RACHID BEN SAID SAMMOUDA

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ASSOCIATE PROFESSOR

COMPUTER SCIENCE EDUCATOR & RESEARCHER

Accomplished career demonstrating consistent success as an Educator and relentless Researcher at higher education levels. Outstanding track record in assuring student success with high teaching skills. Seasoned in conceiving and building programs from the ground up through proven competencies in projects and program management, and staff support and empowerment. Effective communicator with excellent planning, organizational, and negotiation strengths as well as the ability to lead, reach consensus, establish goals, and attain results. Specialist whose qualifications include a PhD degree in Artificial Intelligence; with detailed knowledge in Digital Image Processing, Computer Sciences, Programming Languages, Artificial Intelligence and Computing with Artificial Neural Networks. Several years of experience in the creation and deployment of solutions for Medical Image Processing and Analysis for diverse medical purposes. Leading groups in successful conferences organizations across a wide platform of topics.

ACADEMIC INFORMATION

Ph.D. University of Tokushima, Japan, 1999

Major: Artificial Intelligence

Specific Specialization: Pattern Recognition, Digital Image Processing, Computer Vision, Computing with Artificial Neural Networks and Genetic Algorithms.

RESEARCH INTERESTS

Medical Image Processing

Pattern Recognition

Computer Vision

Biomedical Engineering (Computational aspects)

Genetic Algorithms

PROFESSIONAL PROFILE

April 1996-June 1999: University of Tokushima, Japan, Working as Assistant Researcher at the Department of Optical Science

September 1999 ~ August 2001: UAE University, Al-Ain, UAE, working as Assistant Professor at the Department of Mathematics and Computer Science.

September 2001 ~August2010: University of Sharjah, UAE, working as Assistant Professor at the Department of Computer Science.

September 2010 ~ March 2012: King Saud University, Computer Science Department, Distinguished faculty members program, Assistant Professor.

April 2012~Now: King Saud University, Computer Science Department, Distinguished faculty members program, **Associate Professor**.

ACADEMIC/TEACHING EXPERIENCE

Introduction to computer vision & image processing
Computer vision & image processing (**Graduate study**)
Master Thesis Supervision (**Graduate study**)
Introduction to Computer Security
Artificial Intelligence
Software Engineering
Computer Organization & Assembly Language
Automata & Formal Languages
Computer Graphics
File Processing & Data Management
Data Structures
Introduction to Multimedia
Graphic Design
Object Oriented Programming, C++, Java
PL & Compilers

EDUCATION

University of Tokushima, Japan

Ph.D. in Computer Science May 1999

M. Sc. in Computer Science, March 1995

Faculty of Sciences of Tunis, Tunisia

B.Sc. in Computer Science and Information Systems, June 1991

PROFESSIONAL ACTIVITIES

Society Membership: IEEE Member, Computer Science

Editorial Activities Associate Editor at the International Journal of Image and Graphics (IJIG)

HIGHLIGHTS OF PROFESSIONAL EXPERIENCE:

Completed Research Projects:

- Cerebral Magnetic Resonance Images Segmentation: designed and implemented a system that segments automatically such medical images used in human brain cancer diagnosis processes.
- Liver Cancer Diagnosis: designed and implemented a system that diagnoses liver cancer based on the analysis of pathological liver color images obtained using medical biopsy.
- Lung cancer diagnosis based on 3D-CT Image Analysis: designed and implemented a system that diagnoses lung cancer at early stages based on the analysis of 3-D chest CT images.

Current Research Projects:

- Accurate Computer Aided Diagnosis System for Early Detection of Lung Cancer using Chest CT Image Analysis
- Computer-Aided Detection and Classification of Prostatic Cancerous Tissues using Near and Mid Infrared Multispectral Imagery
- Determining spatial and temporal distribution, and relative values of honeybee flora in the Al-Baha region
- Adaptive Thresholding CFAR Signal Detection for Wireless Wideband Communication Systems Using Smart Antennas/Antenna Diversity
- Computer-Aided Navigation System for the Visually Impaired in a Specific Closed Environment: Case Study Application: King Saud University

Master Thesis Supervision:

- Title: "A Computer Aided Diagnosis (CAD) System for Early Detection of Lung Cancer Based on the Analysis of Chest Computer Tomography (CT) Images", Student: Jamal Mahmoud Abu Hassan, Computer Science Dept., Sharjah University, May 2005.
- Title: "Lung Cancer Diagnosis Based on Sputum Color Images Analysis", Student: Fatma Taher, Computer Science Dept., Sharjah University, May, 2007.
- Title: "Automatic Assessment of Posterior Capsule Pacification from Digital Images", Student: Fatma Al Kerbi, Computer Science Dept., Sharjah University, May, 2008.
- Title: "Content Based MR Brain Image Retrieval", Student: Abduljawad Amory, Computer Science Department, King Saud University, May, 2012.
- Title: "Heart Region Segmentation form CT Images", Student: Rami Mohamed Jomaa, Computer Science Department, King Saud University, May, 2012.

