

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS
ELECTRICAL ENGINEERING DEPARTMENT

Abdelmalek ZIDOURI

Summary of Experience Record

5 June 2010

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ABDELMALEK ZIDOURI**PERSONAL DATA**

Date of Birth: January 1st, 1960
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EDUCATION:

- 1991-1995 Ph.D. (Doctor of Engineering)
Tokyo Institute of Technology, Tokyo, Japan.
Area of Specialization: Applied Electronics.
- 1982-1984 M.Sc. Control Engineering
University of Bradford, Bradford, UK.
Area of Specialization: Signal Processing and Modern Control Theory
- 1979-1982 B.Eng. Electrical and Electronics Engineering
University of Bradford, Bradford, UK.
Area of Specialization: Electrical and Electronics

Ph.D. Dissertation:

Arabic Document Image Analysis and Recognition Based on Minimum Covering Run

Masters Thesis:

Using a Storage Tube Display For Computer Graphics

B.S. Senior Project:

Motor Speed Control Using Silicon Controlled Rectifiers (Thyristors)

EMPLOYMENT HISTORY:

May 2011- Present	Associate Professor , Electrical Engineering Department, KFUPM, Dhahran, Saudi Arabia.
Sept. 1999- May 2011	Assistant Professor , Electrical Engineering Department, KFUPM, Dhahran, Saudi Arabia.
Jan. 1996- Aug. 1999	System Administrator, System and Network Engineer Torindo Co. Ltd., Chiyoda-Ku, Tokyo, Japan.
Sept. 1995-Dec. 1995	Associate Visiting Scholar , Precision and Intelligence Laboratory, Tokyo Institute of Technology, Yokohama, Japan
Sept. 1984- March 1991	Lecturer , Department of Electronics, University of Science and Technology, Oran, Algeria.

CAREER OBJECTIVES AND RESEARCH INTERESTS:

Area of Specializations: Signal and Image Processing.

Research Interests: Document Image Analysis and Understanding.
 Pattern Classification and Recognition.
 Arabic Character Recognition and Segmentation.
 Adaptive Filtering and Equalization.

PROFESSIONAL ASSOCIATION AND HONORS

- IEEE Senior Member since 1995. Signal Processing Society, Computer Society, Communications Society and Education Society.
- KFUPM 10 Years, Long Service Award, 2009.
- Department Services Award, Electrical Engineering, KFUPM. 2007.
- Japanese Mombusho Scholarship 1991-1995, Tokyo Institute of Technology.
- IEICE Member, 1993-1995.
- Graduated Honors, 1982, Bradford University, UK.
- SONATRACH Scholarship 1978-1984, Bradford University.
- Bronze Medal in Mathematics, National Competition 1976. Reception by Houari Boumediene, Algerian President, with best performing Baccalaureate students.
- Regional Editor for Research Journal of Information Technology (RJIT), 2010.
- Associate Editor of Research Journal on Applied Sciences, Engineering and Technology (RJASET), 2010.

EXECUTIVE SUMMARY

TEACHING STATEMENT

My Teaching Philosophy

Eager to transfer knowledge and experience to students and bring them into the twenty-first century using a unique combination of education experience coupled with three years' industry background in computer systems management and administration.

I believe that teaching is much more than presenting information in a convenient format and completing a textbook with the students. Certainly, presenting material clearly and creatively is an expected goal of a faculty member, but I feel it is equally important to inspire students to solve problems independently and to help them stop and evaluate the potential consequences of their solutions and recommendations on society. Thus, I encourage student response in the form of brainstorming and analysis to foster growth as well as the acquisition of information that they are studying. Helping students to be creative and self-reliant is one of the most rewarding aspects of teaching at the university level.

I believe the ideal teacher strives to leave students wishing to continue learning more about the subject after the final class, rather than having students feel relieved that the course is finished. Therefore, I endeavor to treat students with respect, and maintain a two-way relationship that leaves students free to ask questions in class and during office visits.

I also believe in the effectiveness of group work in most of my classes, where students can engage in thoughtful discussion. This human interaction stimulates the cooperative environment in which engineers must often function on a daily basis. Most of the group projects I assign culminate in a written or oral presentation so that communication skills can be practiced while information is shared with the rest of the class.

My Teaching Experience

In my teaching career, I have taught nine different undergraduate courses, four different labs and two graduate courses EE562 & EE599. I have developed the material for the graduate course EE562 "Digital Signal Processing I" and taught the course.

I see my responsibility as a faculty member in the broadest sense. I have started developing a signal processing lab. The lab will stimulate students' interest in the area of signal processing & help them acquire skills in the design & development of many useful applications. It is equipped with one of the most recent compact vision systems. It will help both researchers in the field and senior project students. It can also serve as an initiation of new students to attract them to the signal processing area of specialization.

