Mohcine Madkour, PhD

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Work Experience

May 2015-May 2017 (expected) - Postdoctoral Fellow at the School of Biomedical Informatics, the University of Texas Health Science Center at Houston (UTHealth) Houston, Texas
NIH Supported project to develop new proof-of-concept informatics tools for Patient Medical History Representation, Extraction, and Inference from EHR Data (PI Cui Tao) and AHRQ supported project for Modeling and Analysis of Clinical Care for HIT Improvement (PI Keith Butler)

Nov 2013- May2015 - Postdoctoral Fellow at the Engineering Technology Department, University of Houston,
DoE supported project to build data model, analyze data, make predictions, and communicate results for a university smart campus (PIs Driss Benhaddou, Raymond E Cline Jr)

Education

Ph.D., Computer Science, Honors, –Summer 2013– University of Mohamed 5 Agdal at Rabat, Morocco
Masters of Sciences, Technologies of Web Systems – 2012 – Télécom Bretagne, Brest, France
Masters of Sciences, Statistics for Computer Science – 2008 – University of Ibn Zohr at Agadir, Morocco
Bachelor of Sciences, Applied Mathematics – 2006 – University of Ibn Zohr at Agadir, Morocco

Selected Research Projects

Patient Medical History Representation, Extraction, and Inference from EHR Data
I developed temporal data extraction, reasoning, and representation tools for harvesting temporal information from clinical narratives and for temporal mining of vaccines events from VAERS reports.

Predictive Models for Primary Care Patients (IRB exemption)
I developed a machine learning model to support clinical decision in primary care encounters use case. The model predicts next user operation during an encounter in order to boost physician-patient interpersonal flow and increase patient engagement.

Modeling and Analysis of Clinical Care for HIT Improvement
I created a SPARQL Inferencing Notation (SPIN) based model to write the specifications of conceptual work products of interactive HIT system (patient-centered case management), then I used an automatic logic reasoned and a model checker to verify the specifications.

Incorporating Semantic Knowledge into Dynamic Data Processing for Energy Management System
I developed a semantic platform to enhance semantic search in a web service and multi agent system environment. Among the targeted applications: real-time access of information about building characteristics and energy consumption, optimization of energy management, and increasing user awareness.

Investigation, Grant Writing

- IRB exemption: Predictive and visual analysis of Primary Care patient information, PIs, Dr Cui Tao, MD. James Ryan, 2016
- Qatar-QNRF_2013: Smart Campus Energy Management System: a User Preference-Behavioral Approach NPRP No.: 7-1723-2-644. Nov 2013
- NSF_CPS: Synergy-2013: Smart Management of Interconnected Federated Microgrids: Big data approach. Aug 2014

Teaching experience

- Teaching Assistant, UTHealth, Spring 2017, BMI 6306- Knowledge Representation in Biomedical Informatics
- Teaching Assistant, UTHealth, Spring 2016, HI 5304- Advanced Database Concepts for Health Informatics,
- Lecturer, University of Houston, Spring 2015, ELET 2300- Introduction to C++ Programming
- Adjunct professor, Civil Aviation Engineering School, Casablanca, 2012-2013
- Teaching Assistant, Faculty of Sciences, Rabat, 2008-2012
- Teaching Assistant, Faculty of Sciences, Agadir, 2006-2008

Awards, Services

- TPC of the 2017 International Conference on Cloud Technology and Communication Engineering
- PC of the 3th IEEE International Conference on Computer Systems and Applications, AICCSA 2016.
- Volunteer, Organization team of the ICBO 2014 at Houston
- Best paper Award at the10th IEEE AICCSA'13 - Track : Cloud and Distributed computing

Web development Skills

- Data Science: Statistical modeling, predictive analytics, machine learning, data visualization (R, Weka)
- Data acquisition (web scraping/APIs), Graph databases, Neo4J

- Static Web development: Python Pelican, Jekyll, Markdown (leafyleap.com)

Referee and Reviewer:

- American Medical Informatics Association 2015-2016
- International Conference on Intelligent Biology and Medicine (ICIBM 2016)
- Computer Methods and Programs in Biomedicine 2015

Example Publications

Coming soon Publications (submission phase)

M Madkour, K Butler, A Bahrami, E Mercer, C Tao "Semantic based model of Conceptual Work Products for formal verification of complex interactive systems"

M Madkour, C Tao "A Semantic Web-based Approach to Clinical Eligibility Criteria Representation for Automating Large Scale Patient Screening Processes"

Book Contribution

[B01] **M. Madkour,** M. Bakhouya, A. Maach, D. El Ghanami "An Approach for Context-Aware Service Selection Using QoS and User Preferences" In Maristella Matera, Gustavo Rossi "Trends in Mobile Web Information Systems" pp 110-119, Springer International Publishing.

