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| Research Interest | Image Processing, Machine Learning, Pattern Recognition, Spatial/Temporal Data Mining, Information Fusion, Statistical modeling, Artificial Intelligence. |
| Teaching Interest | Programming Languages Signal Processing Image Processing and Pattern recognition Applied machine learning Data Mining Artificial Intelligence Fundamentals of Engineering Programming languages |
| Honors and Awards | Graduate Dean's citation award 2011. IEEE outstanding CECS student award 2011. Invited member – Golden Key International Honor Society. Graduate Research Assistantship – University of Louisville. Promoted to job grade 12 using the HAY evaluation method within STMicroelectronics on March 2004. |
| Education | Doctor of Philosophy in Computer Engineering and Computer Science University of Louisville, Ky, USA. May 2011. Dissertation: "Image annotation and Retrieval based on Multi-modal Feature Clustering and Similarity Propagation". Advisor: Dr. Hichem Frigui 1 year of Master of Automatic and Signal Processing National School of Engineering of Tunis, Tunisia, June 2005. advised by: Dr. Safiya Belghith Electrical Engineer Diploma National School of Engineering of Tunis, Tunisia, June 2002. Graduation with honors. Additional advanced math courses covering the areas of topology, measure theory, numerical analysis, convex optimization, theory of probability and operational research. Additional courses in electronics, telecommunication, Artificial intelligence and game theory. National Exam for admission to national engineering schools in Tunisia , ranked 250/3000, June 1999. Associate degree in Mathematics and Physics College of Fundamentals of Engineering, June 1999. Graduation with honors. |

Professional appointments**Assistant Professor at King Saud University**

College of Computer and Information Sciences. Computer Science department. From September 2011 – present.

Graduate Research Assistant

Multimedia Research Lab, CECS, UofL. From August 2006 – May 2011.

Graduate Research Assistant: Extensive experience with image processing and machine learning techniques. Namely, I work on the development and the implementation of Content-based Image Retrieval (CBIR) and annotation prototype that takes advantage of the developed algorithms for efficient web image annotation and retrieval. Also, I seek to develop machine learning algorithms that could be used to integrate visual features with textual keywords, summarize, and organize the data repositories.

Design and Development Engineer

STMicroelectronics, Ariana, Tunisia. From June 2002 - June 2006.

Design and Development engineer involved in the validation of 8-bits ST microcontroller tools. I was leading the design and development of a automatic validation environment for 8-bits ST microcontroller tools.

Design and Development Engineer Intern

STMicroelectronics, Ariana, Tunisia. From February 2002 - June 2002.

Graduation Project: Design and Development of validation platform for MDT50 emulator.

Electrical Engineer Intern

Poulina Group, Tunis, Tunisia. From July-August 2001.

Study and empirical comparison of several pressure sensors.

Refereed**Conference/
Journal Papers**

Mohamed Maher Ben Ismail and Ouiem Bchir, "*Semi-supervised Local Fusion Approach for Mine Detection in Sonar Data*", International Journal OF Intelligent Systems (accepted).

Mohamed Maher Ben Ismail and Ouiem Bchir, "*CE Video Summarization using Relational Motion Histogram Descriptor*", International Conference on Optoelectronics and Image Processing (ICOIP 2015), July 2015, Chicago.

Ouiem Bchir and Mohamed Maher Ben Ismail, "*Self-Estimation of the Number of Endmembers for Hyperspectral Mixture Analysis*", International Conference on Optoelectronics and Image Processing (ICOIP 2015), July 2015, Chicago.

Ahmed Z. Emam, Yasser Ali and Mohamed Maher Ben Ismail, "*Adaptive Features Extraction for Capsule Endoscopy (CE) Video Summarization*", International Conference on Computer Vision and Image Analysis applications (ICCVIA'15).

Ouiem Bchir and Mohamed Maher Ben Ismail, "*Generic Evaluation Metrics for Hyperspectral Data Unmixing*", The Soft Computing and Automation Journal, DOI: 10.1080/10798587.2015.1022994.

Ouiem Bchir, Hichem Frigui and Mohamed Maher Ben Ismail, "*Fuzzy clustering with learnable cluster dependent kernels*", Pattern Application and Analysis Journal, DOI: 10.1007/s10044-015-0461-7.

Mohamed Maher Ben Ismail and Ouiem Bchir, "*Verbal Offense Detection in Social Network Comments using Novel Fusion Approach*", AI Communications (Accepted)

Mohamed Maher Ben Ismail and Ouiem Bchir, "*Endoscopy Video Summarization using Novel Relational Motion Histogram Descriptor and Semi-supervised Clustering*". Journal of

Experimental & Theoretical Artificial Intelligence, DOI: 10.1080/0952813X.2015.1020623.