Since the introduction of WebCT at KFUPM and Blackboard, I participated in utilizing WebCT for three years and continue until present time with Blackboard for all my courses. I participated in the design and development of two online courses: EE205 "Electrical Circuit II" and EE204 "Electrical Circuit Fundamentals". The WebCT (Blackboard) is a web-based tool which allows students to obtain information and materials related to their courses, and at the same time it is used for communication between the instructors and students.

I offered about 20 senior Capstone Projects during the past 10 years in the areas of Digital Circuits, Pattern Recognition, and Electronics. Some of these projects were built as prototypes and presented in many student activities such open days and career days such as the bilingual message board. Also, I participated in the introduction of EE Department to High School students in few occasions.

I supervised many Coop students in different companies where they get exposed to the working environment and gain experience. Most of the time, the students also secure a position after graduation in that company, if they are well advised and if they prove themselves through different propositions, and get involved through different case studies that would benefit the company.

I do believe that teaching never stops improving. Therefore, I have participated in most of the workshops offered by KFUPM Academic Development Center including “Discussion Forum on Faculty Evaluation by Students; Workshop on Instructional Technology: Training Sessions; Discussion Forum on Student Learning at KFUPM: Challenges and Opportunities; Workshop on Striving for Excellence in University teaching and Learning.

I was candidate for the award of best use of technology in teaching, during the academic year 2003-2004 and candidate for the best teacher Award 2006-2007.

RESEARCH CONTRIBUTION

Most of my research is demand driven, and since obtaining my Ph.D., I have been working on different funded projects. My independent research work has led to several journal and conference publications.

I am the principal investigator or a member of several funded team projects. The list of these projects includes: Automatic Text Recognition: A Need in Arabization, an internally funded project. A study to develop a system for Development of a Real Time License Plate Recognition System with Arabic Support, funded by Arab Science & Technology Foundation (ASTF). Study Corrosion Evaluation Using New Electrochemical Impedance Measurement Technique, funded by King Abdul Aziz City of Sciences and Technology (KACST). Two educational Microelectronics online courses projects were developed for E-Learning center at KFUPM. These research projects amount to over SAR 1,500,000 in funding.

My roles in these projects were/are:

- (PI) Automatic Text Recognition: A Need in Arabization. I am the principal investigator of the project. We developed a system for Arabic text recognition. I supervised two Master students out this project. **(2002-2005)** (Completed)
- (CI) Developing EE205 Electrical Circuits II online course for the Deanship of Academic Development using WebCT, Audio, and Authorware software. The purpose of the project was to prepare tangible learning tools to boost students' academic performance and better understanding. **(2004-2005)** (Completed)
- (PI) Developing EE204 Fundamentals of Electric Circuits online course for the Deanship of Academic Development using WebCT, Audio, and Authorware software. I am the principal investigator of the project. This is the continuation of the effort to improve the students' academic performance. **(2005-2006)** (Completed)
- (CI) Development of License Plate Recognition System. Being the expert in Character recognition among the team members my task was the recognition part of the project. This includes the literature survey and the algorithms for segmentation and recognition. **(2007-2009)** (Completed)
- (I) Lab Development Assignment. I developed seven laboratory experiments based on the NI Speedy-33 Digital Signal Processing Board. I prepared a detailed step by step Lab Manual for all the experiments. **(2009)** (Completed)

I have been involved as a co-chairman and committee member of Master thesis for 7 graduate students in pattern recognition and signal processing area. Also, I reviewed several Research Reports, Journal, and Conference papers in the field of Image Processing, Character Recognition, and Adaptive Signal Processing.

I am a Regional Editor for Research Journal of Information Technology (RJIT), (2010) and an Associate Editor of Research Journal on Applied Sciences, Engineering and Technology (RJASET), (2010).

KEY QUALIFICATIONS

Certified in java programming and introduction to SQL & PL/SQL under oracle academic initiative program.

Plan and instruct each subject area using wide variety of teaching aids, motivational and implementation strategies to engage students in active learning.

Incorporate learning modality principles into classroom and individual instruction.

Develop and conduct surveys to enhance and improve course content delivery effectiveness and motivation. Implement technological approaches to subject material. Search continuously for new educational resources on the internet. Assist novice students with information retrieval.

UNIVERSITY AND DEPARTMENT SERVICES

I have actively participated in many committees at KFUPM. Under University committees, I served on the Committee on Convocation, Honors, & Public Events. Under the department committees, I have been actively involved in the Services Department Committee, Computer Utilization Committee, Applied Engineering Committee, Project/Seminars & Speaker Committee and the Planning Committee. During this service I have accomplished numerous tasks enhancing the quality of teaching and research at KFUPM.

My service has been particularly outstanding as the chairman of the Project/Seminars & Speaker Committee during many years 2004-2007 and as a member of the Services Department Committee and Planning Committee.

I was the recipient of the Services Award for year 2006.

