PUBLICATIONS

Research Papers Published in Refereed Journal:

J1 S. Chinveeraphan, A. B. C. Zidouri, and M. Sato, "Fast Algorithms for Minimum Covering Run Expression," IEICE Trans. Inf. \&. Syst., Vol.E77--D, no. 3, pp. 317--325, March 1994.

J2 A. Zidouri, S. Chinveeraphan, and M. Sato, "Classification of Compound Document Image Patterns by MCR Stroke Index," IEICE Trans. Inf. &. Syst., vol. E78-D, no.3, pp.290--294, March 1995

J3 S. Chinveeraphan, A. B. C. Zidouri, and M. Sato, "Modified Minimum Covering Run Expression of Binary Document Images," IEICE Trans. Inf. &. Syst., vol. E78-D, no.4, pp.503--507, April, 1995

J4 A. Zidouri, S. Chinveeraphan, and M. Sato, "Recognition of Machine Printed Arabic Characters and Numerals Based on MCR" IEICE Trans. Inf. &. Syst., vol. E78-D, no.12 pp. 1649--1655, Dec. 1995

J5 A. Zidouri, K. Nako, R. Takamatsu, and M. Sato, "A New Character Segmentation Method for Handwritten Documents Based on Multi-scale Analysis", IIEEJ Journal, vol. 24, no. 3, pp. 216--223, March 1995. (In Japanese).

J6 M. Sarfraz, A. Zidouri and S. A. Shahab, "Towards Skew Estimation of Document Images in OCR System", International Journal of Pattern Recognition and Machine Intelligence, International Scientific, Vol. 01(2), 47-56, ISSN 1817-3632, 2006.

J7 A. Zidouri, "ORAN System: a basis for an Arabic OCR", The Arabian Journal for Science and Engineering, King Fahd University of Petroleum and Minerals, Dhahran Saudi Arabia, Vol. 31 -1B, April, 2006.

J8 K. Mahmood, A. Zidouri and A. Zerguine, "Performance analysis of a RLS-based MLP-DFE in time-invariant and time-varying channels" Digital Signal Processing, Volume 18, Issue 3, May (2008) P. 307-320.

J9 A. Alawami, A. Zerguine, L. Cheded, A. Zidouri and W. Saif "A New Modified Particle Swarm Optimization Algorithm for Adaptive Equalization", Digital Signal Processing, (In Press) (2010), doi:10.1016/j.dsp.2010.05.001.

J10 A. Zidouri, "On Multiple Typeface Arabic Script Recognition", Research Journal of Applied Sciences, Engineering and Technology, Maxwell Science Publication, Volume 2, Issue 5, pp; 428-435, 2010.

J11 M. U. Faiz, A. Zerguine and A. Zidouri, "The Sign Regressor Least Mean Fourth (SRLMF) Adaptive Algorithm" *EURASIP Journal on Advances in Signal Processing*, (In Press).

J12 A. Zidouri, "Convergence Analysis of a Mixed Controlled l_2−l_p Adaptive Algorithm," *EURASIP Journal on Advances in Signal Processing*, vol. 2010, Article ID 893809, 10 pages, 2010. doi:10.1155/2010/893809.

Book Chapters:

BC1 A. Zidouri, S. Chinveeraphan, and M. Sato, "Structural Features by MCR Expression Applied to Printed Arabic Character Recognition", Lecture Notes in Computer Science, Image Analysis and Processing, Springer Berlin/Heidelberg, ISBN: 978-3-540-60298-4, 1995

BC2 M. Sarfraz, A. Zidouri and S. A. Shahab, "A Novel Approach for Skew Estimation of Document Images in OCR System", Computer Graphics, Imaging and Visualization – New Trends, Sarfraz, M., Wang, Y., and Banissi, E. (Eds.), ISBN: 3-7695-2392-7, IEEE Computer Society, USA, 175-180, 2005.

