



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 AI. Authored 24 peer-reviewed publications and co-invented 2 patents, demonstrating a strong commitment to advancing AI research. Experienced as a full-stack AI engineer, I effectively combine theoretical knowledge with practical skills to develop innovative solutions that improve the accessibility and utility of AI 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

Vancouver,
Canada

2021 - Present

MSC. IN COMPUTER SCIENCE

JUST (Jordan University of Science and Technology)

Focusing on Deep Learning for Speech Processing

Irbid, Jordan

2014 - 2017

B.S. IN COMPUTER SCIENCE

JUST (Jordan University of Science and Technology)

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

Irbid, Jordan

2010 - 2014

PROFESSIONAL EXPERIENCE

**The University of British
Columbia (UBC)**
Graduate Research Assistant,
Vancouver, BC
2023

- Research Work
 - 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.
 - 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.
 - Creation of data annotation tools for efficient annotator workflows.
 - Development of competition platforms on Codalab for a range of NLP challenges.
 - Deployment of services on cloud platforms.

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

- Leading the Natural Language Understanding (NLU) Team and building multiple machine and deep learning models for the NLU pipeline
 - **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

SAMSUNG
Software Engineer / Machine
Learning,
Amman, Jordan
2019 – Present

**Jordan University of Science
and Technology**
Research and Teaching
Assistant,
Irbid, Jordan
2014 - 2016

Smart Vision
Software Engineer
Irbid, Jordan
02/2014 – 09/2014

- o **Entity Extraction:** Developing multiple models (ML-based and rule-based) to extract named entities in addition to intent entities (keywords).
- o **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
 - Emotion Detection
 - Semantic Text Similarity
 - Language Modeling
 - Profanity Detection
 - Dialect Detection
 - Multi-task learning
 - Sentiment Analysis
 - Service Classification
 - Paraphrasing
- Writing and publishing research papers.
- Interviewing candidates.
- Building Machine learning and Deep learning models for:

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

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

PATENTS

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

HONORS & AWARDS

2021-2025	Four-Year Fellowships (4YF), UBC / Ph.D. Award	Vancouver, Canada
2021-2025	International Tuition Award, UBC / Ph.D. Award	Vancouver, Canada
2021-2025	President's Academic Excellence Initiative PhD Award, UBC / Ph.D. Award	Vancouver, Canada
2021	R Howard Webster Foundation Fellowship, UBC / Ph.D. Award	Vancouver, Canada
2020	1st place in the NADI shared task 1, Coling 2020	Barcelona, Spain
2019	2nd place in the MADAR shared task 2, ACL 2019	Florence, Italy
2019	3rd place in the MADAR shared task 1, ACL 2019	Florence, Italy
2019	4th place in the CL-AFF shared task at AAAI 2019.	Hawaii, USA
2018	Distinguished Employee Award, Samsung / Samsung R&D Institute (SRJO)	Amman, Jordan
2017	Best Project Award, Samsung / Samsung R&D Institute (SRJO)	Seoul, Korea
2013	Best Graduation Project Award, JUST	Irbid, Jordan

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.	Machine Learning PyTorch, TensorFlow, LLMs, LangChain, Prompt Engineering, Nemo, HG Transformers, Keras, Scikit-learn, R, Mahout, Weka, RapidMiner, Matlab	Programming Languages Python, JAVA, C/C++, C#, DART
Web & Mobile Development VueJS, Flutter, HTML, Javascript, Flask, Django, Sencha ExtJS, PHP, ASP, CSS, Bootstrap, WordPress	Others GIT, Linux, Docker, OpenAPI, Jenkins, MySQL, SQLite, Oracle, Android, Windows Phone, Cross-platform, Adobe Flash, Adobe Dreamweaver, Adobe Photoshop, Adobe After Effects, Adobe Lightroom, Microsoft Office, communication, and presentation skills.	