

إسهام مجلة جامعة الملك سعود - فرع علوم الحاسب والمعلومات في حوسبة اللغة العربية أثناء رئاستي لتحريرها

كلفتم بالعمل رئيساً للتحرير لمجلة جامعة الملك سعود - فرع علوم الحاسب. وقد حرصت أنا وزملائي أعضاء هيئة التحرير على نشر أبحاث تدعم اللغة العربية وحوسبتها وخدمتها بالتقنيات الحديثة. الأبحاث المنشورة في مجال حوسبة اللغة العربية كما في القائمة أدناه. ومن الجدول يتضح أننا إسهاماً من المجلة في حوسبة اللغة العربية أصدرنا عدداً خاصاً عن معالجة اللغات الطبيعية - اللغة العربية، وكانت محررة العدد الخاص هي ا.د. هند الخليفة أحد المهتمين بحوسبة اللغة العربية. وقد أرفقت بعد القائمة ورقة الدكتوراة في استعراض مقالات العدد الخاص، كما أرفقت رابطاً للعدد الخاص.

كانت فترة رئاستي للتحرير من 2008 إلى 2015 كما هو مذكور في سيرتي الذاتية. ولم أجد خطابات التكليف بالفتريات المختلفة للرئاسة، ولا يوجد في موقع المجلة ما يشير إلى من هو رئيس التحرير، لذا أرفقت صوراً من النسخ المطبوعة للمجلة للسنوات 2010 إلى 2014 والتي تم ذكرها فيها بصفتي رئيساً للتحرير.

في ما يلي قائمة الأبحاث في مجال حوسبة اللغة العربية التي نشرت في المجلة أثناء الفترة 2008 إلى 2015، معلومات عن العدد الخاص بمعالجة اللغة الطبيعية - اللغة العربية، صور لبعض الأعداد المطبوعة أثناء فترة رئاستي للتحرير،

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EDITORIAL

Introduction to the special issue on Arabic NLP: Current state and future challenges



Overview of the articles

Arabic natural language processing (NLP) is still in its initial stage compared to the work in English and other languages. NLP is made possible by the collaboration of many disciplines including computer science, linguistics, mathematics, psychology and artificial intelligence. The results of which is highly beneficial to many applications such as Machine Translation, Information Retrieval, Information Extraction, Text Summarization and Question Answering.

This special issue of the Journal of King Saud University – Computer and Information Sciences (CIS) synthesizes current research in the field of Arabic NLP. A total of 56 submissions was received, 11 of which were finally accepted for this special issue. Each accepted paper has gone through three rounds of reviews, each round with two to three reviewers. The content of this special issue covers different topics such as: Dialectal Arabic Morphology, Arabic Corpus, Transliteration, Annotation, Discourse Relations, Sentiment Lexicon, Arabic named entities, Arabic Treebank, Text Summarization, Ontological Relations and Authorship attribution. The following is a brief summary of each of the main articles in this issue.

“arTenTen: Arabic Corpus and Word Sketches” by Nizar Habash et al. presented a web-crawled corpus of Arabic, gathered in 2012. arTenTen comprises 5.8 billion words. A chunk of it has been lemmatized and POS-tagged with the MADA tools and has then been loaded into Sketch Engine, a leading corpus query tool, where it is open for all to use. We have also created ‘word sketches’: one-page, automatic, corpus-derived summaries of a word’s grammatical and collocational behaviour. We show, with examples, what the corpus can show us about Arabic words and phrases, and how this can support lexicography and inform linguistic research. The paper also presents the ‘sketch grammar’ (the basis for the word sketches) in some detail; describes the process of building and processing

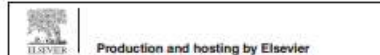
the corpus; and considers the role of the corpus in further research on Arabic.

“ADAM: Analyzer for Dialectal Arabic Morphology” by Wael Salloum and Nizar Habash presented ADAM (Analyzer for Dialectal Arabic Morphology), a poor man’s solution to quickly develop morphological analyzers for dialectal Arabic. ADAM has about half the out-of-vocabulary rate of a state-of-the-art MSA analyzer, and is comparable in its recall performance to an Egyptian dialectal morphological analyzer that took years and expensive resources to build.

“Transliteration Normalization for Information Extraction and Machine Translation” by Yuval Marton and Imed Zitouni identified and clustered name spelling variants using a Statistical Machine Translation method: word alignment. The variants are identified by being aligned to the same “pivot” name in another language (the source-language in Machine Translation settings). Based on word-to-word translation and transliteration probabilities, as well as the string edit distance metric, the target-language names with similar spellings are clustered. Then, they are normalized to a canonical form. With this approach tens of thousands of high precision name transliteration spelling variants are extracted from sentence aligned bilingual corpora in Arabic and English (in both languages). When these normalized name spelling variants are applied to Information Extraction tasks, improvements over strong baseline systems are observed. When applied to Machine Translation tasks, a large improvement potential is shown.