Also, I served in the Applied Engineering Committee and as an active Committee Member for IEEE Conferences and IEEE Technical Exchange meetings for over ten years.

I have presented talks and seminars at many local and international conferences including the Electrical Engineering Department, and the EE students Club.

Signal Processing Group Member and Head of the Group

I am a member of Digital Signal Processing (DSP) Group. I was the head of the (DSP) Group for more than two years. During this period I acquired a space for the Group in our new building to establish a Signal Processing Lab. I designed and developed seven Laboratory Experiments based on the NI Speedy-33 Digital Signal Processing Board. The purpose of the DSP Lab is to help both researchers in the field and senior project students. It can also serve as an initiation of new students to attract them to the signal processing area of specialization.

Saudi Technical Exchange Meeting 2003

I was a Chairman of the Local Arrangement Committee. Also, to encourage students I published a paper in the IEEE Technical Exchange Meeting co-authored with two groups of students of senior projects who participated in the design of the electronic message board. A

recognition and appreciation certificate was awarded for this initiative from the IEEE Saudi Section.

6th Saudi Engineering Conference 2002

I was a member of the Social and Local Arrangement Committee.

The committee was responsible for organizing the social activities in and out the KFUPM Campus. We arranged housing for guest speakers from in and out of the Kingdom of Saudi Arabia. Catering for refreshment, lunches, dinners for the conference was booked and followed up. Also, transportation for our guest speakers was provided through car rental. We formed subcommittee for reception to receive our invited guests.

2nd IEEE GCC Conference 2004

I was actively involved in the 2nd IEEE GCC Conference in November 2004. A certificate of recognition was presented to me in recognition of my contribution to the event by IEEE Gulf Cooperation Council sections.

OTHER ACTIVITIES & COMMUNITY SERVICES

I provided community services in Japan and Saudi Arabia to local, regional and international events. I was selected as an official guide to the 12th Asian Games in Hiroshima, as a volunteer guide to athletes as I speak Arabic, English, French and Japanese. I helped in the local arrangement committees of conferences and technical exchange meetings in KFUPM. Also as a host to new faculty comers in many occasions.

TEACHING

Taught 9 different undergraduate courses at different levels and 4 different undergraduate labs, and two graduate courses at KFUPM in the past 10 years. Average student's evaluation for undergraduate courses was **8.14/10**, for labs was **7.7/10** and for graduate course was **9.30/10**. The average for undergraduate courses is **8.5/10** for the last 5 years.

Term	Course Number	Course Name	Course Coordination	Student Evaluation
991	EE203-03	Electronics I		7.57
991	EE203-04	Electronics I		7.19
991	EE203-56 (Laboratory)	Electronics I	C	7.81
992	EE201-01	Electric Circuits I		8.59
992	EE203-04	Electronics I		7.68
992	EE203-07	Electronics I		7.63
001	EE203-03	Electronics I		6.45
001	EE203-05	Electronics I		7.67
001	EE205-02	Electric Circuits II		6.94
002	EE203-03	Electronics I	C	7.52
002	EE203-07	Electronics I	C	7.11
002	EE205-01	Electric Circuits II		7.72
011	EE203-03	Electronics I		6.92
011	EE203-05	Electronics I		7.43
011	EE303-01	Electronics II		6.84
012	EE201-03	Electric Circuits I		7.85
012	EE303-02	Electronics II		7.30
012	EE303-51 (Laboratory)	Electronics II		7.14
021	EE204-02	Fundamentals of Electrical Circ.		8.88
021	EE204-06	Fundamentals of Electrical Circ.		8.57
021	EE204-55 (Laboratory)	Fundamentals of Electrical Circuits		7.91
022	EE200-02	Digital Logic Circuit Design		7.93
022	EE203-07	Electronics I		8.01
022	EE203-09	Electronics I		8.32
031	EE200-01	Digital Logic Circuit Design		8.24
031	EE200-02	Digital Logic Circuit Design		7.43
031	EE406-01	Digital Signal Processing	C	7.10
032	EE201-01	Electric Circuits I		8.71