BC3 M. Sarfraz, A. Zidouri and N. Nawaz, "On Offline Arabic Character Recognition", Computer-Aided Intelligent Recognition Techniques and Applications. John Wiley & Sons, Ltd ISBN: 0-470-09414-1, pp: 1-17, 2005.

Journal Paper	**My Contribution**	
J1	40%	Related to my PhD work
J2	60%	Related to my PhD work
J3	50%	Related to my PhD work
J4	90%	Related to my PhD work
BC1	90%	Related to my PhD work
J5	60%	Not related to my MS or PhD work
J6	60%	Not related to my MS or PhD work
J7	100%	Not related to my MS or PhD work
J8	40%	Not related to my MS or PhD work
J9	25%	Not related to my MS or PhD work
J10	100%	Not related to my MS or PhD work
J11	30%	Not related to my MS or PhD work
J12	100%	Not related to my MS or PhD work
BC2	60%	Not related to my MS or PhD work
BC3	90%	Not related to my MS or PhD work

Conference & Workshop Publications

C1 A. Zidouri, S. Chinveeraphan, and M. Sato, "A Stroke Index For Document Image Analysis Based on The MCR Expression Method," in Proc.MVA'92 IAPR Workshop on Machine Vision Applications, (Tokyo), pp.503--506, Dec.7--9 1992.

C2 A. Zidouri, S. Chinveeraphan, and M. Sato, "Classification of Compound Document Image Patterns by MCR Stroke Index," in Proc. ICDAR'93 2nd Int. Conf. Document Analysis and Recognition, (Tsukuba), pp.753--756, Oct.20--22 1993.

C3 A. Zidouri, S. Chinveeraphan, and M. Sato, "Arabic Character Recognition based on MCR", in Lecture Notes in Computer Science, Image Analysis Applications and Computer Graphics, pp.512-513, Volume 1024/1995. 10.1007/3-540-60697-1.

C4 S. Chinveeraphan, A. Zidouri, and M. Sato, "Stroke Representation by Modified MCR Expression as a Structural Feature for Recognition," in Proc. IWFHR—IV @ 4th Int. Workshop on Frontiers of Handwriting Recognition, (Taipei), pp.11--19, Dec.7--9 1994

C5 S. Chinveeraphan, A. Zidouri, and M. Sato, ``Stroke Extraction as a Basis for Structural Analysis of Document Images by Modified MCR Expression," in Proc. MVA'94 IAPR Workshop on Machine Vision Applications, (Tokyo), pp.135--138, Dec.13--15 1994.

C6 A. Zidouri, S. Chinveeraphan, and M. Sato, ``Structural Features by MCR Expression Applied to Printed Arabic Character Recognition" in 8th Int. Conf. on Image Analysis and Processing}, (San Remo Italy), pp.557--562, Sept. 13-15 1995.

C7 A. Zidouri, "A Structural Description of Binary Document Images: Application for Arabic Character Recognition" Proceedings CISST'2001, Las Vegas Nevada, June 25-28, pp: 458-464, 2001

C8 A. Zidouri and M. Sarfraz, "On Optical Character Recognition of Arabic Text", The 6th Saudi Engineering Conference, KFUPM, Dhahran, December 2002, Vol. 4. pp.109-118.

C9 A. Zidouri, "ORAN: Offline Recognition of Arabic characters and Numerals ", International Conference: Sciences of Electronic, Technologies of Information and Telecommunications, Susa, Tunisia, March 17-21, 2003

C10 A. Zidouri, "Powerful Tool for Arabic Document Understanding", The First GCC Industrial Electrical & Electronics Conference. Manama, Bahrain, May 2003

C11 A. Zidouri, M. Deriche, M. Al-Otaibi, M. Al-Shahrani, M. Al-Mutairi, T. Al-Maleki, S. Al-Ghunaim, A. Al-Nutaifi, H. Al-Issa, F. Al-Anazi, "Design of an LED-Based Message Board" IEEE Saudi Arabian Section 10th Technical Exchange Meeting Dhahran, Saudi Arabia, , proceedings on CD Session V, VLSI & Electronics. pp. 1-4, March 23-24 2003