Ph.D. Thesis Supervision

- Title: "Statistical Approaches of Image Segmentation", Student: Duaa Al-Saeed, Computer Science Department, King Saud University, Sept.2011.

Patents

Some of Dr. Rachid Sammouda publications are referenced in the following patents registered at the World Intellectual Property Organization as:

- Computer-Aided Pathological Diagnosis System: at:

HONORS & AWARDS

Best Research Paper of Faculty Members presented during the 2nd Annual Scientific Research Forum 2006, at the University of Sharjah.

Rachid Sammouda, Mohammed Sammouda, and Jamal abu Hassan, "Automatic Lung Regions Extraction Algorithm from 3D CT-Images Based on the Bit-Plane Slicing Technique", University of Sharjah Journal of Pure & Applied Sciences, Vol.3, No.1, pp. 13-32, Feb. 2006.

Best Paper Award at the International Symposium on Signal Processing and its Applications ISSPA-2007, for his Master Student

FatmaTaher and Rachid Sammouda, "Identification of lung cancer based on shape and color", 4th International Conference on Innovations in Information Technology, Dubai, United Arab Emirates, November 18-20, 2007.

Best Master Thesis presented during the the 4th Annual Scientific Research Forum 2008, at the University of Sharjah.

Title: "Lung Cancer Diagnosis Based on Sputum Color Images Analysis", Student: FatmaTaher, Computer Science Dept., Sharjah University, May, 2007.

http://www.wipo.int/pctdb/en

- Method and system for automatic detection and segmentation of tumors and associated edema (swelling) in magnetic resonance (MRI) images: at

  http://www.freshpatents.com/

Dr. Rachid Sammouda is preparing for the registration of new patent entitled:

- Computer-Aided System for Heart Volume Monitoring developed at King Saud University. (2012)

ABET – QMS – NCAAA Academic Accreditation Experience

- Dr. Rachid Sammouda is a permanent member of the ABET accreditation at the Computer Science Department, King Saud University.
- He has developed a system for an automatic evaluation of course outcomes, implemented and used at the College of Computer and Information Systems at King Saud University.
- Head of committee for National Commission for Academic Accreditation and Assessment (NCAAA) accreditation process at Computer Science Department. The committee produced: Department Self-Study Report, Annual Program Report, Program Specifications, Scaling of best practices files, course folders, etc.
- Member of Quality Management System (QMS) committee – college level at College of Computer and Information Systems, King Saud University.

JOURNAL PUBLICATIONS

1. Rachid Sammouda, Noboru Niki, and Hiromu Nishitani. "Segmentation of Brain MR Images based on Neural Networks". Journal of IEICE Transactions on Information and Systems, vol. E79, no.4, pp.349-356, April. 1996.

2. Rachid Sammouda, Noboru Niki, and Hiromu Nishitani. "A Comparison of Hopfield Neural Network and Boltzmann Machine in Segmenting MR Images of the Brain". Journal of IEEE Transactions on Nuclear Science, vol.43, no.6, pp.3361-3368, December, 1996.

3. Rachid Sammouda, Noboru Niki, and Hiromu Nishitani. "Segmentation of Sputum Color Images based on Neural Networks". Journal of IEICE Transactions on Information and Systems, vol.E81_D, no.8, pp.862-871, August 1998.

4. Mohamed Sammouda, Rachid Sammouda, Noboru Niki, and Nayohito Yamaguchi. "Cancerous nuclei detection on digitized pathological lung color images "International Journal of Biomedical informatics, Elsevier Science, vol.35, No.2, pp.92-98, April 2002.

5. Mohamed Sammouda, Rachid Sammouda, Noboru Niki, and kiyoshi Mukai. "Liver cancer detection system based on the analysis of digitized color images of tissue samples obtained using needle biopsy" International Journal of Information visualization, Palgrave Press, vol.1, Issue 2, pp.130-138, Sept. 2002.

6. Rachid Sammouda, Mohammed Sammouda, and Jamal Abu Hassan, "Automatic Lung Regions Extraction Algorithm from 3D CT-Images Based on the Bit-Plane Slicing Technique", University of Sharjah Journal of Pure & Applied Sciences, Vol.3, No.1, pp. 13-32, Feb. 2006.