032	EE201-04	Electric Circuits I		8.47
032	EE207-03	Signals and Systems		7.01
041	EE201-04	Electric Circuits I	C	8.28
041	EE201-10	Electric Circuits I	C	9.12
041	EE406-01	Digital Signal Processing	C	8.86
042	EE205-03	Electric Circuits II	C	8.71
042	EE205-05	Electric Circuits II	C	8.79
042	EE205-06	Electric Circuits II	C	9.29
051	EE205-01	Electric Circuits II	C	7.66
051	EE205-02	Electric Circuits II	C	8.51
051	EE406-01	Digital Signal Processing	C	9.25
051	EE599-01	Seminar	C	
052	EE205-01	Electric Circuits II		8.58
052	EE205-02	Electric Circuits II		8.54
052	EE599-01	Seminar	C	
061	EE201-60 (Laboratory)	Electric Circuits I		8.19
061	EE205-01	Electric Circuits II	C	9.71
061	EE205-02	Electric Circuits II	C	9.00
061	EE599-01	Seminar	C	
062	EE205-05	Electric Circuits II		8.25
062	EE205-06	Electric Circuits II		8.03
062	EE599-01	Seminar	C	
063	EE201-01	Electric Circuits I		9.30
063	EE205-01	Electric Circuits II		8.36
071	EE204-02	Fundamentals of Electrical Circ.		7.89
071	EE204-07	Fundamentals of Electrical Circ.		8.66
071	EE204-51 (Laboratory)	Fundamentals of Electrical Circuits		7.06
071	EE599-01	Seminar	C	
072	EE204-01	Fundamentals of Electrical Circ.		8.32
072	EE205-02	Electric Circuits II		8.44
072	EE599-01	Seminar	C	
073	EE204-02	Fundamentals of Electrical Circ.		8.55
073	EE205-01	Electric Circuits II		7.46
081	EE205-02	Electric Circuits II		8.16
081	EE315-01	Probabilistic Methods	C	7.92
082	EE205-05	Electric Circuits II		8.78
082	EE315-01	Probabilistic Methods	C	8.33
091	EE201-03	Electric Circuits I	C, LC	8.82
091	EE201-07	Electric Circuits I	C, LC	8.42
091	EE562-01	Digital Signal Processing I	C	9.30

092	EE201-03	Electric Circuits I		9.05
092	EE201-04	Electric Circuits I		8.11

C: Course Coordinator

LC: Lab Coordinator

Course and Laboratory and Seminars Coordination

Semester	Course	Status
032	EE201 Electrical Circuit I (Total of Students \approx 160)	Coordinator
002	EE203 Electronics I (Total of Students \approx 120)	Coordinator
041	EE406 Digital Signal Processing (Total of Students \approx 25)	Coordinator
041	EE201 Electrical Circuit I (Total of Students \approx 220)	Coordinator
042	EE205 Electrical Circuit II (Total of Students \approx 150)	Coordinator
051	EE205 Electrical Circuit II (Total of Students \approx 90)	Coordinator
051	EE406 Digital Signal Processing (Total of Students \approx 12)	Coordinator
051	EE599 Projects and Seminars (Total of P.G. Students \approx 10)	Coordinator
052	EE205 Electrical Circuit II (Total of Students \approx 90)	Coordinator
052	EE406 Digital Signal Processing (Total of Students \approx 12)	Coordinator
052	EE599 Projects and Seminars (Total of P.G. Students \approx 10)	Coordinator
061	EE205 Electrical Circuit II (Total of Students \approx 90)	Coordinator
061	EE599 Projects and Seminars (Total of P.G. Students \approx 10)	Coordinator
062	EE205 Electrical Circuit II	Coordinator

	(Total of Students \approx 150)	
062	EE599 Projects and Seminars (Total of P.G. Students \approx 10)	Coordinator
063	EE201 Electrical Circuit (Total of Students \approx 40)	Coordinator
063	EE205 Electrical Circuit II (Total of Students \approx 30)	Coordinator
071	EE204 Fund. of Electrical Circ. (Total of Students \approx 180)	Coordinator
071	EE599 Projects and Seminars (Total of P.G. Students \approx 15)	Coordinator
072	EE204 Fund. of Electrical Circ. (Total of Students \approx 180)	Coordinator
072	EE599 Projects and Seminars (Total of P.G. Students \approx 10)	Coordinator
073	EE205 Electrical Circuit II (Total of Students \approx 50)	Coordinator
073	EE204 Fund. of Electrical Circ. (Total of Students \approx 60)	Coordinator
081	EE205 Electrical Circuit II (Total of Students \approx 90)	Coordinator
081	EE315 Probabilistic Methods (Total of Students \approx 70)	Coordinator
082	EE315 Probabilistic Methods (Total of Students \approx 70)	Coordinator
091	EE201 Electrical Circuit Lab (Total of Students \approx 220)	Coordinator
091	EE201 Electrical Circuit I (Total of Students \approx 220)	Coordinator

Course and Lab Development

- (1) Developed EE205 Electrical Circuits II, online course. This online 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. (Summer 2006).
- (2) EE204 Fundamentals of Electrical Circuits, online course development. This online course for non Electrical Engineers 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. (Summer 2007).
- (3) Developed the Digital Signal Processing Lab. It could serve our EE411 (Senior Capstone Project) as well as other communications and signal processing courses. I designed and developed seven Laboratory Experiments based on the NI Speedy-33 Digital Signal Processing Board. The purpose of the DSP Lab is to help both researchers in the field and senior project students. It can also serve as an initiation of new students to attract them to the signal processing area of specialization. (Summer 2009).
- (4) Prepared a detailed Laboratory Manual for the above developed seven Laboratory Experiments. This is a step by step guide for students and instructors to carry out the different experiments.