C12 A. Zidouri, M. Sarfraz, S. N. Nawaz, and M. J. Ahmad, "PC Based Offline Arabic Text Recognition System", Seventh International Symposium on Signal Processing and its Applications, PARIS July 2003, France

C13 M.J. Ahmed, M. Sarfraz, A. Zidouri and W.G. Al-Khatib, "License Plate recognition system" ICECS'2003, 10th IEEE International Conference on Electronics, Circuits and Systems 14-17 pp. 898- 901 Vol.2. Dec. 2003 Sharjah, United Arab Emirates

C14 S. N. Nawaz, M. Sarfraz, A. Zidouri and W.G. Al-Khatib, "An approach to Offline Arabic Character Recognition System" ICECS'2003, 10th IEEE International Conference on Electronics, Circuits and Systems 14-17 pp. 1328- 1331 Vol.3. Dec. 2003 Sharjah, United Arab Emirates

C15 A. Zidouri, "ORAN: A basis for an Arabic Character Recognition System" 2004 International Symposium on Intelligent Multimedia, Video & Speech Processing The Hong Kong Polytechnic University Hong Kong October 20-22, 2004

C16 A. Zidouri, "Feature Index for Document Image Analysis" The second GCC Industrial Electrical & Electronics Conference, 23-25 Nov. 2004 Manama, Bahrain

C17 A. Zidouri, M. Sarfraz, S. A. Shahab and S. M. Jafri "Adaptive dissection based subword segmentation of printed Arabic text" The 9th International Conference on Information Visualisation IV'05 6-8 July, London, ISBN ~ ISSN: 1550-6037, 0-7695-2397-8, pp: 239-243, 2005.

C18 M. Sarfraz, A. Zidouri, and S. A. Shahab, "A Novel Approach for Skew Estimation of Document Images in OCR System" IEEE proceedings of the International Conference on Computer Graphics, Imaging and Vision (CGIV'05), ISBN: 0-7695-2392-7, pp: 175-180, 2005.

C19 A. Zidouri, "PCA-based Arabic Character Feature Extraction", ISSPA-2007, Sharjah, UAE, 12-15 February, 2007.

C20 A. T. Al-Awami, W. Saif, A. Zerguine, A. Zidouri, and L. Cheded "Adaptive Equalization Using Particle Swarm Optimization" ISSPA-2007, Sharjah, UAE, 12-15 February, 2007.

C21 M. Deriche, A. Zidouri, "Recognition of GCC License Plates using Template Matching" in Proc. 5th Congress of Scientific Research Outlook & Technology Development in the Arab World (SRO5), Morocco, Nov., 2008.

C22 A. Zidouri, M. Deriche, "Recognition of Arabic License Plates using Neural Networks", in international Workshop on Image Processing Theory, Tools and Applications, IPTA 08, Tunisia, Nov, 2008.

C23 M. Faiz, A. Zerguine and A. Zidouri, "The Signed Regressor Least Mean Fourth (SRLMF) Adaptive Algorithm" ISSPA'10, May 10-13, pp: 333-336, Kuala Lumpur, Malaysia, 2010.

C24 A. Zidouri, "Convergence Analysis of a Mixed l_2-l_p Adaptive Algorithm", Proceedings of the 18th European Signal Processing Conference (EUSIPCO-2010) Aalborg, Denmark, August 23-27, pp: 1733-1736, 2010.