7. R. Sammouda, M. Sammouda, and J.Abu Hassan "CT Images Analysis for Early Detection of Lung Cancer", International Journal of Innovative Computing, Information and Control (IJICIC), Volume 4, No. 11, Nov. 2008.

8. Rachid Sammouda "How Magnification of the Root-Mean-Square Deviation (RMSD) Value Affects the Convergence Speed of Hopfield Neural Network Classifier", Journal of WSEAS Transactions on Computer Research, Issue 3, Volume 3, pp. 162-171, September 2008.
9. Rachid Sammouda "Sensitivity Analysis of Hopfield Neural Network in Classifying Natural RGB Color Images", Journal of WSEAS Transactions on Computer Research, Issue 9, Volume 8, pp. 1514-1521, September 2009.

10. Rachid Sammouda "Data Dependent Weight Initialization in the Hopfield Neural Network Classifier: Application to Natural Colour Images", Journal of Computers and Applications, Vol. 32, No.2, 2010

11. Naoufel Werghi*, Rachid Sammouda** and Fatma AlKirbi**, "An unsupervised learning approach based on Hopfield-like network for assessing posterior capsule opacification", * Department of Computer Sciences, University of Dubai, ** Department of Computer Sciences, University of Sharjah, International Journal of Pattern Analysis & Applications, Springer Link, April 2010.

12. Nuru Adgaba*, Awraris Shenkute* Ahmed Alghamdi*, Rachid Sammouda**, Said Hegazy*, Ameur Touir**, Yilma Tadesse*, Deepak Sharma*, "Determining temporal and spatial availability of bee forages , based on ground inventory, supported with gis application and remote sensed satellite image processing", * Bee Research Unit, Department of plant protection, College of Food and Agriculture Science, King Saud University, Saudi Arabia, ** College of Computer and Information Science, King Saud University, Saudi Arabia, Food, Agriculture and Environment (JFAE), Print ISSN:1459-0255, Online ISSN: 1459-0263, Year: 2013, Vol. 11, Issue 3&4, pages 2220-2226., Publisher: WFL.

13. Rachid Sammouda*, Nuru Adgaba**, Ameur Touir* and Ahmed Al-Ghamdi**, * Department of Computer Science, King Saud University, Riyadh, Saudi Arabia, ** Bee Research Chair, King Saud University, Riyadh, Saudi Arabia, "Agriculture Satellite Image Segmentation using a Modified Artificial Hopfield Neural Network", Journal of Computers in Human Behavior, Volume 30, January 2014, Pages 436–441.

14. Rachid Sammouda, Hassan Ben Mathkour and Ameur Touir, * Department of Computer Science, King Saud University, Riyadh, Saudi Arabia, "Effect of bit-planes on the extraction of lung region from 3D chest CT images", Journal of Advances in Computer Science and Engineering, Volume 12, Issue 2, Pages 119 - 128 (May 2014).

15. Rachid Sammouda, Hassan Ben Mathkour, "Lung Region Segmentation using Artificial Neural Network Hopfield Model for Cancer Diagnosis in Thorax CT Images", Automation, Control and Intelligent Systems. Vol. 3, No. 2, 2015, pp. 19-25. doi: 10.11648/j.acis.20150302.12

16. Rachid Sammouda, Abdul Malik S. Al-Salman, Abdu Gumaei, and Nejmeddine Tagoug, "An Efficient Image Denoising Method for Wireless Multimedia Sensor Networks Based on DT-CWT", International Journal of Distributed Sensor Networks, Volume 2015, Article ID 632568, 13 pages, http://dx.doi.org/10.1155/2015/632568

17. Rachid Sammouda, "Prostate Cancer Diagnosis Based on the Segmentation and

Analysis of NIR Images Obtained Using Two PSMA -1 Based PDT Conjugates PSMA -1-Pc413 and PSMA-1-IR700", International Journal of Sciences: Basic and Applied Research (IJSBAR) Vol 25, No 2, 2016, pp. 218-232.

http://gssrr.org/index.php?journal=JournalOfBasicAndApplied&page=article&op=view&path%5B%5D=5206&path%5B%5D=2721

PERSONAL DETAILS

Date of Birth
21 -05-1966

Gender
Male

Marital Status
Married

Nationality
Tunisian

CONFERENCES

ICITeS' 2011~2017 International Conference on Information Technology & e-Services, Sousse, Tunisia

ICIST' 2012 International Conference on Information System and Technologies, Sousse, Tunisia

ICCRK' 2012 International Conference on Computer Related Knowledge, Sousse, Tunisia

ICEELI' 2012 International Conference on Education & E-Learning Innovations, Sousse, Tunisia

ICCMA' 2012 International Conference on Computer Medical Applications, Sousse, Tunisia

ICIIS' 2012 International Conference on Information and Intelligent Systems, Sousse, Tunisia

ICSPT' 2012-2013

SELECTED CONFERENCE PAPERS

1. Rachid Sammouda et al. "Multichannel Segmentation of Magnetic Resonance Cerebral Images Based On Neural Networks", ICIP: International Conference on Image Processing, Washington DC., Oct.23-26, 1995.