Student Advising

Supervised on average about 25 undergraduate students every semester during the past 10 years. Meeting with students on regular bases in my office, by email, and telephone to discuss their degree plan and other issues related to their finishing the requirement of their BS degree.

Capstone Projects

Supervised a total of over 55 capstone project students

Semesters	Student Names	Capstone Project Title
002	Mubarak Al-Gahtani Hamdan Al-Anazi Mufarreh Al-Sharari Hamal Al-Najrani	Design of a Sewage System Control Using PLC Controller
021	Shaker Al-Gunaim Abdul Aziz Al-Nutaifi Hassan Al-Issa Faisal Al-Anazi	Electronic Message Display Board
022	Mohamed Alshahrani Mohamed Al Otaibi Talal Al Malki Munif Al Mutairi	PC based Message Board
031	Sultan Al-Nakhli Saad Al-Muhaimeed Abdul-Rahman Hajaj Abdullah Al-Najjar	Saudi License Plate Recognition
032	Hamzah Al-Ameer Fadhil Al-Nakhli Basel Al-Aleiw Muhammed Al-Hammad	PC based Message Board with Arabic support
052	Ali Hassan Al-Ghamdi Abdullah Falah Al-Anazi Fahad Saleh Al-Azzam Muhannad Amin Al-Ghanim Majdi Ahmad Al-Qasimi	Design of a Bi-Directional Light Sensitive Traffic Counting System
071	Fares Humoud Al-Nufaii Saeed Muhammad Al-Ahmari Qasim Salem AL-Harbi Abdullah Muhamad Al-Fayed	A Random Signal Generator Design
071	Fadhel Al-Shahrani Tahnoun Al-Zunaidi	Compound Document Image Parsing I

	Mohammad Al-Sufyani Fahd Al-Anazi	
071	Muayyed Al-Kadem Ali Al-Muazni Mahdi Al-Saeed Hussain Al-Marzooq	Design of a Finger Print Matching System
072	Abdullah Al-Zouri Rami Al Janbi Khaled Al-Zahrani Abdul-Rahman Ogailan	Universal Mobile Phone Charger I
072	Ali Al-Salem Hassan Al-Besher Hatem Al-Amri Hisham Thabet	Identifying People Using their Face Images
072	Abdul Hadi Al-Anezi Fahd Al-Abdali Abdurrahman Al Garni Faisal Al-Shehri	Compound Document Image Parsing II
072	Mohsin Al-Saif Muhammad Al-Mutawwa Hamad Al-Jafar Talal Al-Buluwi	Universal Mobile Phone Charger II
082	Hamad Al-Jaloud Nayef Al-Gahtani Osama Al-Ofi Fahad Al-Ajmi	Image Processing Operations Using NI Vision System

Coop Students:

- Supervised and examined more than 30 COOP students through the ten years at KFUPM. I listed the most recent data for supervised students only.

033-041	Al-Juhani, Mohammed AbdulAziz	Synchronous Digital Hierarchy in Saudi Telecom
033-041	Mohammed Taha Shabrawishi	Digital Switching Systems at Lucent Technologies
033-041	Umar Al-Shangiti	Kenwood VHF FM Transceiver and the Norstar Key Telephone System in Saudi ARAMCO
052-053	Al-Ahmadi, Hani	Saudi Aramco Mobile Refinery (SAMREF) Electrical Power System
062-063	Al-Atawi, Khaled Saleem	AlJawal Department Eastern Region Branch in Saudi Telecom
062-063	AL-Masoudi Fahad Mubarak	Department of Network Operation Eastern Region Branch in Saudi Telecom
063-071	AbdulWahab Al-Shahrani	Substation Maintenance in SEC
072-073	Ali E. Al-Garni	Khurais Project in Saudi ARAMCO
073-081	Al-Anazi, Waleed Kalid	JU'AYMAH Gas Plant Maintenance unit in Saudi ARAMCO
073-081	Saeed Saleh Al-Zahrani	PETROKEMYA Utility Improvement Project and Variable Speed Drive in SABIC
083-091	Al-Otaibi, Shabib	Load in Kingdom of Saudi Arabia, in Saudi ARAMCO
092-093	Mohammad Merza Al-Khudher	Communication project Division, Pipelines project department Saudi ARAMCO (in Progress)

Summer Training Reports

Supervising and examining over 40 senior engineering science students for summer training program.

RESEARCH AND RELATED ACTIVITIES

My research experiences cover diversified fields in basic research and engineering applications in signal and image processing. These fields are:

- Document Image Analysis and Understanding.
- Pattern Classification and Recognition.
- Image and Signal Processing.
- Arabic Characters Recognition and Segmentation.
- Adaptive Filtering and Equalization.

