

# Abdel Rahman Alsabbagh

📍 Thuwal, Makkah, Saudi Arabia    ✉ abdelrahman.sabbagh@kaust.edu.sa    ☎ +966 565 030 565  
📁 Portfolio/Website    in abdelrahmansabbagh    📄 SabbaghCodes

## Education

### King Abdullah University of Science and Technology (KAUST)

Aug 2024 - Present

Master's of Science in Computer Science (MS in CS)

- **CGPA:** 4/4 ([Transcript](#) 🔗)
- On track to graduate in December, 2025
- **Coursework:** Data Analytics, Neural Network Design & Training, Math Foundation of Machine Learning

### The University of Jordan

Sep 2020 - Jun 2024

Bachelor's of Science in Artificial Intelligence (BS in AI)

- **CGPA:** 3.98/4 ([Degree Certificate](#) 🔗; [Transcript](#) 🔗)
- Graduated with **first-class honors** (Valedictorian)
- **Coursework:** Data Mining, Deep Learning, IT Entrepreneurship & Innovation, Project Management

## Experience

### Graduate Researcher

Thuwal, Makkah, Saudi Arabia

King Abdullah University of Science and Technology (KAUST)

Oct 2024 - Present

- Leading research projects within the Living Systems Laboratory under the supervision of Professor Jesper Tegnér on the adaptation and implementation of AI large language foundation models for multi-modal genomic data, including DNA, RNA, and Spatial Transcriptomics
- Collaborating closely with interdisciplinary teams to enhance computational models addressing biological challenges, including cell type annotation for rare cell types and double perturbation prediction

### Visiting Researcher

Thuwal, Makkah, Saudi Arabia

King Abdullah University of Science and Technology (KAUST)

Jun 2023 - Oct 2024

- Conducted cutting-edge research in single-cell genomics under Professor Jesper Tegnér, focusing on the integration of AI large language foundation models
- Published a preprint with over 8 citation and 4,300 views

### Research Assistant

Amman, Jordan

The University of Jordan

Feb 2023 - Jun 2024

- Investigated AI-driven solutions for medical image deepfake detection within the Computational Imaging Laboratory under Professor Omar Al-Kadi
- Authored a preprint on developing and testing algorithms to identify manipulated medical imagery, ensuring reliability in clinical diagnostics

### AI Engineer Intern

Amman, Jordan

Xina AI

Apr 2022 - Jun 2022

- Designed and implemented natural language processing (NLP) and audio processing pipelines for interactive voice assistance systems and chatbots
- Worked on improving response accuracy by fine-tuning pretrained models on Arabic datasets addressing regional language nuances

### Software Engineer Intern

Amman, Jordan

Atypon/Wiley

Oct 2021 - Feb 2022

- Worked on enterprise-grade projects utilizing Java programming for scalable application development
- Applied DevOps methodologies to enhance software deployment cycles, integrating CI/CD pipelines

### Academic Product Developer

Amman, Jordan

ShAI for AI

Nov 2021 - Dec 2021

- Designed and facilitated programming workshops for over 50 students, focusing on Python and algorithmic problem-solving
- Developed tailored curricula to suit various skill levels, enhancing student engagement and retention

## Publications

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### Foundation Models Meet Imbalanced Single-Cell Data When Learning Cell Type Annotations

**Abdel Rahman Alsabbagh**, Alberto Maillo Ruiz de Infante, David Gomez-Cabrero, Narsis A. Kiani, Sumeer Ahmad Khan, and Jesper N. Tegnér

[10.1101/2023.10.24.563625](#) [🔗](#)

Oct 2023

### Comparative Analysis of Deep Convolutional Neural Networks for Detecting Medical Image Deep-fakes

**Abdel Rahman Alsabbagh** and Omar Al-Kadi

[10.48550/arXiv.2406.08758](#) [🔗](#)

Jan 2024

## Projects

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### RadioVertex

[github.com/SabbaghCodes/MiniMedGPT](#) [🔗](#)

- Developed a large vision language model as a radiology assistant system for interpreting MRI and CT scans focusing on neuroradiology and lung cancer diagnostics

### MedAttentionGAN

[github.com/SabbaghCodes/MedAttentionGAN](#) [🔗](#)

- Designed a contrastive cycle-consistent bidirectional Generative Adversarial Network (GAN) for paired and unpaired medical image translation between MRI and CT scans focusing on brain imaging applications.

### Siftrama

[github.com/SabbaghCodes/Siftrama](#) [🔗](#)

- Built an intuitive interface to stitch multiple images into a panoramic view using the SIFT algorithm

### Saiph

[github.com/SabbaghCodes/Saiph](#) [🔗](#)

- Developed a bilingual (Arabic-English) AI search system for dynamically extracting corrections, synonyms, and inflections for search terms as an alternative to CTRL+F
- Won the *Best Customer-Centric Solution for MENA* in Amazon Teckathon 2022

### Mebe

[github.com/SabbaghCodes/MebeSmartathon](#) [🔗](#)

- Developed a deep learning-based system to classify street potholes using ensemble models and image processing techniques (presented at *SDAIA Smartathon*)

### Mutanabi' Alarabia

[github.com/SabbaghCodes/MutanabiAlarabia](#) [🔗](#)

- Designed a system to integrate Arabic NLP tools into a single platform for streamlined text analysis
- Won the *Cleanest Source Code* prize in King Salman Global Academy for the Arabic Language's Burmujaan Alarabia competition

### Processonic

[github.com/SabbaghCodes/Processonic](#) [🔗](#)

- Built a system for efficient and secure data transfers between distributed network nodes

### SummaryDo

[github.com/SabbaghCodes/SummaryDo](#) [🔗](#)

- Developed a web extension to summarize webpage text with options for audio playback via text-to-speech

## Certifications

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### Deep Learning Specialization

[coursera.org](#) [🔗](#)

DeepLearning.AI (5 courses)

### Machine Learning Specialization

[coursera.org](#) [🔗](#)

Stanford University and DeepLearning.AI (3 courses)

### Mathematics for Machine Learning Specialization

[coursera.org](#) [🔗](#)

Imperial College London (3 courses)

### **Mathematics for Machine Learning and Data Science Specialization**

[coursera.org](https://www.coursera.org/specializations/math-machine-learning) 

DeepLearning.AI (3 courses)

### **DeepLearning.AI TensorFlow Developer Certificate**

[coursera.org](https://www.coursera.org/certificate/tensorflow-developer) 

DeepLearning.AI (4 courses)

### **Generative Adversarial Networks (GANs) Specialization**

[coursera.org](https://www.coursera.org/specializations/generative-adversarial-networks) 

DeepLearning.AI (3 courses)

## **Volunteering and Initiatives**

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### **Student Ambassador**

Student Career Development Office at King Abdullah University of Science and Technology (KAUST)

### **Founder and Inaugural Chairperson**

IEEE Computational Intelligence Society Student Branch Chapter at the University of Jordan

### **Student Representative**

King Abdullah II School for Information Technology at the University of Jordan

### **Secretary**

IEEE Computer Society Student Branch Chapter at the University of Jordan

### **Student Counselor**

Eye on Future Initiative in Jordan

## **Languages**

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### **Arabic**

Native (mother tongue) proficiency

### **English**

Full professional proficiency (IELTS score of 7.5/9)

### **Japanese**

Elementary proficiency

### **German**

Elementary proficiency