2. Rachid Sammouda et al. "Segmentation of Sputum Color Image for Lung Cancer Diagnosis Based on Neural Networks", ICIAP: International Conference on Image Analysis and Processing. Florence, Italy, September 17-19, 1997.

3. Rachid Sammouda et al. "Segmentation and Analysis of Liver Cancer Pathological Color Images Based on Artificial Neural Networks.", ICIP: International Conference on Image Processing, Kobe, Japan, October 24-28, 1999.

4. Kamel Karoui & Rachid Sammouda "Framework for Telemedicine Multilevel Diagnose System" , International Conference of the IEEE Engineering in Medicine and Biology Society, Conf. Proc., Vol. 4, Istanbul, 2001.

5. Mohamed Sammouda, Rachid Sammouda," Improving the Performance of Hopfield Neural Network to Segment Pathological Liver Color Images "proceeding of 17th International Congress and Exhibition, CARS 2003, pp. 232-239, 2003.

6. Rachid Sammouda, Mohamed Sammouda, and Jamel Abu Hassan " Accurate extraction algorithm of lung regions from chest CT images.", International Conference on Internet and Multimedia Systems and Applications, Switzerland, Feb. 2005.

7. Zaher Aghbari & Rachid Sammouda "Bayesian Based Classifier for Mining Image Classes", IADIS International Conference on Applied Computing, Portugal, Feb. 2005.

8. R. Sammouda, J. Abu Hassan, M. Sammouda, A. Al-Zuhairy, H. Abou ElAbbas. "Computer Aided Diagnosis System for Early Detection of Lung Cancer Using Chest Computer Tomography Images", International Conference on Machine Intelligence, Tunisia, November, 2005.

9. R. Sammouda, M. Sammouda, and Fatma Tahar, "A Comparison of Segmenting Sputum Color Images for Lung Cancer Diagnosis using Artificial Neural Networks and Fuzzy Clustering", The XIII Congress of International Association for Fuzzy-Set Management and Economy, Tunisia, November, 2006.

10. Naoufel Werghi*, Rachid Sammouda** and Fatma Al Kirbi**, "An unsupervised learning approach based on Hopfield-like network for assessing posterior capsuleopacification", * Department of Computer Sciences, University of Dubai, ** Department of Computer Sciences, University of Sharjah, IAPR Conference on Machine Vision Applications, Institute of Industrial Science, the University of Tokyo, Japan, May 16-18, 2007.

11. Fatma Taher and Rachid Sammouda, "Identification of lung cancer based on shape and color", 4th International Conference on Innovations in Information Technology, Dubai, United Arab Emirates, November 18-20, 2007.

12. Rachid Sammouda, "Indexing of Medical Information Using Spatial Features in CT Images", 2nd International Conference: E-Medical Systems, Tunisia, Oct. 29-31, 2008.

13. Fatma Taher, Rachid Sammouda, "Morphology analysis of sputum color

International Conference on Signal Processing & Telecommunications, Sousse, Tunisia

ICCAT' 2013-2017 International Conference on Artificial Intelligence, Cairo, Egypt

ICEEE'2013 International Conference on e-Business, Enterprise Information Systems, and e-Government, Sousse, Tunisia

ICMAES'2013 International Conference on Machines Applications and Embedded Systems, Sousse, Tunisia

ICMASM'2013 International Conference on Mobile Applications and Security Management, Sousse, Tunisia

ICMMP'2013 International Conference on Multi Media Processing, Sousse, Tunisia

ICNGCC'2013 International Conference on Networking and Grid Cloud Computing, Sousse, Tunisia

ICCMREA 2013-2017 International Conference on Composite Materials & Renewable Energy Applications, Roma, Italy

IBMSGS' 2014 International Summit on Bio-Metrics and

images for early lung cancer diagnosis", International Symposium on Signal Processing and Its Applications - ISSPA , 2010

14. Rachid Sammouda; Rami Mohammad Jomaa; Hassan Mathkour, "Heart Region Extraction and Segmentation From Chest CT Images Using Hopfield Artificial Neural Networks", International Conference on Information Technology and e-Services , IEEE, ICITeS'2012, Tunisia, March 2012.