My focused areas of research are in the broad area of signal and image processing, and extend to include such engineering applications such as the OCR systems and their related problems of character recognition and segmentation. It includes license plate localization, registration and recognition with all related problems of color, lighting, car movement etc... It also includes other pattern classification, segmentation and recognition. For the signal processing part it includes signal processing for communications, algorithms, adaptive filtering, equalization and all MSE related issues.

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*, (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. M. U. Faiz, A. Zerguine and A. Zidouri, "The Signed 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 l2–lp 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	30%	Not related to my MS or PhD work
J10	100%	Not related to my MS or PhD work
J11	100%	Not related to my MS or PhD work
J12	30%	Not related to my MS or PhD work
J13	100%	Not related to my MS or PhD work
J14	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. M. U. 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	30%	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.

- J13** A. Zidouri, "Convergence Analysis of a Mixed l_2 - l_p Adaptive Algorithm", EURASIP Journal on Advances in Signal Processing, (Accepted Oct. 2010).
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 Abidin 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).

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
2. German Research Center for Artificial Intelligence GmbH, Literature Information and Documentation System (LIDOS), BibTeX Database File ic-95_a42340-453.bib

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.
3. Y Hu, F Zhu, X Zhang "A novel approach for license plate recognition using subspace projection and probabilistic neural network" Advances in Neural Networks, J. Wang, X. Liao, and Z. Yi (Eds.): ISNN 2005, LNCS 3497, pp. 216–221, 2005. © Springer-Verlag Berlin Heidelberg 2005.
4. 张于青, 鲍劲松, 金焯 (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.
8. H Huang, M Gu, H Chao, "An Efficient Method of License Plate Location in Natural-Scene Image" Fuzzy Systems and Knowledge Discovery, October 18-20 2008. ISBN: 978-0-7695-3305-6
9. Haiqi Huang, Ming Gu, Hongyang Chao, "An Efficient Method of License Plate Location in Natural-Scene Image," FSKD, vol. 4, pp.15-19, 2008 Fifth International Conference on Fuzzy Systems and Knowledge Discovery, 2008

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.
12. BNGÖL, Ö KUŞCU, Bilgisayar Tabanlı Araç Plaka Tanıma Sistemi (Computer Based Vehicle Plate Recognition System) *TECHNOLOGICAL Journal of Cognition*, vol. 1, no 3, September 2008, Turkey.

Citation of C14:

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.
3. S Abdulla, A Al-Nassiri, R Abdul Salam, “Off-Line Arabic Handwritten Word Segmentation Using Rotational Invariant Segments Features”, *The International Arab Journal of Information Technology*, vol.5 no2, pp: 200-208, April 2008.
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.
5. S. Farhan, M.A. Fahiem, H. Tauseef, “Geometrical Features Based Approach for the Classification and Recognition of Handwritten Characters”, *Proceedings of the 2nd IEEE International Conference in Visualization, Viz09, Barcelona, Spain, July 2009*.
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)
11. NING Zhi-gang WANG Ren-huang ZHANG Xiao-tao "A High Performance Seven Segment Display Recognition Approach Based on RBF Neural Network", *Microelectronics & Computer*, vol. 22 no. 12, 2005, TP751, (一种基于 RBF 神经网络快速准确七段码识别方法).

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.
4. S. A. Mahmoud, A. S. Mahmoud, "Arabic Character Recognition Using Modified Fourier Spectrum (MFS) VS. Fourier Descriptors", *International Journal of Cybernetics and Systems*, Volume 40, no.3, pp: 189-210. (April 2009).
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.
3. Abdullah I. Al-Shoshan, "Arabic OCR Based on Image Invariants," *Geometric Modeling and Imaging--New Trends*, pp. 150-154, *Geometric Modeling and Imaging--New Trends (GMAI'06)*, London, July 05-06, 2006.
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.
5. N Ouwayed, A Belaïd, F Auger, "Cohen's Class Distributions for Skew Angle Estimation in Noisy Ancient Arabic Documents", *Proceedings of The Third Workshop on Analytics for Noisy Unstructured Text Data*, ISBN: 978-1-60558-496-6, pp: 41-46, Barcelona, Spain, 2009.
6. H Fan, L Zhu, Y Tang, "Skew detection in document images based on rectangular active contour", *International Journal on Document Analysis and Recognition (IJ DAR)*, 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. <i>A study to develop a system for Automatic Arabic text recognition. (PI) (May 2002- October 2005)</i>	Internal KFUPM
2	EE205 Electrical Circuits II, online course development., <i>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)</i>	E-Learning Center, DAD, KFUPM
3	EE204 Fundamentals of Electrical Circuits, online course development., <i>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)</i>	E-Learning Center, DAD, KFUPM
4	Digital Signal Processing Laboratory Development. <i>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)</i>	Summer Assignment, KFUPM
5	Development of a Real Time License Plate Recognition System with Arabic Support. <i>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)</i>	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.