Conference Paper	**My Contribution**	
C1	80%	Related to my PhD work
C2	80%	Related to my PhD work
C3	80%	Related to my PhD work
C4	60%	Related to my PhD work
C5	60%	Related to my PhD work
C6	80%	Related to my PhD work
C7	100%	Not related to my MS or PhD work
C8	80%	Not related to my MS or PhD work
C9	100%	Not related to my MS or PhD work
C10	100%	Not related to my MS or PhD work
C11	80%	Not related to my MS or PhD work
C12	80%	Not related to my MS or PhD work
C13	70%	Not related to my MS or PhD work
C14	70%	Not related to my MS or PhD work
C15	100%	Not related to my MS or PhD work
C16	100%	Not related to my MS or PhD work
C17	80%	Not related to my MS or PhD work
C18	60%	Not related to my MS or PhD work
C19	100%	Not related to my MS or PhD work
C20	25%	Not related to my MS or PhD work
C21	50%	Not related to my MS or PhD work
C22	80%	Not related to my MS or PhD work
C23	30%	Not related to my MS or PhD work
C24	100%	Not related to my MS or PhD work

Technical Reports Publications

TR1 **A. Zidouri** and M. Sarfraz, Final Report for KFUPM funded Research Project EE/Autotext/232 "Automatic Text Recognition: A Need in Arabization", 9th Feb., 2006.

TR2 A. Abdurrahim, **A. Zidouri**, C. BelHadj, M. AbdulMajid, S. A. Raza, and M. F Kandlawala, Final Report Educational Research Funded Project. EE205 Online Course Development, 2006.

TR3 **A. Zidouri**, A. Abul Hussain, U. Johar and N. Tasadduq, Final Report Educational Research Funded Project. EE204 Online Course Development, 2007.

TR4 M. Deriche, **A. Zidouri**, A. Balghonaim and M. Mohandes, Final Report Research Project, "Development of a Real Time License Plate Recognition System with Arabic Support" 2009.

TR5 **A. Zidouri**, Laboratory Experiments based on the NI Speedy-33 Digital Signal Processing Board. Lab Manual, KFUPM funded laboratory development, 2009.

Publications considered to be the main contribution

The following seven publications are considered the main contributions:

J6 M. Sarfraz, A. Zidouri and S. A. Shahab, "Towards Skew Estimation of Document Images in OCR System", International Journal of Pattern Recognition and Machine Intelligence, International Scientific, Vol. 01(2), 47-56, ISSN 1817-3632, 2006.
OCR systems typically assume that documents are not skewed with horizontal axis. In this paper, we have proposed a new technique for skew estimation of image document. In the proposed scheme, multiscale properties of an image are utilized together with Principal Component Analysis to estimate the orientation of principal axis of clustered data.

J7 A. Zidouri, "ORAN System: a basis for an Arabic OCR", The Arabian Journal for Science and Engineering, King Fahd University of Petroleum and Minerals, Dhahran Saudi Arabia, Vol. 31 -1B, April, 2006.
ORAN system is the basis for a complete Arabic OCR. It has been trained on a popular font called Naskh. Work is going on for the multi-font system. An overall recognition rate of 97.5% was obtained at a speed of about 50 characters per second. The system is trained over a set of documents to take into account the variations due to noise from printing or quantization noise of the scanning device.

J8 K. Mahmood, A. Zidouri and A. Zerguine, "Performance analysis of a RLS-based MLP-DFE in time-invariant and time-varying channels" Digital Signal Processing, Volume 18, Issue 3, May (2008) P. 307-320.

In this work, a recently derived recursive least-square (RLS) algorithm to train multi layer perceptron (MLP) is used in an MLP-based decision feedback equalizer (DFE) instead of the back propagation (BP) algorithm. Its performance is investigated and compared to those of MLP-DFE based on the BP algorithm and the simple DFE based on the least-mean square (LMS) algorithm. The results show improved performance obtained by the new structure in both time-invariant and time-varying channels. The newly proposed structure is a compromise between complexity and performance.