15. Abduljawad Amory; Ali El Zaart; Anas Rokabi; Hassan Mathkour; Rachid Sammouda "Fast Optimal Thresholding Based on Between-Class Variance Using Mixture of Log-Normal Distribution", International Conference on Information Technology and e-Services , IEEE, ICITeS'2012, Tunisia, March 2012.

16. Duaa H. AlSaeed, Ahmed Bouridane , Ali ElZaart, Rachid Sammouda "Two Modified Otsu Image Segmentation Methods Based On Lognormal And Gamma Distribution Models", International Conference on Information Technology and e-Services , IEEE, ICITeS'2012, Tunisia, March 2012.

17. Rachid Sammouda, Ameur Touir, Nuru Adgaba, Ahmad Al Khazim Al Ghamdi, Yaser Ali "Adapting Artificial Hopfield Neural Network for Agriculture Satellite Image Segmentation", International Conference on Computer Related Knowledge, IEEE, ICCRK'2012, Tunisia, July 2012.

18. Rachid Sammouda, Ameur Touir, Fahman Saeed, Nuru Mohammed and Ahmed Al-Ghammidi, "Spatial Distribution of Honeybee Forage based on Color Satellite Image", International Conference on Computer Related Knowledge, IEEE, ICCRK'2012, Tunisia, July 2012.

19. Rami Mohammad Jomaa, Rachid Sammouda and Hassan Mathkour, "Distance-Based Comparison for Hopfield NN Segmentation of Heart Regions in CT Images", International Conference on Computer Related Knowledge, IEEE, ICCRK'2012, Tunisia, July 2012.

20. Rami Mohammad Jomaa, Rachid Sammouda and Hassan Mathkour, "Distance-Based Comparison for Hopfield NN Segmentation of Heart Regions in CT Images", International Conference on Computer Related Knowledge, IEEE, ICCRK'2012, Tunisia, July 2012.

21. Ahmed Aighamdi, Nuru Adgaba, and Rachid Sammouda, "Bee Trees' Density Estimation based On Satellite Image Analysis: A case study at AI-Baha Region in Saudi Arabia", International Conference on Computer Vision and Image Analysis, ICCVIA'2014, UAE, March 2014.

22. Rachid Sammouda, Hassan Ben Mathkour and Ameur Touir, " Full Automated Segmentation Method of Thorax CT Images for Ealy Detection Lung Cancer Regions", International Conference On Computational And Experimental Science And Engineering, (ICCESEN), 25-29 October 2014, ANTALYA-TURKEY.

23. Belgacem Ben Youssef, Rachid Sammouda: "Pseudorandom Number Generation in the Context of a 3D Simulation Model for Tissue Growth". ICCS 2014: 2391-2400

24. Sammouda, R.; Ben Youssef, B., "A comparison of cluster distance metrics for the segmentation of sputum color image using unsupervised hopfield neural network classifier," Computer & Information Technology (GSCIT), 2014 Global Summit on , vol., no., pp.1,6, 14-16 June 2014.

25. Sammouda, R.; Ahmed Rajoub,"Mobile Blind Navigation System Using RFID"

Smart Government, UAE

ICSoEB' 2015 International Conference on Solar Energy & Building, Sousse, Tunisia

ICCVIA' 2014-2017 International Conference on Computer Vision & Image Analysis, Cairo, Egypt

WSCAR' 2014-2017 World Symposium on Computer Applications & Research, Roma, Italy

GSCIT' 2014-2017 Global Summit on Computer & Information Technology, Sousse, Tunisia

WSMEAP' 2014-2017 World Symposium on Mechatronics Engineering & Applied Physics, Sousse, Tunisia

ICCDMTA 2017 International conference on Computers, Data Management and Technology Applications, Cairo, Egypt

ISAPE'2017 International Symposium on Applied physics & Engineering, Sousse, Tunisia

Global Summit on Computer & Information Technology (GSCIT), 2015, Pages: 1 - 4, DOI: 10.1109/GSCIT.2015.7353325, IEEE Conference Publications.

26. Al-Jibory, W.K.; El-Zaart, A.; Bouridane, A.; Sammouda, R.; Tahir, M.,"Edge detection in prostate PSMA images" International Conference on Applied Research in Computer Science and Engineering (ICAR), 2015, Pages: 1 - 3, DOI: 10.1109/ARCSE.2015.7338139, IEEE Conference Publications.