# WANLP 2022

# The Seventh Arabic Natural Language Processing Workshop

**Proceedings of the Workshop** 

December 8, 2022

The WANLP organizers gratefully acknowledge the support from the following sponsors.

**Google Research** 



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## Preface

أهلاً وسهلاً ومرحباً بكم! حياكم في أبوظبي.

Ahlan wa-sahlan wa-marhaban bikum! Hayyaakum fi Abu Dhabi. Hello and Welcome to Abu Dhabi!

Welcome to The Seventh Arabic Natural Language Processing Workshop (WANLP 2022) held with EMNLP 2022 in Abu Dhabi, UAE. Over the years, WANLP has developed a growing reputation as a high-quality venue for researchers and developers working on Arabic NLP, where they share and discuss their ongoing work. The first in the WANLP series was held in Doha, Qatar (EMNLP 2014), followed by Beijing, China (ACL 2015), Valencia, Spain (EACL 2017), Florence, Italy (ACL 2019), and in virtual mode in COLING 2020 and EACL 2021.

In this iteration of WANLP, we received 68 main workshop submissions (50 long, 14 short, and 4 demos). The total number of submissions is higher than all the earlier editions of the workshop. All papers submitted to the main workshop were reviewed by at least three reviewers each. Out of the 68 submissions, 36 were accepted: 31 long papers, two short papers, and three demo papers). We selected 13 papers for oral presentation and the rest as posters. We did not distinguish between long and short papers, or between oral and poster presentations in terms of quality.

WANLP 2022 included, for the first time, three shared tasks: The third edition of the Nuanced Arabic Dialect Identification (NADI) shared task, the Gender Rewriting Shared Task, and the Shared Task on Propaganda Detection in Arabic. NADI received submissions from 21 teams, 15 of which have system descriptions in the proceedings. The Gender Rewriting Shared Task received submissions from five teams, two of which have system descriptions in the proceedings. The Shared Task on Propaganda Detection in Arabic received submissions from 17 teams, 11 of which have system descriptions in the proceedings. The shared task system descriptions papers were reviewed by two reviewers each. Three additional shared task overview papers are included in the proceedings. The overview papers are presented in an oral session in the workshop.

For the second time, our workshop was able to secure sponsorship funding (Thanks to Google Research!) which we used to support student registrations.

In another success for the WANLP community, a new Special Interest Group on Arabic NLP (SIGARAB) was created in early 2022 by the advisory committee responsible for WANLP, building on its history of successful organization and collaboration.

Finally, we would like to thank everyone who submitted a paper to the workshop, as well as all the 83 members of the Program Committee, who worked hard to provide high-quality reviews on time. Organizing WANLP 2022 is a team effort.

Houda Bouamor, General Chair, on behalf of the workshop organizers.

Website of the workshop: http://wanlp2022.arabic-nlp.net/

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## **Invited Speaker**

Karim Bouzoubaa, Mohammadia School of Engineers at the Mohammed 5th University of Rabat

# Keynote Talk: Digital Preservation of Arabic between Linguistics and AI

## Karim Bouzoubaa

Mohammadia School of Engineers at the Mohammed 5th University of Rabat

**Abstract:** Languages are one of the oldest studied disciplines as they are intimately linked to the existence of human beings. The study of languages is a multidisciplinary field which has attracted the interest of several related fields such as linguistics and NLP, each providing additional knowledge for language understanding, learning, evolution, or preservation. From the technological point of view, computer science in general and artificial intelligence in particular study languages through natural language processing techniques, where the main goal is to discover linguistic patterns from corpora without resorting to linguists at all in many cases. Research in this field is diverse and currently benefits from advances in machine learning and deep learning techniques. One of the less studied aspects is the use and exploitation of these techniques for language preservation needs, for language comprehension needs or for the explanation of linguistic phenomena. The objective of this talk is to emphasize this perspective and to show through concrete cases how through the exploitation of several old and new computer and AI techniques, we can advance the digital preservation of Arabic and the explanation of some linguistic properties.