“Arabic Web Pages Clustering and Annotation Using Semantic Class Features” by Alghamdi et al. presented a system to retrieve a machine-understandable data with the help of Web content mining technique to detect covert knowledge within these data. They propose an approach to achieve clustering with semantic similarities. This approach comprises integrating k-means document clustering with semantic features extraction and document vectorisation in order to group the Arabic web pages according to semantic similarities and then show the semantic annotation. The document vectorisation helps to transform text documents into semantic class probability distribution or semantic class density. In order to reach semantic similarities, the approach extracts the semantic class features and integrates them into the similarity weighting schema. The quality of the clustering result was evaluated

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E-mail: msalshammari@ksu.edu.sa

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E-mail: alzar@ksu.edu.sa

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Jain - 800 005,
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A. Selouani
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Impos de Shippagan 218,
Jol. J-D Gauthier,
shippagan,
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Boul. J-D Gauthier,
Shippagan,
NBES5 1P6, Canada
Tel.: +506-336-3625
E-mail: sid-ahmed.selami@umcs.ca, selami@umcs.ca

A. Mili
Department of Computer Science,
College of Computing Sciences,
Member, editorial board, Innovations in Systems
and Software Engineering,
a NASA Journal, Springer Verlag
Department of Computer Science,
College of Computing Sciences,
New Jersey Institute of Technology,
Newark NJ 07102-1982
Tel.: 973-396-5215
Fax: 973-396-5777
E-mail: mili@cs.njit.edu

O. Torkal
Head of Distance Learning Center,
Sakarya University,
Eseroepo,
Sakarya, Turkey
Tel.: 0090 532 4641955
E-mail: torkal@sakarya.edu.tr

D.T. Pham
Chance Professor of Engineering and Head of School,
School of Mechanical Engineering,
The University of Birmingham,
Birmingham B15 2TT, England
E-mail: d.t.pham@blam.ac.uk

D.G. Sampson
Associate Prof.,
Senior Member IEEE,
Chair,
IEEE Computer Society Technical Committee on Learning Technology,
Director of ASK@ITI/CERTH,
University of Piraeus,
Department of Digital Systems of the University of Piraeus,
University of Piraeus & CERTH,
Greece
Tel./Fax: +30-210-414-2746
E-mail: sampson@unipi.gr

A.M. Ben Hamadou
Dictionnairel Supérieur d'Informatique et du Multimédia de Sfax,
D.Techopolis de Sfax BP 242 Sakiel Ezziet 3021 Sfax,
Tunisie
Tel.: +21674667332
E-mail: ahmedmohamed.benhamadou@isimsf.rnu.tn

A.S. El-Sharaf
Information Systems Department,
Faculty of Computers and Information,
Helwan University,
Egypt
Faculty of Computers and Information,
Helwan University,
Ain Helwan,
Egypt
Tel.: +20 10 5000 702 (mobile)
Fax: +20 2 23547975
E-mail: profinc2000@yahoo.com, asharaf@helwan.edu.eg



Editor in Chief

Dr. M.M. Albulman
Dept. of Computer Engineering
E-mail: msulfman@ksu.edu.sa

Editorial Board

Wagdy A. Ahmed
E-mail: w.ahmed@ksu.edu.sa
A.A. Thour
E-mail: thour@ksu.edu.sa

M.S. Aksoy
E-mail: msaksoy@ksu.edu.sa
S.S. Al-Wakeel
E-mail: awakce@ksu.edu.sa

Advisory Board

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Associate Dean Research and Industry Relations,
Computer Science and Engineering,
Florida Atlantic University,
College of Engineering and Computer Science,
Florida Atlantic University,
777 West Glades Road,
SE 308 Boca Raton,
FL 33431, USA
Tel: (561)297-3454, Fax: (561) 297-1111
E-mail: byas@fau.edu

I. Alson
Pro Vice-Chancellor,
Patna University,
Ashok Raj Path,
Patna - 800 005,
Bihar, India
Tel: 91-612 2687204
E-mail: drisahson@yahoo.com

S.A. Selouani
Université de Moncton,
Campus de Shippagan 218,
Boul. J-D Gauthier,
Shippagan,
NBESS 1P6, Canada
Tel. + 506-336-3625
E-mail: sid-ahmed.selouani@umcs.ca, selouani@umcs.ca

A. Mill
Department of Computer Science,
College of Computing Sciences,
Member, editorial board: Innovations in Systems
and Software Engineering,
a NASA Journal, Springer Verlag
Department of Computer Science,
College of Computing Sciences,
New Jersey Institute of Technology,
Newark NJ 07102-1982
Tel: 973-596 5215, Fax: 973-596 5777
E-mail: mill@cs.njit.edu

O. Turkul
Head of Distance Learning Center,
Sakarya University,
Ezentepe,
Sakarya, Turkey
Tel: 0090 532 4641955

L.F. Akyildiz
Ken Byers Chair Professor in Telecommunications,
Georgia Institute of Technology,
School of Electrical and Computer Engineering,
Georgia Institute of Technology,
Atlanta,
GA 30332, USA
Tel: +1 404 894 5141, Fax: +1 404 894 7853
E-mail: lam@ece.gatech.edu

