training (30 ECTS)**, *Salahaddin University-Erbil*, Erbil, Iraq
Completed a six-month teacher professional development program authorized by the Ministry of Higher Education and Scientific Research, KRG.
- 2020–2022 **M.Sc. in Artificial Intelligence**, *Soran University*, Erbil, Iraq, GPA: 83/100
Thesis: "Kurdish Speech Recognition using Deep Learning."
Supervisor: Dr. Hadi Veisi
- 2016–2019 **B.Sc. in Computer Science**, *Soran University*, Erbil, Iraq

Research Interests

- Focus Areas Multilingual NLP & LLMs, Deep Learning & Transformers, Speech & Multimodal AI.
- Key Topics Optimization for low-resource languages, Efficient architectures, Audio LLMs, Vision-Language Models.

Published and Accepted Papers

A curated selection of my published and accepted papers at peer-reviewed venues.

Conference Proceedings

- 2026 **Abdullah, A. A.**, Daneshfar, F., Mirjalili, S., & Oussalah, M. *TUR-DPO: Topology- and Uncertainty-Aware Direct Preference Optimization*. ICML 2026. [Accepted as Regular Paper]
- 2026 **Abdullah, A. A.**, et al. *Calibrated Stacked Ensemble Learning with PR-AUC Optimization for Heart Disease Prediction*. ICAIEAS 2026, Zakho, Kurdistan Region. [Accepted]
- 2026 **Abdullah, A. A.**, et al. *Transparent by Design: A Neuro-Symbolic Approach to Mechanistic Interpretability via Associative Memory*. MeMo Workshop, Rome, 26 June 2026. [Accepted]
- 2025 Kabber, J., **Abdullah, A. A.**, Ahmed, A. M., & Rashid, T. *Unveiling Public Service and Prosocial Motivation Through Machine Learning Insights*. 2025 International Conference on Computer Science and Software Engineering (CSASE), IEEE.
- 2025 Živković, M., **Abdullah, A. A.**, Rashid, T. A., & Krstić, D. *MRI-only Radiotherapy Dose Planning via CycleGAN-Generated Synthetic CT*. Book of Proceedings International Conference on Chemo and Bioinformatics (3; 2025; Kragujevac), Institute for Information Technologies, University of Kragujevac.

Journal Publications

- 2026 Živković, M. P., Alshehri, A. H., **Abdullah, A. A.**, Krstić, D. Ž., Salem, F. A., Wais, T. Y., Namq, B. F., & Branković, S. R. *Dietary exposure to natural and artificial radionuclides through cereal, legume, seed, and nut products: Measurement and uptake assessment*. Journal of Environmental Radioactivity.
- 2025 Abdullah, D. A., Hamad, D. R., Malood, I. Y., Beitollahi, H., Ameen, A. K., Aula, S. A., **Abdullah, A. A.**, Shakor, M. Y., & Muhamad, S. S. *A novel facial recognition technique with focusing on masked faces*. Ain Shams Engineering Journal.
- 2025 **Abdullah, A. A.**, Mohammed, N. S., Khanzadi, M., Asaad, S. M., Abdul, Z. K., & Maghdid, H. S. *In-depth analysis on machine learning approaches: Techniques, Applications, and trends*. ARO-THE SCIENTIFIC JOURNAL OF KOYA UNIVERSITY.
- 2025 Muhamad, S. S., **Abdullah, A. A.**, Beitollahi, H., Abdullah, S. A., Shahab, R. S., & Zrar, A. D. *An Ensemble-based Model for Sentiment Analysis of Kurdish Tweets*. ARO-THE SCIENTIFIC JOURNAL OF KOYA UNIVERSITY.
- 2025 Taha, Z. Y., **Abdullah, A. A.**, & Rashid, T. A. *Optimizing feature selection with genetic algorithms: A review of methods and applications*. Knowledge and Information Systems.
- 2025 Daneshfar, F., **Abdullah, A. A.**, Abdar, M., & Liò, P. *UMP-Net: Uncertainty-Aware Mixture of Prompts Network for Efficient Instruction Tuning*. Transactions on Machine Learning Research (TMLR).
- 2025 Awlla, K. M., Veisi, H., & **Abdullah, A. A.** *Sentiment analysis in low-resource contexts: BERT'S impact on Central Kurdish*. Language Resources and Evaluation.