**Bio:** Karim Bouzoubaa is a Professor of computer science at the Mohammadia School of Engineers at the Mohammed 5th University of Rabat. Prof. Bouzoubaa holds a M.Sc. and a Ph.D. from Laval University in Canada in Artificial Intelligence and multi-agent systems fields. He is a research-driven professional with a distinctive combination of leadership, research and development, and education in the areas of Artificial Intelligence and Data Science. He contributed to the release of the Amine platform for the development of intelligent systems. He has published two books and over a hundred papers in top-ranked conferences and journals, taught at undergraduate and postgraduate levels, and worked on various R&D projects. He is the founding president of the Arabic Language Engineering Society in Morocco and the director of the Language Engineering lab. His research interests include Arabic NLP, NLP frameworks, Linguistic Resources and ontologies, IR and QA systems, Dialect processing, and Cognitive systems. He has led research teams, developed research programs, and has a long experience with most AI paradigms from the old to the newest ones. Prof Bouzoubaa is a Fulbright fellow and was a visiting professor at many institutions. He chaired and organized many international conferences, and was co-guest editor of the Special Issue on "Advances in Arabic Language Processing" for the International Journal on Information and Communication Technologies.

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NGU CNLP atWANLP 2022 Shared Task: Propaganda Detection in Arabic
Ahmed Samir Hussein, Abu Bakr Soliman Mohammad, Mohamed Ibrahim, Laila Hesham Afify
and Samhaa R. El-Beltagy

## Program

### Thursday, December 8, 2022

- 09:00 09:05 Opening Remarks
- 09:10 10:00 *Invited Talk*
- 10:00 10:30 Session 1 Information Extraction (in-Person)

*CAraNER: The COVID-19 Arabic Named Entity Corpus* Abdulmohsen Al-Thubaity, Sakhar Alkhereyf, Wejdan Alzahrani and Alia Bahanshal

Joint Coreference Resolution for Zeros and non-Zeros in Arabic Abdulrahman Aloraini, Sameer Pradhan and Massimo Poesio

- 10:30 11:00 *Coffee Break*
- 11:00 12:30 Session 2 NLU/NLG (in-Person)

SAIDS: A Novel Approach for Sentiment Analysis Informed of Dialect and Sarcasm

Abdelrahman Kaseb and Mona Farouk

AraBART: a Pretrained Arabic Sequence-to-Sequence Model for Abstractive Summarization

Moussa Kamal Eddine, Nadi Tomeh, Nizar Habash, Joseph Le Roux and Michalis Vazirgiannis

Towards Arabic Sentence Simplification via Classification and Generative Approaches

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Adversarial Text-to-Speech for low-resource languages Ashraf Elneima and Mikołaj Bińkowski

- 12:30 14:00 Lunch Break
  14:00 14:45 Panel discussion: Young Researchers in Arabic NLP
  14:45 15:00 Best Paper Award Oral Presentation (in-Person)
- 15:00 15:30 Shared Task Papers (in-Person)

*NADI 2022: The Third Nuanced Arabic Dialect Identification Shared Task* Muhammad Abdul-Mageed, Chiyu Zhang, AbdelRahim Elmadany, Houda Bouamor and Nizar Habash

### The Shared Task on Gender Rewriting

Bashar Alhafni, Nizar Habash, Houda Bouamor, Ossama Obeid, Sultan Alrowili, Daliyah AlZeer, Kawla Mohmad Shnqiti, Ahmed Elbakry, Muhammad El-Nokrashy, Mohamed Gabr, Abderrahmane Issam, Abdelrahim Qaddoumi, Vijay Shanker and Mahmoud Zyate

*Overview of the WANLP 2022 Shared Task on Propaganda Detection in Arabic* Firoj Alam, Hamdy Mubarak, Wajdi Zaghouani, Giovanni Da San Martino and Preslav Nakov

- 15:30 16:00 *Coffee Break*
- 16:00 17:00 Session 3 Arabic Dialects (in-Person)

## ArzEn-ST: A Three-way Speech Translation Corpus for Code-Switched Egyptian Arabic-English

Injy Hamed, Nizar Habash, Slim Abdennadher and Ngoc Thang Vu

*Maknuune: A Large Open Palestinian Arabic Lexicon* Shahd Salah Uddin Dibas, Christian Khairallah, Nizar Habash, Omar Fayez Sadi, Tariq Sairafy, Karmel Sarabta and Abrar Ardah