J12 A. Zidouri, "Convergence Analysis of a Mixed Controlled l_2−l_p Adaptive Algorithm," *EURASIP Journal on Advances in Signal Processing*, vol. 2010, Article ID 893809, 10 pages, 2010. doi:10.1155/2010/893809.
A newly developed adaptive scheme for system identification is proposed. The proposed algorithm is a mixture of, the l_2-norm and the l_p-norm ($p \geq 1$). Existing algorithms based on mixed norm, can be considered as a special case of the proposed algorithm. The derivation of the algorithm and its convexity property are reported and detailed. Also, the first moment and the second moment behaviour of the weights are studied. Bounds for the step size on the convergence of the proposed algorithm are derived, and the steady-state analysis is carried out. Finally, simulation results are performed and are found to corroborate with the theory developed.

C13 M.J. Ahmed, M. Sarfraz, A. Zidouri and W.G. Al-Khatib, "License Plate recognition system" ICECS'2003, 10th IEEE International Conference on Electronics, Circuits and Systems 14-17 pp. 898- 901 Vol.2. Dec. 2003 Sharjah, United Arab Emirates
This work is on the design of a car license plate system. The system was done under my supervision by one of my Master students. The system presents an algorithm for the extraction of license plate and segmentation of characters. Recognition is done using template matching. Recognition rate was of about 96% under various illumination conditions.

C14 S. N. Nawaz, M. Sarfraz, A. Zidouri and W.G. Al-Khatib, "An approach to Offline Arabic Character Recognition System" ICECS'2003, 10th IEEE International Conference on Electronics, Circuits and Systems 14-17 pp. 1328- 1331 Vol.3. Dec. 2003 Sharjah, United Arab Emirates
This presents a technique for the automatic recognition of Arabic Characters. The technique is based on Neural Pattern Recognition Approach. The main features of the system are preprocessing, segmentation, feature extraction using centralized moments and recognition using RBF network. The system is implemented in Java under Windows environment.

C17 A. Zidouri, M. Sarfraz, S. A. Shahab and S. M. Jafri "Adaptive dissection based subword segmentation of printed Arabic text" The 9th International Conference on Information Visualisation IV'05 6-8 July, London, ISBN ~ ISSN: 1550-6037, 0-7695-2397-8, pp: 239-243, 2005.
While OCR systems do not need segmentation for printed text for successful recognition, it is essential to design robust and powerful segmentation algorithms or employ segmentation free recognition schemes for printed Arabic text. Even more, in recognition

of handwritten characters, segmentation is considered to be indispensable. Most of current segmentation technique suffers over segmentation and under segmentation in addition to not being adaptive in nature.
In this paper, we have proposed a new segmentation scheme, which is independent of font size and font type.

Citation by other Scientists/Researchers for publications

Citation of J1:

1. Al-Batah, M.S., Mat Isa, N.A., Zamli, K.Z., Azizli, K.A. Modified Recursive Least Squares algorithm to train the Hybrid Multilayered Perceptron (HMLP) network (2010) Applied Soft Computing Journal, 10 (1), pp. 236-244.

2. Ouwayed, N., Belaïd, A., Auger, F. Cohen's class distributions for skew angle estimation in noisy ancient arabic documents (2009) ACM International Conference Proceeding Series, pp. 41-46.

3. Saeed, K., Albakoor, M. Region growing based segmentation algorithm for typewritten and handwritten text recognition (2009) Applied Soft Computing Journal, 9 (2), pp. 608-617.

4. Shirali-Shahreza, M.H., Shirali-Shahreza, S. Persian/arabic text font estimation using dots (2007) Sixth IEEE International Symposium on Signal Processing and Information Technology, ISSPIT, art. no. 4042280, pp. 420-425.

Citation of J3:

1. M Sarfraz, SN Nawaz, A Al-Khuraidly, “Offline Arabic text recognition system”, Proceedings of the 2003 International Conference on Geometric Modeling and Graphics (GMAG’03), ISBN: 0-7695-1985-7, July 16-18, 2003.