D.T. Pham
Manufacturing Engineering Centre,
Director of Manufacturing Engineering Centre,
Newport Road,
Cardiff, U.K.
Tel./Fax: +44 (0)29 2087 4429
E-mail: phamdt@cardiff.ac.uk

D.G. Sampson
Associate Prof.,
Senior Member IEEE,
Chair,
IEEE Computer Society Technical Committee on Learning Technology,
Director of ASK@ITI/CERTH,
University of Piraeus,
Department of Digital Systems of the University of Piraeus,
University of Piraeus & CERTH,
Greece
Tel./Fax: +30-210-414-2746
E-mail: sampson@unipi.gr

A.M. Ben Hamadou
Director Institut Supérieur d'Informatique et du Multimédia de Sfax,
DTechnopole de Sfax BP 242 Sakiet Ezziar 3021 Sfax,
Tunisie
Tel: + 21674862352
E-mail: abdelmajid.benhamadou@niimsf.rna.tn

A.S. Eddin Ahmed
Information Systems Department,
Faculty of Computers and Information,
Helwan University,
Egypt
Faculty of Computers and Information,
Helwan University,
Ain Helwan,
Egypt
Tel: +20 10 5000 702 (mobile)
Fax: +20 2 25547975
E-mail: profase2000@yahoo.com, asharaf@helwan.edu.eg



Editor in Chief

Dr. Mohamed M. Abdou
m.abdou@ksu.edu.sa

Editorial Board

Prof. Mohamed S. Basmachi
basmachi@ksu.edu.sa
Dr. Andy A. Tanti
tantia@ksu.edu.sa

Advisory Board

Prof. Ian F. Akyildiz
Ian F. Akyildiz, Georgia Institute of Technology, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA 30332, USA
Tel: +1 404 894 7141; Fax: +1 404 894 7393
iakyl@ece.gatech.edu

Prof. Ian Young Poon
Manufacturing Engineering Group
School of Manufacturing Engineering Centre
Surrey Road, Guildford, UK
Tel: Fax: +44 (0)25 267 4075
ipoon@cs.surrey.ac.uk

Prof. Massimo G. Sampson
Assistant Prof., Senior Member IEEE, Chair, IEEE Computer Society Technical Committee on Learning Technology, Director of ASK, ITIL, CERT, University of Pisa
Department of Digital Systems of the University of Pisa
University of Pisa & CERT, Pisa
Tel: Fax: + 39 050 414 2746
msampson@unipi.it

Prof. Abdelmajid Ben Hamadou
Director Institut Supérieur d'Informatique et de Mathématique de Sfax
B.P. 242 Sfax
Tunisie
+3323462102
abdelmajid.benhamadou@univsfax.tn

Prof. Ahmed Elmaghrabi
Information Systems Department,
Faculty of Computers and Information,
Helwan University, Egypt
Faculty of Computers and Information,
Helwan University, Ain Helwan, Egypt
Tel: + 20 111 421 262 (mobile)
Fax: + 20 2 334 6733
ahmed@helwan.edu.eg, ahmaghrabi@helwan.edu.eg

Prof. Samir S. Al-Hashedi
samir@ksu.edu.sa
Prof. Mubashir N. Awan
mubashir@ksu.edu.sa

Prof. Mohamed Elmi, PhD
Assistant Dean Research and Industry Relations,
Computer Science and Engineering,
Florida Atlantic University,
College of Engineering and Computer Science,
Florida Atlantic University, 771 West Glades Road,
SE 30th Room Room, Ft. Lauderdale, FL 33445, USA
Tel: (954) 207 5659 or (954) 207 5660
Fax: (954) 207 1111
melmi@fau.edu

Prof. Saeed Alami
The Open University, Peterborough,
Adwick Road Park,
Peterborough, Cambs, UK
Tel: +44 (0)1223 207200
s.alami@open.ac.uk
s.alami@open.ac.uk

Prof. Ali Akmal Nadeem
Department of Computer Science,
University of Waterloo,
Waterloo, Ontario, Canada N2L 2G1
9855 St. University Avenue,
Waterloo, ON, Canada
Tel: +1 519 885 1213
aladeem@uwaterloo.ca, aladeem@comp.uwaterloo.ca

Prof. Ali M. Alami
Department of Computer Science, College of Computing Sciences,
Member, editorial board, International Journal on Software and
Software Engineering, a RAAS Journal, Springer Verlag
Department of Computer Science,
College of Computing Sciences,
New Jersey Institute of Technology,
Newark NJ 07102-1982
Tel: 973 340 1213; Fax: 973 340 1771
alami@ccs.nyu.edu

Prof. Omer Torkat
Head of Distance Learning Center,
Sabanci University, Istanbul,
Istanbul, Turkey
0092 212 442100
otorkat@sabanci.edu.tr



• Editorial Board •

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