MASTER AND DOCTORAL STUDENT SUPERVISION

- Prepared a Ph.D. entrance exam for two students (2009).
- Comprehensive Exam coordinator for two PhD students (2010).
- Serving as co-advisor and committee member for seven Master students.

Student Name	Thesis Title	Status
Syed Nazim Nawaz (Co-Advisor)	Offline Arabic Character Recognition System	Completed 2003
Mohammed Jameel Ahmed (Co-Advisor)	License Plate Recognition System	Completed 2003
Mayowa Kassim Aregbesola (Member)	Code Acquisition In DS-CDMA Systems – Optimization And DSP Implementation	Completed 2005
Syed Ali Aamir Imam (Member)	Noise-Constrained Least Mean Fourth Adaptive Algorithm	Completed 2007
Syed Mohamed ASAD (Member)	A Variable Step Size Least Mean Fourth Algorithm of the Quotient form	Completed 2009
Mohammad Siddiqui (Member)	Dempster Shafer fusion of ECG/EEG Signals for seizure detection	Completed 2011
Mohammad Anquir (Member)	Tracking Analysis of e-NLMS and Leaky e-NLMS Algorithms for Colored Gaussian Inputs	Completed 2011

PROFESSIONAL ACTIVITIES

I acted as technical committee member of many conferences and reviewed many papers. I reviewed many research proposals and projects. I reviewed for some international Journals like IJDAR (International Journal of Document Analysis and Recognition).

I am a Regional Editor for Research Journal of Information Technology (RJIT), and an Associate Editor of Research Journal on Applied Sciences, Engineering and Technology (RJASET), (2010).

TECHNICAL CONFERENCE ATTENDANCE AND PRESENTATIONS:

Technical Conference and Symposia Attendance with Presentation:

- 1 Presented: "A Strokeness Index by MCR Expression for Document Image" in the 1992 IEICE Fall Conference, (Tokyo), Sept. 27-30 1992.
- 2 Presented: "A Stroke Index for Document Image Analysis Based on the MCR Expression Method," in MVA'92 IAPR Workshop on Machine Vision Applications, (Tokyo), Dec.7-9 1992.
- 3 Presented: "Classification of Compound Document Image Patterns by MCR Stroke Index," in ICDAR'93 2nd International Conference on Document Analysis and Recognition, (Tsukuba), Japan, Oct. 20-22 1993.
- 4 Presented: "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), December 7-9 1994
- 5 Presented: 'Structural Features by MCR Expression Applied to Printed Arabic Character Recognition' in 8th Int. Conf. on Image Analysis and Processing}, (San Remo Italy), Sept. 13-15 1995.
- 6 Presented: Structural Features by MCR Expression Applied to Printed Arabic Character Recognition in 6th International Conference CAIP '95, Prague, Czech Republic, September 6-8, 1995
- 7 Presented: "A Structural Description of Binary Document Images: Application for Arabic Character Recognition" Proceedings CISST'2001, Las Vegas Nevada, June 25-28, 2001
- 8 Presented: "On Optical Character Recognition Of Arabic Text", The 6th Saudi Engineering Conference, KFUPM, Dhahran, December 2002.
- 9 Presented: "Powerful Tool for Arabic Document Understanding", The First GCC Industrial Electrical & Electronics Conference. Manama, Bahrain, May 2003

- 10 Presented: "PC Based Offline Arabic Text Recognition System", Seventh International Symposium on Signal Processing and its Applications, PARIS July 2003, France
- 11 Presented: "Offline Arabic Character Recognition System" ICECS'2003, 10th IEEE International Conference on Electronics, Circuits and Systems 14-17 Dec. 2003 Sharjah, United Arab Emirates
- 12 Presented: "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
- 13 Presented: "Feature Index for Document Image Analysis" The second GCC Industrial Electrical & Electronics Conference, 23-25 Nov. 2004 Manama, Bahrain
- 14 Presented: "Adaptive dissection based subword segmentation of printed Arabic text" The 9th International Conference on Information Visualization IV'05 6-8 July, London, 2005.
- 15 Presented: "PCA-based Arabic Character Feature Extraction", ISSPA-2007, Sharjah, UAE, 12-15 February, 2007.
- 16 Presented: "The Signed Regressor Least Mean Fourth (SRLMF) Adaptive Algorithm" International Symposium on Signal Processing and its Applications, Kuala Lumpur, Malaysia, May 2010.

Technical Conference and Symposia Attendance without Presentation:

STEM'2010: 14th Saudi Technical Exchange Meeting, May 31st-June 2, 2010, KFUPM, Dhahran, Saudi Arabia.

ICASSP'2009: 2009 IEEE International Conference on Acoustics, Speech, and Signal Processing, April 19-24, Taipei, Taiwan.