Citation of J4:

1. M Sarfraz, SN Nawaz, A Al-Khuraidly, “Offline Arabic text recognition system”, Proceedings of the 2003 International Conference on Geometric Modeling and Graphics (GMAG’03), ISBN: 0-7695-1985-7, July 16-18, 2003.

Citation of J8:

1. Mohammad Subhi Al-Batah , Nor Ashidi Mat Isa , Kamal Zuhairi Zamli , Khairun Azizi Azizli, “Modified Recursive Least Squares Algorithm to Train The Hybrid Multilayered Perceptron (HMLP) Network”, Applied Soft Computing, vol.10 no.1, pp: 236-244, January, 2010.

2. Zainul Abdin Jaffery, “Generalized Neuron Based Adaptive Channel Equalization”, Invertis Journal of Science and Technology, vol.2, no3, pp: 153-160, 2009.

3. Zhang Tian-Yu, (张天瑜), “Research of Modified CMA-DFE Blind Equalization Algorithm”, Journal of Shaanxi University of Science and Technology (Natural Science Edition), vol.27 no4, TN911, 2009. (Original Title: 改进型 CMA-DFE 盲均衡算法的研究).

4. Chang, Y.-J.; Yang, S.-S.; Ho, C.-L.; “Fast self-constructing fuzzy neural network-based decision feedback equaliser in time-invariant and time-varying channels”, doi: 10.1049/iet-com.2009.0402. IET Communications, Vol. 4, issue no. 4, pp. 463–471, 2010.

Citation of C9:

1. Najoua Essoukri Ben Amara and Faouzi Bouslama, “Classification of Arabic script using multiple sources of information: State of the art and perspectives”, International Journal on Document Analysis and Recognition, Volume 5, Number 4, July 2003, DOI: 10.1007/s10032-002-0092-6

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Citation of C13:

1. X. Shi, W. Zhao, Y Shen, “Automatic license plate recognition system based on color image processing”, International Conference on Computational Science and Its Applications–ICCSA – Springer, O. Gervasi et al. (Eds.): ICCSA 2005, LNCS 3483, pp. 1159–1168, 2005. © Springer-Verlag Berlin Heidelberg 2005

2. J.M. Guo, YF Liu, License plate localization and character segmentation with feedback self-learning and hybrid binarization techniques, - IEEE Transactions on Vehicular Technology, vol. 57, no3, pp. 1417-1424, 2008.

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4. 张于青, 鲍劲松, 金烨 (ZHANG Yu-qing BAO Jin-song JIN Ye), “Approach of License Plate Extraction Based on Multi-characteristic”, Computer Engineering and Applications, Vol. 42 no32, TP39, 2006.(in Chinese)

5. MD Saleh, H Mellah, A Mueen, ND Salih, An efficient method for vehicle license plate extraction, Information Technology. 3rd international IT Symposium, 2008

6. Chen-Hsin Huang, Thesis for Master of Science "The Application Of Back Propagation Model To Designing A PDA License Plate Recognition System" Department of Computer Science and Engineering Tatung University June 2004. (Original Title: 應用倒傳遞網路模型設計 PDA 即時車牌辨識系統)

7. Y Hu, X Zhang, F Zhu, H Lv, Image recognition using iterative oblique projection, Electronics Letters, 41, 1109, 2005.

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10. Rong Lia, Musa Yassin Fortb, and Georgios C. Anagnostopoulos "Multi-stage Automatic License Plate Location & Recognition", Advances of Machine Learning in Theory & Applications, 2, 2008.

11. CT Tsai, DT Lin "Automatic License Plate Recognition system" , 18th IPPR Conference on Computer Vision, Graphics and Image Processing (CVGIP 2005) 21-23 August 2005, pp: 605-612,Taipei, ROC, Taiwan.

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1. Zhi-Gang Ning, Ren-Huang Wang, "Automatic Recognition Method for Instrument Display Based on BP Neural", ISSN: 1008-0570(2006)03-1-0198-03. Computer (微计算机信息), Volume 22, 07, 2006.