Ouiem Bchir and Mohamed Maher Ben Ismail, "*Generalized Relative Spectral Unmixing Evaluation Measure*", IEEE-International Conference on Audio, Language and Image Processing (ICALIP), Shanghai, July 2014.

Mohamed Maher Ben Ismail and Ouiem Bchir, "*Survey on number of endmembers estimation approaches for unmixing hyperspectral data*", IEEE-International Conference on Audio, Language and Image Processing (ICALIP), Shanghai, July 2014.

Mohamed Alkaoud, Ibrahim AshShohail, and Mohamed Maher Ben Ismail, "*Automatic Image Annotation Using Fuzzy Cross-Media Relevance Models*," Journal of Image and Graphics, Vol. 2, No. 1, pp. 59-63., doi: 10.12720/joig.2.1.59-63, June 2014.

Mohamed Maher Ben Ismail and Ouiem Bchir, "*Insult Detection in Social Network Comments Using Possibilistic Based Fusion Approach*", Computer and Information Science, Springer Studies in Computational Intelligence, Vol. 566, pp 15-25, DOI: 10.1007/978-3-319-10509-3_2, , 2014.

Heelah Alraqibah, Mohamed Maher Ben Ismail and Ouiem Bchir, "*Empirical Comparison of Visual Descriptors for Content based X-ray Image Retrieval*", International Conference on Image and Signal Processing (ICISP'14), Cherbourg, June 2014.

Heelah Alraqibah, Ouiem Bchir and Mohamed Maher Ben Ismail, "*X-Ray Image Retrieval System Based on Visual Feature Discrimination*", Proceeding SPIE, vol. 9159, International Conference on Digital Image Processing (ICDIP), Athens, April 2014.

Mohamed M. Ben Ismail, Ouiem Bchir, and Ahmed Z. Emam, "*Endoscopy Video Summarization based on Multi-modal Descriptors and Possibilistic Unsupervised Learning and Feature Subset Weighting*". The Soft Computing and Automation Journal, vol. 20, no. 3, pp. 381-402, 2014. (DOI:10.1080/10798587.2014.890320).

M. Maher Ben Ismail and Hichem Frigui, "*Unsupervised Clustering and Feature Weighting based on Generalized Dirichlet Mixture Modeling*". Information Sciences. vol. 274, pp. 35-54, DOI: 10.1016/j.ins.2014.02.146, 2014.

Mohamed M. Ben Ismail, Ouiem Bchir, and Ahmed Z. Emam, "*Endoscopy Video Summarization based on Unsupervised Learning and Feature Discrimination*", IEEE Visual Communications and Image Processing. VCIP 2013. Malaysia 2013.

Ouiem Bchir, M. Maher Ben Ismail, and Hichem Frigui. "*Semi-supervised fuzzy clustering with learnable cluster dependent kernels*". International Journal on Artificial Intelligence. Vol. 22, No. 3, pp. 13500. 2013.

Sarah Alotaibi, Sahar Kasim, Ouiem Bchir and Mohamed Ben Ismail. "*Empirical comparison of visual descriptors for multiple bleeding spots recognition in wireless capsule endoscopy video*". 15th International Conference on Computer Analysis of Images and Patterns. CAIP 2013, pp. 402-407 UK. 2013.

Ouiem Bchir, Mohamed Maher Ben Ismail and Hichem Frigui. "*Mixture Analysis based on Spectral Summarization*", 5th IEEE workshop on Hyperspectral Image and Signal Processing: Evolution in remote Sensing. WHISPERS 2013. Florida, USA. 2013.

Ouiem Bchir, M. Maher Ben Ismail, and Hichem Frigui. "*Semi-Supervised clustering and Local Scale Learning algorithm*". International Conference on Artificial Intelligence. ICAI 2013. Tunisia. 2013.

Ouiem Bchir, M. Maher Ben Ismail, and Hichem Frigui. "*Semi-Supervised Relational Fuzzy clustering with Local Distance Measure Learning*". International Conference on Artificial Intelligence. ICAI 2013. Tunisia. 2013.

Mohamed Maher Ben Ismail and Ouiem Bchir, "*Automatic Image Annotation based on Semi-supervised Clustering and Membership based Cross Media Relevance Model*". International

Journal of Pattern Recognition and Artificial Intelligence Vol. 26, No. 6, Dec 2012.