Refereed Journal Papers

[J01] **M. Madkour,** D. Benhaddou, C. Tao "Temporal data representation, normalization, extraction, and reasoning: A review from clinical domain" Computer methods and programs in biomedicine Volume 128, May 2016, Pages 52–68

[J02] **M Madkour,** D. El Ghanami, A. MAACH "QoS-Based Approach For Context- Aware Service Selection With Fuzzy Preferences Handling" International Journal of Computer Applications in Technology, Vol. 47, No 4 /2013, pp. 379-391

[J03] **M. Madkour,** A Maach, D. El Ghanami, A. HASBI "Context- Aware Service Adaptation: An Approach Based on Fuzzy Sets and Service Composition" Journal of Information Science and Engineering Vol. 29, No.1, ISSN: 1016-2364, pp. 1-16

[J04] **M. Madkour,** A Maach, D.El Ghanami, "Context-Aware Middleware For Services Retrieval And Adaptation" International Review on Computers and Software Vol. 7 N. 1 Print ISSN 1828-6003 Cd- om ISSN: 1828-6011

[J05] **M. Madkour,** A. Maach, D. El Ghanami, "An Ontology-Based Context Modeling For Vehicle Context-Aware Service" Journal of Theoretical and Applied Information Technology Vol. 34 No2 E-ISSN 1817-3195 ISSN 1992-8645

[J06] **M. Madkour**, D El Ghanami, A Maach "QoS-Based Approach For Context-Aware Service Selection" International Journal of Computational Linguistics Research, Volume: 3, Issue: 3 pp: 109-124

[J07] M. Madkour, A. Maach, "Intelligent Pervasive Middleware for Context-Aware Vehicle Services" Journal of Communications and computer Engineering VOL 2, NO 3 ISSN: 2090-6234

Referred papers at Conferences

[C01] **M. Madkour,** J. Du, H. Song, C. Tao "A Representational Analysis of A Temporal Indeterminacy Display in Clinical Events" at The 1st International Workshop on Semantics-Powered Data Analytics (SEPDA 2016) in conjunction with the IEEE International Conference on Bioinformatics and Biomedicine (BIBM 2016) to be held at Shenzhen, China on December 15, 2016

[C02] **M. Madkour**, J. Du, H.Song, C. Tao "Temporal clinical events clustering and visualization", Proceedings of the IEEE VIS 2016 Workshop on Temporal & Sequential Event Analysis. Available online at: http://eventevent.github.io

[C03] **M Madkour,** D. Benhaddou, R. Cline, M. Buriello, N.Khalil "Living campus: Towards a Context-Aware Energy Efficient Campus using Weighted Case Based Reasoning" The 29th Artificial Intelligence Conference, January 25–30, 2015, Austin Texas, USA, (AAAI-15)

[C04] **M Madkour,** A Maach, D. El Ghanami "Policy driven adaptation of context-aware services with preferences supporting" in proceeding of the10th IEEE International Conference On Computer Systems And Applications(AICCSSA'13)

[C05] **M. Madkour**, A. Maach, D. El Ghanami, A. Hasbi "Context- Aware Service Retrieval In Uncertain Context" in Proceeding of IEEE International Conference on Multimedia Computing and Systems (ICMCS'12)

[C06] **M.Madkour,** A. Maach, D. El Ghanami, A.Hasbi "Fuzzy-Based Approach For Context-Aware Service Retrieval " in proceedings of IEEE Second international conference on Innovative Computing Technology (INTECH'12)

[C07] **M. Madkour,** A. Maach, D. El Ghanami, "Vehicle Context Aware Framework For Services Provisioning And Adapting" in proceeding of International Workshop on Information Technologies and Communication (Wotic'11)

[C08] **M. Madkour**, A. Maach, "Plateforme de localisation et de télédiagnostic des véhicules" in proceedings of Logistiqua'10

Reference contacts

Cui Tao, PhD -- PI and Postdoc Mentor (University of Texas Health Science Center at Houston)
Associate professor, University of Texas Health Science Center at Houston, Houston, Texas
Presidential Early Career Award for Scientists and Engineers (PECASE) (awarded honor by President Obama)
Email: Cui.Tao@uth.tmc.edu - Phone: (713)500-3981

Keith A. Butler, PhD, MS -- PI of Modeling and Analysis of Clinical Care for HIT Improvement:
Director of future products and architectures at Microsoft
Principal Research Scientist at University of Washington
Technical Fellow at Math and Computing Technology at Boeing
Member of NASA's standing research review panel on space human factors
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Dr Driss Benhaddou, PhD – PI and Postdoc Mentor (University of Houston)
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