2. A. M Al-Shatnawi, K Omar, "Methods of Arabic Language Baseline Detection – The State of Art" IJCSNS International Journal of Computer Science and Network Security, VOL.8 No.10, pp: 137-143, October 2008.

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4. A. M Al-Shatnawi, K Omar, “Skew Detection and Correction Technique for Arabic Document Images Based on Centre of Gravity”, Journal of Computer Science, vol.5 no5, pp: 363-368, 2009.

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6. A. M Al-Shatnawi, K Omar, “A Comparative Study between Methods of Arabic Baseline Detection” International Conference on Electrical Engineering and Informatics, 5-7 August 2009, Selangor, Malaysia, pp: 73-77.

7. N. Zhi-gang, W. Ren-huang, “Intelligent Recognition Method of Digital Instrumental Display”, Supported by natural science foundation of Guangdong province (No.4009469) and educational department foundation of Hunan province (No. 04C582).

8. Z. Y. Yuan, D. Y. Zhang, Q Yin, Q Liu, D. C. Shi and M. G. Sun, “Endoscopic Image Classification Based on DWT-CM and Improved BNN for Surgical Tool Appearances”, International Conference on Machine Learning and Cybernetics, 2009.

9. A. M Al-Shatnawi, K Omar, “Methods of Arabic Language Baseline Detection – The State of Art” Arab Research Institute in Sciences & Engineering (ARISER) Vol. 4 No. 4 pp: 185-193, 2008. ISSN 1994-3253.

10. NING Zhigang WANG Renhuang ZHANG Xiaotao TANG Hui, “A seven-segment code recognition method for use with digital instruments implemented by VC+ +”, Industrial Instrumentation & Automation, 2009 (1), TP391.43. (一种采用 VC++ 识别数字仪器七段码的方法)

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Citation of C15:

1. IA Albidewi, “The Use of Object-Oriented Approach for Arabic Documents Recognition”, IJCSNS International Journal of Computer Science and Network Security, VOL.8 No.4, April 2008.

Citation of C17:

1. M. H. Shirali-Shahreza, S. Shirali-Shahreza, “Persian/Arabic text font estimation using dots”, IEEE International Symposium on , vol.10 no.1, pp: 236-244, January, 2010.

2. M. Shirali-Shahreza and S. Shirali-Shahreza "Persian/Arabic Text Font Estimation using Dots," Sixth IEEE International Symposium on Signal Processing and Information Technology, pp: 420-425, 2006.

3. S. A. Mahmoud, A. S. Mahmoud, "Arabic Character Recognition using Modified Fourier Spectrum (MFS)", Geometric Modeling and Imaging-New Trends, vol., no., pp: 155-159, 05-06, July 2006.

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5. K. Saeed, M. Albakoor, "Region growing based segmentation algorithm for typewritten and handwritten text recognition", Applied Soft Computing, Vol. 9, no.2, pp: 608-617, Elsevier Science Publishers, March 2009.

6. J. Cowell, F. Hussain, "A syntactic recognizer for Arabic characters", International Journal of Machine Graphics & Vision, Volume 16, Issue 1 pp: 57-83, ISSN: 1230-0535, (January 2007).

7. A. Elnagar, S. Harous, "Recognition of handwritten Hindu numerals using structural descriptors" Journal of Experimental and Theoretical Artificial Intelligence, 15 (3), pp. 299-314, 2003.

8. A. Elnagar, R. Alhajj and S. Harous, "Term rewriting and its application to recognizing handwritten Hindu numerals", Journal of Experimental and Theoretical Artificial Intelligence, 13 (3), pp. 271-290, 2001.

Citation of C18:

1. Abdullah I. Al-Shoshan, "Arabic OCR Based on Image Invariants", Proceedings of the conference on Geometric Modeling and Imaging: New Trends (GMAI)**,** pp: 150-154, ISBN: 0-7695-2604-7, 2006.

