

Bashar Talafha

PhD Student at UBC

I am a Ph.D. student at UBC School of Information, specializing in Speech, Natural Language Processing (NLP), and Al. Authored 24 peer-reviewed publications and co-invented 2 patents, demonstrating a strong commitment to advancing Al research. Experienced as a full-stack Al engineer, I effectively combine theoretical knowledge with practical skills to develop innovative solutions that improve the accessibility and utility of Al technologies, aiming for transformative impact across various sectors.

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EDUCATION

PH.D. IN INFORMATION SCIENCE

UBC (University of British Columbia)

Focusing on Deep Learning for Speech Processing

MSC. IN COMPUTER SCIENCE

JUST (Jordan University of Science and Technology)

Focusing on Deep Learning for Speech Processing

2023

B.S. IN COMPUTER SCIENCE

JUST (Jordan University of Science and Technology)

Graduation Project: AllSpeak (Speech2Speech translator, OCR, Text Translator, TTS)

Vancouver, Canada 2021 - Present

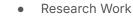
Irbid, Jordan

2014 - 2017

Irbid, Jordan 2010 - 2014

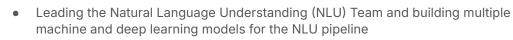
PROFESSIONAL EXPERIENCE

The University of British Columbia (UBC) Graduate Research Assistant, Vancouver, BC



- Benchmarking state-of-the-art ASR models like Whisper for low-resource languages.
- Creating a corpus for speech recognition across multidialectal, high, and low-resource dialects with code-switching.
- o Integrating audio embeddings with LLMs to capture non-verbal cues and nuances.
- Developing and assessing models to identify emotional states from speech in low-resource languages.
- Infrastructure and Tool Development Skills
 - Development and implementation of data collection frameworks for acquiring and aligning speech data across diverse sources.
 - Design and deployment of front-end systems for speech model inference.
 - o Creation of data annotation tools for efficient annotator workflows.
 - o Development of competition platforms on Codalab for a range of NLP challenges.
 - o Deployment of services on cloud platforms.

Mawdoo3 Ltd. NLU Team Leader, Amman, Jordan Jun 2020 - Dec 2022



Intent Classification: Building deep learning and rule-based models to classify an utterance into its correct banking intent. Additionally, this model handles follow-up questions (e.g., tell me more about this.).

Data Scientist. Amman, Jordan Apr 2019 - Dec 2022

- Entity Extraction: Developing multiple models (ML-based and rule-based) to extract named entities in addition to intent entities (keywords).
- Dialog Management: Working on a system that matches the intent classification and entity extraction responses with the appropriate response or a fallback message in case of unrecognized.
- Researching and innovating new NLP technologies based on machine learning and deep learning approaches for the Arabic language (MSA and dialects).
 - Dialect Translation
- Profanity Detection
- Sentiment Analysis

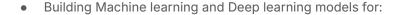
- Emotion Detection
- Dialect Detection
- Service Classification

- Semantic Text Similarity
 - Multi-task learning
- Paraphrasing

- Language Modeling
- Writing and publishing research papers.
- Interviewing candidates.

SAMSUNG

Software Engineer / Machine Learning, Amman, Jordan 2019 - Present



- Machine Translation
- Transfer Learning
- Language Modeling
- Sequence Labeling (NER, POS)
- Building a microservices platform that presents all our Al-based components under one umbrella.
- Participating in giving lectures about AI and machine learning.

Jordan University of Science and Technology

Research and Teaching Assistant, Irbid, Jordan 2014 - 2016

- Building different NLP models.
- Knowledge engineering using ontologies.
- Developing web crawlers (from forums and Twitter)
- Developing an annotation tool for sequence labeling tasks.
- TA for C++ and Object-Oriented courses.
- Outsource in Abu Dhabi Department of Finance (DOF), controlling and supporting the Time Attendance System using ASP.NET, ORACLE and CRYSTAL REPORTS.

Smart Vision

Software Engineer Irbid, Jordan 02/2014 - 09/2014

PUBLICATIONS

| Casablanca: Data and Models for Multidialectal Arabic Speech Recognition EMNLP2024 | Miami, Florida 2024 |
|---|---------------------------|
| WojoodNER 2024: The Second Arabic Named Entity Recognition Shared Task ArabicNLP 2024 @ ACL | Bangkok, Thailand 2024 |
| N-Shot Benchmarking of Whisper on Diverse Arabic Speech Recognition INTERSPEECH | Dublin, Ireland 2023 |
| VoxArabica: A Robust Dialect-Aware Arabic Speech Recognition System ArabicNLP 2023 @ ACL | Singapore 2023 |
| WojoodNER 2023: The First Arabic Named Entity Recognition Shared Task ArabicNLP 2023 @ ACL | Singapore 2023 |
| Findings of the Second AmericasNLP Competition on Speech-to-Text Translation NeurIPS 2022 | Virtual 2022 |