Developing a Tag-Set and Extracting the Morphological Lexicons to Build a Morphological Analyzer for Egyptian Arabic Amany Fashwan and Sameh Alansary

A Weak Supervised Transfer Learning Approach for Sentiment Analysis to the Kuwaiti Dialect

Fatemah Husain, Hana Al-Ostad and Halima Omar

17:00 - 18:15 Main Workshop Posters (in-Person & virtual)

*Mawqif: A Multi-label Arabic Dataset for Target-specific Stance Detection* Nora Saleh Alturayeif, Hamzah Abdullah Luqman and Moataz Aly Kamaleldin Ahmed

Assessing the Linguistic Knowledge in Arabic Pre-trained Language Models Using Minimal Pairs

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*Identifying Code-switching in Arabizi* Safaa Shehadi and Shuly Wintner

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Arabic Keyphrase Extraction: Enhancing Deep Learning Models with Pre-trained Contextual Embedding and External Features Randah Alharbi and Husni Al-Muhtasab

*ArabIE: Joint Entity, Relation and Event Extraction for Arabic* Niama El Khbir, Nadi Tomeh and Thierry Charnois

*Emoji Sentiment Roles for Sentiment Analysis: A Case Study in Arabic Texts* Shatha Ali A. Hakami, Robert Hendley and Phillip Smith

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Learning From Arabic Corpora But Not Always From Arabic Speakers: A Case Study of the Arabic Wikipedia Editions Saied Alshahrani, Esma Wali and Jeanna Matthews

A Pilot Study on the Collection and Computational Analysis of Linguistic Differences Amongst Men and Women in a Kuwaiti Arabic WhatsApp Dataset Hesah Aldihan, Robert Gaizauskas and Susan Fitzmaurice

17:00 - 18:15 EMNLP Findings Posters (in-Person & virtual)

*Improving English-Arabic Transliteration with Phonemic Memories* Yan Song, Shengyi JIANG, Lianxi Wang, Xiangyu Pang, Renze Lou and Yuanhe Tian

Sarcasm Detection is Way Too Easy! An Empirical Comparison of Human and Machine Sarcasm Detection Walid Magdy, Silviu Oprea, Steven Wilson and Ibrahim Abu Farha

17:00 - 18:15 Demos (in-Person & virtual)

Beyond Arabic: Software for Perso-Arabic Script Manipulation Alexander Gutkin, Cibu Johny, Raiomond Doctor, Brian Roark and Richard Sproat

*Coreference Annotation of an Arabic Corpus using a Virtual World Game* Wateen Abdullah Aliady, Abdulrahman Aloraini, Christopher Madge, Juntao Yu, Richard Bartle and Massimo Poesio

*NatiQ: An End-to-end Text-to-Speech System for Arabic* 

Ahmed Abdelali, Nadir Durrani, Cenk Demiroglu, Fahim Dalvi, Hamdy Mubarak and Kareem Darwish

17:00 - 18:15 NADI Shared Task (in-Person & virtual)

*Optimizing Naive Bayes for Arabic Dialect Identification* Tommi Jauhiainen, Heidi Jauhiainen and Krister Lindén

*iCompass Working Notes for the Nuanced Arabic Dialect Identification Shared task* 

Abir Messaoudi, Chayma Fourati, Hatem Haddad and Moez BenHajhmida

*TF-IDF or Transformers for Arabic Dialect Identification? ITFLOWS participation in the NADI 2022 Shared Task* 

Fouad Shammary, Yiyi Chen, Zsolt T Kardkovacs, Mehwish Alam and Haithem Afli

Domain-Adapted BERT-based Models for Nuanced Arabic Dialect Identification and Tweet Sentiment Analysis Giyaseddin Bayrak and ABDUL MAJEED ISSIFU

Benchmarking transfer learning approaches for sentiment analysis of Arabic dialect

emna fsih, Sameh Kchaou, Rahma Boujelbane and Lamia Hadrich-Belguith

SQU-CS @ NADI 2022: Dialectal Arabic Identification using One-vs-One Classification with TF-IDF Weights Computed on Character n-grams Abdulrahman Khalifa AAIAbdulsalam