Book Chapters

- 2025 Abdulateef, V. M., Ahmed, A. M., Ahmed, R. K., **Abdullah, A. A.**, Rashid, T. A., Ali, H. M., Hassan, B. A., Rassul, Y. H., Fattah, P., Abdulkareem, A. W., & Shamsaldin, A. S. *A Framework for the Integration of Blockchain Technology in Healthcare Records Management Systems in Kurdistan*. In *Securing Health* (pp. 3–18), CRC Press.
- 2024 Hassan, B. A., Hassan, A. A., Ahmed, A. M., Rashid, T. A., & **Abdullah, A. A.** *Backtracking Search Optimization Algorithm: A Practical Tutorial*. In *Multi-objective Optimization Techniques*, CRC Press.

Papers Under Review / Preprints

- 2026 **Abdullah, A. A.**, Abdar, M., Daneshfar, F., Chen, P.-Y., Jalali, M. S., Porikli, F., Torr, P., & Liò, P. *Reducing Hallucinations Enables Reliable Clinical Reasoning in Language Models*. Nature Communications. [Under Review]
- 2026 **Abdullah, A. A.**, Zubiaga, A., Mirjalili, S., Gandomi, A. H., Daneshfar, F., Amini, M., & Mohammed, A. S. *Bridging the Gap: A Systematic Review of Reasoning and Hallucination in LLaMA Models via PEFT*. Computer Science Review. [Under Review]
- 2026 Mohammadi, F., Soleymanbaigi, S., Daneshfar, F., **Abdullah, A. A.**, & Liò, P. *CoDiC: Multi-view Compositional Retrieval via Cross-Modal Diversity and Confidence-based Inference*. Pattern Recognition. [Under Review]
- 2026 **Abdullah, A. A.**, Cambria, E., & Živković, M. *Neurosymbolic Alignment for Physiologically-Safe Clinical Language Models*. IEEE Journal of Biomedical and Health Informatics. [Under Review]
- 2026 Talaei, S., Daneshfar, F., & **Abdullah, A. A.** *BiCLIP: Bidirectional and Consistent Language-Image Processing for Robust Medical Image Segmentation*. Expert Systems With Applications. [Under Review]
- 2026 **Abdullah, A. A.**, Mahmud, J. S., Daneshfar, F., Oussalah, M., & Bilal, M. *TANSAR: Topology-Aware Neuro-Symbolic Associative Retrieval for Multi-Hop Knowledge Editing*. AAAI 2027. [Under Review]

- 2026 Saedpanah, M., Daneshfar, F., **Abdullah, A. A.**, Rostami, M., & Liò, P. *Factorized and Uncertainty-Aware Contrastive Alignment for Time Series Domain Adaptation*. AAAI 2027. [Under Review]
- 2026 Talaei, S., Daneshfar, F., Khan, M., & **Abdullah, A. A.** *Reliability-Derived Uncertainty-Guided Decoding and Text-Aware Skip Detail Refinement for Medical Image Segmentation*. [Under Review]
- 2026 **Abdullah, A. A.**, Daneshfar, F., & Oussalah, M. *Investigating Shared Safety Representations Across Languages and Modalities via Mechanistic Interpretability*. EACL 2027. [Under Review]
- 2026 Ali, H. M., **Abdullah, A. A.**, Abdar, M., & Daneshfar, F. *Conformal Preference Weighting for Label-Noise-Robust Direct Preference Optimization*. ICLR 2027. [Under Review]
- 2025 **Abdullah, A. A.**, Mirjalili, S., Hassan, B. A., & Rashid, T. A. *LLaMA-Adapter+ MRP: Integrating Meta-Reasoning Prompting with LLaMA-Adapter for Efficient Multi-Modal and Task-Adaptive Reasoning*. Applied Soft Computing, Elsevier. [Under Review]