Ben Ismail, M. Maher; Frigui, H. “*Image Database Categorization using Robust Modeling of Finite Generalized Dirichlet Mixture*”. International Journal of Signal and Imaging Systems Engineering, Vol. 5, No. 2, pp. 143-153, July 2012.

Mohamed Maher Ben Ismail. “*Image Database Categorization based on a Novel Possibilistic Clustering and Feature Weighting Algorithm*”. International Proceedings of Computer Science & Information Technology, vol. 46, pp. 122-127, Singapore, 2012.

Mohamed Maher Ben Ismail: “*Possibilistic Clustering and Feature Weighting based on Robust Modeling of Finite Generalized Dirichlet Mixture*”. 8th International Conference on Machine Learning and Data Mining (MLDM). Germany, 2012

Mohamed Maher Ben Ismail, “*Image Annotation and Retrieval Based on Multi-Modal Feature Clustering and Similarity Propagation*”. PhD thesis packaged, produced and published by BiblioLabs under license by ProQuest UMI (available online for sale). 2011.

M. Maher Ben Ismail, Hichem Frigui: “*Image Database Categorization using Robust Unsupervised Learning Of Finite Generalized Dirichlet Mixture Models*”. International Conference on Image Processing (ICIP), pp. 2457 - 2460, 2011.

M. Maher Ben Ismail, Hichem Frigui: “*Possibilistic Clustering based on Robust Modeling of Finite Generalized Dirichlet Mixture*”. Twentieth conference of the International Association for Pattern Recognition (IAPR). pp. 573 - 576, ICPR 2010.

M. Maher Ben Ismail, Hichem Frigui: “*Image Database Categorization using Robust Modeling of Finite Generalized Dirichlet Mixture*” International Workshop on Image Processing Theory, Tools and Application (IPTA). pp. 334-339, 2010

M. Maher Ben Ismail, Hichem Frigui: “*Image Annotation based on Constrained Clustering and Semi-naïve Bayesian Model*”. IEEE symposium on Computers and Communications (ISCC). pp. 431-436, 2009.

M. Maher Ben Ismail, Hichem Frigui, Caudill Joshua: “*Empirical Comparison of automatic Image Annotation Systems*”. International Workshop on Image Processing Theory, Tools and Application (IPTA), pp. 1-8, 2008.

Teaching experience

University of Louisville, CECS Department: Fall 2005 to Fall 2007. C/C++ and Fundamentals of Engineering Lab and class instructor.

University of Louisville, Multimedia Research Lab: Fall 2006, Content Based Image Retrieval: lecturing weekly on a technical paper.
 Spring 2008, Multimedia Research Lab Seminar: lecturing on Constrained semi-supervised clustering.
 Fall 2009, Multimedia Research Lab Seminar: lecturing on Automatic Image Annotation.

Computer skills

Systems: Linux (Ubuntu), Windows (XP and Vista)

Programming paradigms: Procedural programming: extensive experience with Matlab scripting, C language, and shell scripting (sh, csh and tcsh).
 Object Oriented Programming: extensive experience with Java and C++, familiar with C#.

Modeling and prototyping: extensive experience with Matlab .

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| | Programming environments: Visual Studio. |
| Machine learning and data mining skills | <p>Machine learning paradigms: Supervised, unsupervised, semi-supervised, active and reinforcement learning</p> <p>Methods: Bayesian models, Decision trees, K-NN, ANN, linear/non-linear regression, kernel-based methods (SVM), Graphical models, DTW, AM/ARMA/ARIMA, hierarchical clustering, k-means, FCM, SOM, EM, GK, etc.</p> <p>Feature Selection: PCA, Wrappers, Filters etc.</p> <p>Software tools: Extensive experience with Matlab, WEKA and LibSVM. Familiarity with R</p> |
| Affiliations | <p>Member of the “Engage 2010” organized by the Office of the Civic Engagement, Leadership and Service. University of Louisville, Spring 2010.</p> <p>Member of the Institute of Electrical and Electronics Engineers (IEEE).</p> <p>Member of the Society of Photographic Instrumentation Engineers (SPIE).</p> |
| Personal Information | <p>Languages: Arabic: native French: fluent in reading/writing/speaking English: fluent in reading/writing/speaking Italian: basic</p> |
| Doctoral Coursework | <p>Combinatorial Optimization Image Processing and Pattern Recognition Content Based Image Retrieval Pattern Recognition and Machine Intelligence Data Mining Artificial Intelligence Multimedia and Hypertext Content Based Video Retrieval Computer Algorithms Fuzzy theory</p> |
| References | Available upon request. |