| Benchmarking and Improving Arabic Automatic Image Captioning Through The Use of Multi-task Learning Paradigm Preprint | ArXiv 2022 |
|---|-----------------------------|
| Sarcasm Detection and Quantification in Arabic Tweets ICTAI | Virtual Event 2021 |
| ALUE: Arabic Language Understanding Evaluation WANLP | Kyiv, Ukraine 2021 |
| Multi-dialect Arabic for country-level dialect identification Coling2020 | Barcelona, Spain 2019 |
| Unsupervised Dialectal Neural Machine Translation Journal: Information Processing and Management | 2020 |
| Atar: attention-based LSTM for arabizi transliteration Journal: IJECE | 2020 |
| Mawdoo3 AI at MADAR Shared Task: Arabic Tweet Dialect Identification WANLP-ACL 2019 | Florence, Italy 2019 |
| Team JUST at the MADAR Shared Task on Arabic Fine-Grained Dialect Identification WANLP-ACL 2019 | Florence, Italy 2019 |
| Mawdoo3 AI at MADAR Shared Task: Arabic Fine-Grained Dialect Identification with Ensemble Learning WANLP-ACL 2019 | Florence, Italy 2019 |
| Outperforming State-of-the-Art Systems for Aspect-Based Sentiment Analysis AICCSA 2019 | Florence, Italy 2019 |
| JUST at ImageCLEF 2019 Visual Question Answering in the Medical Domain CLEF 2019 | Lugano, Switzerland 2019 |
| IoH-RCNN: Pursuing the Ingredients of Happiness using Recurrent Convolutional Neural Networks AAAI 2019 | Hawaii, USA 2019 |
| Using a Hierarchical Softmax Based on the Huffman Coding Tree for Authenticating Arabic Tweets AICCSA 2019 | Abu Dhabi, UAE 2019 |
| JUST at VQA-Med: A VGG-Seq2Seq Model CLEF 2018 | Avignon, France 2018 |
| Using long short-term memory deep neural networks for aspect-based sentiment analysis of Arabic reviews Journal: International Journal Of Machine Learning And Cybernetics | 2018 |
| Aspect-Based Sentiment Analysis of Arabic Laptop Reviews ACIT 2017 | Tunisia 2017 |
| An Enhanced Framework for Aspect-Based Sentiment Analysis of Hotels' Reviews: Arabic Reviews Case Study ICITST-2016 | Barcelona, Spain 2016 |
| Using Big Data Analytics For Authorship Authentication of Arabic Tweets UCC 2015 | Limassol, Cyprus 2015 |

A Hybrid Approach for Arabic Named Entity Disambiguation

15th International Conference on Knowledge Technologies and Data-driven Business

Graz, Austria 2015

Human Annotated Arabic Dataset of Book Reviews for Aspect-Based Sentiment Analysis

FiCloud 2015

Rome, Italy 2015

PATENTS

| Method and Apparatus for Processing Language Based on Trained Network Model US PATENT Application number: 15/929824 | USA 2020 |
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| Multilingual Translation Device and Method US PATENT Application number: 16390317 | USA 2020 |

HONORS & AWARDS

| Four-Year Fellowships (4YF), UBC / Ph.D. Award | Vancouver, Canada |
|---|---|
| International Tuition Award, UBC / Ph.D. Award | Vancouver, Canada |
| President's Academic Excellence Initiative PhD Award, UBC / Ph.D. Award | Vancouver, Canada |
| R Howard Webster Foundation Fellowship, UBC / Ph.D. Award | Vancouver, Canada |
| 1st place in the NADI shared task 1, Coling 2020 | Barcelona, Spain |
| 2nd place in the MADAR shared task 2, ACL 2019 | Florence, Italy |
| 3rd place in the MADAR shared task 1, ACL 2019 | Florence, Italy |
| 4th place in the CL-AFF shared task at AAAI 2019. | Hawaii, USA |
| Distinguished Employee Award, Samsung / Samsung R&D Institute (SRJO) | Amman, Jordan |
| Best Project Award, Samsung / Samsung R&D Institute (SRJO) | Seoul, Korea |
| Best Graduation Project Award, JUST | Irbid, Jordan |
| | International Tuition Award, UBC / Ph.D. Award President's Academic Excellence Initiative PhD Award, UBC / Ph.D. Award R Howard Webster Foundation Fellowship, UBC / Ph.D. Award 1st place in the NADI shared task 1, Coling 2020 2nd place in the MADAR shared task 2, ACL 2019 3rd place in the MADAR shared task 1, ACL 2019 4th place in the CL-AFF shared task at AAAI 2019. Distinguished Employee Award, Samsung / Samsung R&D Institute (SRJO) Best Project Award, Samsung / Samsung R&D Institute (SRJO) |

SKILLS

Research Skills

Academic writing using LATEX, research methodology, reviewing, recognizing research problems, and keeping up to date with the cutting edge and SOTA papers in the field.

Web & Mobile Development

VueJS, Flutter, HTML, Javascript, Flask, Django, Sencha ExtJS, PHP, ASP, CSS, Bootstrap, WordPress

Machine Learning

PyTorch, TensorFlow, LLMs, LangChain, Prompt Engineering, Nemo, HG Transformers, Keras, Scikit-learn, R, Mahout, Weka, RapidMiner, Matlab

Others

GIT, Linux, Docker, OpenAPI, Jenkins, MySQL, SQLite, Oracle, Android, Windows Phone, Cross-platform, Adobe Flash, Adobe Dreamwa- ver, Adobe Photoshop, Adobe After Effects, Adobe Lightroom, Microsoft Office, communication, and presentation skills.

Programming Languages

Python, JAVA, C/C++, C#, DART