2. A. E Sharif, N Movahhedinia, "On skew estimation of Persian/Arabic printed documents", Journal of Applied Sciences, JAS, vol.8 no12, pp: 2265-2271, 2008.

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4. T K Khan, S M Azam, S Mohsin, "An improvement over template matching using k-means algorithm for printed cursive script recognition", Proceedings of the Fourth IASTED, International Conference: Signal Processing, Pattern Recognition, and Applications, pp: 209-214, Innsbruck, Austria, 2007.

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6. H Fan, L Zhu, Y Tang, “Skew detection in document images based on rectangular active contour”, International Journal on Document Analysis and Recognition (IJDAR), Springer-Verlag, Published online DOI 10.1007/s10032-010-0119-3, May 13, 2010.

7. S M Azam, Z A Mansoor, M Sharif, “On fast recognition of isolated characters by constructing character signature database”, In IEEE International Conference on Emerging Technologies (ICET’2006), Nov, 2006, Peshawar, Pakistan.

8. Somwanshi, Devendra Kumar (Guide: Kaur, Gagandeep), “Image Acquisition Recognition and Speech Conversion”, Master Thesis, Electrical & Instrumentation Engineering Department, Thapar University, Patiala, September 15 2009.

FUNDED RESEARCH PROJECTS

TRP	Project	Funding Agency
1	**Automatic Text Recognition: A Need in Arabization.** *A study to develop a system for Automatic Arabic text recognition.* **(PI) (May 2002- October 2005)**	Internal KFUPM
2	**EE205 Electrical Circuits II, online course development.,** *This on line course will provide professionally prepared web based class materials, comprehensive set of interactive learning exercises for self-study and self-assessment, audio/visual material to be synchronized with class presentations.* **(CI) (May 2005-June 2006)**	E-Learning Center, DAD, KFUPM
3	**EE204 Fundamentals of Electrical Circuits, online course development.,** *This on line course will provide professionally prepared web based class materials, comprehensive set of interactive learning exercises for self-study and self-assessment, audio/visual material to be synchronized with class presentations.* **(PI) (May 2006-June 2007)**	E-Learning Center, DAD, KFUPM
4	**Digital Signal Processing Laboratory Development**. *Design and development of seven Laboratory Experiments based on the NI Speedy-33 Digital Signal Processing Board. Writing a detailed step by step Lab manual for the experiments.* (**Summer 2009**)	Summer Assignment, KFUPM
5	**Development of a Real Time License Plate Recognition System with Arabic Support.** *A study to develop an Arabic-support License Plate Recognition (LPR) system with as few constraints as possible on the working environment. The proposed LPR technique consists of two major stages: a license plate localization module and a license number identification module.* **(CI) (February 2008-December 2009)**	Arab Science & Technology Foundation (ASTF)
6	Study Corrosion Evaluation Using New Electrochemical Impedance Measurement Technique. My task is modeling and simulation. (**2008-2010**) (In Progress)	KACST

Research Reports Submitted

TRP1 Final report on, "EE205 Electrical Circuits II, Online Course", funded by KFUPM, submitted to E-Learning Center at KFUPM, May 2005.

TRP2 Final report on, "Automatic Text Recognition: A Need in Arabization", Funded by Deanship of Scientific Research (DSR), KFUPM, submitted to DSR, KFUPM, 2006.

TRP3 Final report on, "EE204 Fundamentals of Electrical Circuits, Online Course", funded by KFUPM, submitted to E-Learning Center at KFUPM, June 2007.

TRP4 Final report on, "Development of a Real Time License Plate Recognition System with Arabic Support", submitted to Arab Science & Technology Foundation, December, 2009.

TRP5 Final report on, "Digital Signal Processing Laboratory, Experiments Development", funded by KFUPM, submitted to the Department of Electrical Engineering, August, 2009.