Research Experience

- 2025–Present **Chief Technology Officer (CTO)**, AsoSoft, Erbil, Iraq
 - Architected and executed the technology vision and AI strategy, directly accelerating the launch of AsoSoft's innovative product portfolio.
 - Directed R&D teams in engineering state-of-the-art Kurdish NLP tools, speech recognition systems, and proprietary LLM-based solutions.
 - Spearheaded the end-to-end development and commercial deployment of large-scale AI products tailored for low-resource languages.
- 2024–Present **Research Assistant in AI**, Artificial Intelligence and Innovation Centre (AIIC), UKH, Erbil, Iraq
 - Pioneered cutting-edge research in speech processing and multilingual NLP, contributing to high-impact publications.
 - Engineered and deployed the first end-to-end Kurdish Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) systems for low-resource contexts.
 - Optimized Large Language Models (LLMs) and successfully adapted transformer architectures specifically for the Kurdish language.
 - Fostered global collaborations with interdisciplinary teams to consistently publish in top-tier AI venues.
- 2019–2022 **Graduate Researcher (NLP/Speech Group)**, Soran University & AsoSoft, Erbil, Iraq
 - Created a 170h speech corpus and a 3M+ token text corpus for Kurdish.
 - Built the first Large Language Model (LLM) for Central Kurdish (CKB).
 - Developed OCR and handwriting recognition systems for Kurdish.

Teaching Experience

- 2019–2024 **Instructor**, Data Institute for Computer Science, Erbil, Iraq
 - Instructed comprehensive courses in Artificial Intelligence, Machine Learning, NLP, and AI in Business over a 5-year tenure.
 - Mentored and supervised over 45 students, including acting as the primary supervisor for 5 undergraduate and graduate graduation projects.
 - Designed and delivered practical lab sessions alongside theory-based lectures to bridge academic concepts with real-world applications.

Honors & Awards

- 2023 **First Place, HITEX AI Competition**, International Tech Expo
Winner for Kurdish NLP/AI solutions.
- 2022 **First Place, Rwanga Award**, Software Category
National award for innovative AI projects.

Global Research Collaborations

- Overview Active collaborations on cutting-edge AI research with leading scientists globally, including co-authorship and ongoing projects with researchers affiliated with:

Institutions	University of Cambridge, MIT Media Lab, Harvard Medical School, University of Oxford, NTU CCDS, Queen Mary University of London, The University of Queensland, UTS.
Industry Labs	IBM Research (Yorktown Heights, USA), Qualcomm AI Research.
Collaborators	Prof. Pietro Liò (Cambridge), Prof. Erik Cambria (NTU/MIT), Dr. Pin-Yu Chen (IBM Research), Prof. Amir H. Gandomi (UTS), Prof. Arkaitz Zubiaga (QMUL), Prof. Seyedali Mirjalili (Torrens), Prof. Tarik A. Rashid (UKH), Dr. Moloud Abdar (UQ).

Academic & Open Source Contributions

Hugging Face	Released over 15+ models including RoBERTa-large, Whisper-v3, and MarianMT fine-tuned for Kurdish. Curated large-scale text and audio corpora for low-resource languages with thousands of downloads.
GitHub	TUR-DPO (ICML 2026): Topology- and Uncertainty-Aware Direct Preference Optimization LLaMA-Adapter+ MRP: Meta-Reasoning Prompting for Multi-Modal & Task-Adaptive Reasoning TANSAR: Topology-Aware Neuro-Symbolic Associative Retrieval Mechanistic Interpretability: Investigating Shared Safety Representations Across Languages and Modalities

Technical Skills

AI & ML	Deep Learning, Transformers (BERT, GPT, LLaMA), LLMs, RAG, Computer Vision.
MLOps & Cloud	Docker, Kubernetes, AWS, Google Cloud (GCP), Azure, CI/CD pipelines, Model Deployment.
Frameworks	PyTorch, TensorFlow, Hugging Face, Scikit-learn, LangChain.
Languages	Python, C++, Java, MATLAB.
Tools	Git, Linux, $\LaTeX$ (Advanced – TikZ, Beamer, custom templates).

References

Prof. Erik Cambria	Professor of AI @ NTU CCDS & Visiting Professor @ MIT Media Lab. cambria@ntu.edu.sg
Prof. Seyedali Mirjalili	Professor of AI, Torrens University Australia. ali.mirjalili@gmail.com
Dr. Moloud Abdar	Senior Data Scientist, UQ, Brisbane, Australia. m.abdar@uq.edu.au