Ahmed and Khalil at NADI 2022: Transfer Learning and Addressing Class Imbalance for Arabic Dialect Identification and Sentiment Analysis Ahmed Oumar and Khalil Mrini

Arabic Sentiment Analysis by Pretrained Ensemble Abdelrahim Qaddoumi

Dialect & Sentiment Identification in Nuanced Arabic Tweets Using an Ensemble of Prompt-based, Fine-tuned, and Multitask BERT-Based Models Reem Abdel-Salam

On The Arabic Dialects' Identification: Overcoming Challenges of Geographical Similarities Between Arabic dialects and Imbalanced Datasets Salma Jamal, Aly M .Kassem, Omar Mohamed and Ali Ashraf

Arabic dialect identification using machine learning and transformer-based models: Submission to the NADI 2022 Shared Task Nouf AlShenaifi and Aqil Azmi

NLP DI at NADI Shared Task Subtask-1: Sub-word Level Convolutional Neural Models and Pre-trained Binary Classifiers for Dialect Identification Vani Kanjirangat, Tanja Samardzic, Ljiljana Dolamic and Fabio Rinaldi

Word Representation Models for Arabic Dialect Identification Mahmoud Sobhy, Ahmed H. Abu El-Atta, Ahmed A. El-Sawy and Hamada Nayel

Building an Ensemble of Transformer Models for Arabic Dialect Classification and Sentiment Analysis

Abdullah Salem Khered, Ingy Yasser Hassan Abdou Abdelhalim and Riza Batista-Navarro

Arabic Dialect Identification and Sentiment Classification using Transformerbased Models Joseph Attieh and Fadi Hassan

17:00 - 18:15 Gender Rewriting Shared Task Posters (in-Person & virtual)

*Generative Approach for Gender-Rewriting Task with ArabicT5* Sultan Alrowili and Vijay Shanker

17:00 - 18:15 Propaganda Detection Shared Task Posters (in-Person & virtual)

AraProp at WANLP 2022 Shared Task: Leveraging Pre-Trained Language Models for Arabic Propaganda Detection Gaurav Singh

*TUB at WANLP22 Shared Task: Using Semantic Similarity for Propaganda Detection in Arabic* Salar Mohtaj and Sebastian Möller

SI2M & AIOX Labs at WANLP 2022 Shared Task: Propaganda Detection in Arabic, A Data Augmentation and Name Entity Recognition Approach Kamel Gaanoun and Imade Benelallam

*iCompass at WANLP 2022 Shared Task: ARBERT and MARBERT for Multilabel Propaganda Classification of Arabic Tweets* Bilel - Taboubi, Bechir Brahem and Hatem Haddad

ChavanKane at WANLP 2022 Shared Task: Large Language Models for Multilabel Propaganda Detection Tanmay Chavan and Aditya Manish Kane

AraBERT Model for Propaganda Detection Mohamad Sharara, Wissam Mohamad, Ralph Tawil, Ralph Chobok, Wolf Assi and Antonio Tannoury

AraBEM at WANLP 2022 Shared Task: Propaganda Detection in Arabic Tweets Eshrag Ali Refaee, Basem Ahmed and Motaz Saad

IITD at WANLP 2022 Shared Task: Multilingual Multi-Granularity Network for Propaganda Detection Shubham Mittal and Preslav Nakov

Pythoneers at WANLP 2022 Shared Task: Monolingual AraBERT for Arabic Propaganda Detection and Span Extraction Joseph Attieh and Fadi Hassan

CNLP-NITS-PP at WANLP 2022 Shared Task: Propaganda Detection in Arabic using Data Augmentation and AraBERT Pre-trained Model

Sahinur Rahman Laskar, Rahul Singh, Abdullah Faiz Ur Rahman Khilji, Riyanka Manna, Partha Pakray and Sivaji Bandyopadhyay

NGU CNLP atWANLP 2022 Shared Task: Propaganda Detection in Arabic

Ahmed Samir Hussein, Abu Bakr Soliman Mohammad, Mohamed Ibrahim, Laila Hesham Afify and Samhaa R. El-Beltagy

17:00 - 18:30 Closing Ceremony