Tutorial: "Signal and System Theoretic foundations of quantization and data acquisition (A/D and D/A conversion)" by Profs. Thierry Blu, Pier-Luigi Dragotti, Pina Marziliano and Martin Vetterli, in Taipei, Taiwan, April 19, 2009.

Tutorial: "Sparse Sampling: Theory, Algorithms and Applications" by Prof. Nguyen Thao, in Taipei, Taiwan, April 20, 2009.

Tutorial: "Distributed Adaptive filters and Networks" by Prof. Ali H. Sayed, in Taipei, Taiwan, April 20, 2009.

Workshop: Series of Advanced lectures on Machine Learning by Distinguished Professor Sargur N. Srihari Director of CEDAR, University at Buffalo, KFUPM, April 4-11, 2009, Dhahran, Saudi Arabia.

Second Saudi Engineering Forum (SEF) "The Engineering Profession and its Role in Sustaining the Kingdom's Development", KFUPM, March 28-30, 2009, Dhahran, Saudi Arabia.

Workshop: 4th Workshop on Industrial Systems and Control (WISC) "Control and Instrumentation Future and Trends" May 21-22, 2007, KFUPM, Dhahran, Saudi Arabia.

ICASSP'2008: 2008 IEEE International Conference on Acoustics, Speech, and Signal Processing, March 30-April 4th 2008, Las Vegas, Nevada, USA.

STEM: 13th Saudi Technical Exchange Meeting, April 2008, KFUPM, Dhahran, Saudi Arabia.

SEC2007: The Seventh Saudi Engineering Conference, December 3-5 2007, KSU, Riyadh, Saudi Arabia.

Workshop on: Faculty Research Development organized by Deanship of Academic Development, February 7, 2006, KFUPM, Dhahran, Saudi Arabia.

Forum: First Saudi Engineering Forum, "Engineering Education in 2020: Meeting Industry Needs", KFUPM, May 23-24, 2006, Dhahran, Saudi Arabia.

Workshop: First KFUPM Workshop on Engineering Design, KFUPM, April 11-12, Dhahran, Saudi Arabia.

Workshop on: Online Course Content Development, Using Macromedia Authorware, organized by Deanship of Academic Development (DAD), February 13-22, 2005, KFUPM, Dhahran, Saudi Arabia.

Discussion forum on: Faculty and Student Motivation Organized by the Deanship of Academic Development at KFUPM, May 23, 2004, Dhahran, Saudi Arabia.

Workshop on: Professional Development Program for Junior Faculty Members, 5-6 September 2005, organized by Deanship of Academic Development, KFUPM, Dhahran, Saudi Arabia.

Workshop on: Critical Thinking 7-10 September 2003, organized by Deanship of Academic Development, KFUPM, Dhahran, Saudi Arabia.

IEEE TEM: 11th IEEE Technical Exchange Meeting, April 13-14, 2004, KFUPM, Dhahran, Saudi Arabia.

Workshop on: Experience-Sharing in Developing Online Courses Organized by the Deanship of Academic Development E-Learning Center at KFUPM, Dhahran, Saudi Arabia.

CAIP'95: 6th International Conference on Computer Analysis of Images and Patterns, (CAIP'95), Prague, Czech Republic, September 6-8, 1995.

UNIVERSITY AND DEPARTMENT SERVICE

Year	Committee	Formed by	Position	Approx. of Meeting
06-07	Committee on Convocation, Honors, & Public Events ⁴	University	Member	20
00-01	Applied Engineering Committee ²	Department	Member	8/yr
02-09	Services Department Committee ³	Department	Member	8/yr
03-05	Planning Committee ⁴	Department	Member	8
03-04	Computer Utilization Committee ⁵	Department	Member	10
04-10	Project/Seminars & Speaker Committee ⁶	Department	Chairman/ Member	24/yr
05-06	Department Newsletter Committee ⁷	Department	Member	6
07-08	Ad Hoc Committee ⁸	Department	Chairman / Member	6/yr
08-09	Ad Hoc Committee ⁹	Department	Member	6/yr
08-09	EE Department Research Coordinator ¹⁰	Department	Chairman	15

1. Committee on Convocation, Honors, & Public Events, planning, discussing and preparing for all events held in the university such as graduation, open days, conferences, workshops, exhibition, exams, etc. In 2008-2009 academic year, I was assigned as a sub-committee chairman for Design and Selection of Different plates for services award of different achievements and length of service of Faculty and Staff members.
2. The Applied Engineering Committee task was to look after the applied electrical Engineering students for placement in different major companies for their coop training program. Also, to assign advisors to students. Provide coop students and advisors with appropriate guidelines and rules to writing their report and presentations.
3. My role in the Department Services Committee is preparing required information for the University's Administration such as teaching faculty loads and other than teaching loads. Also, I prepared departmental brochures, annual report, research newsletter. Weekly events in EE Department as part of the Department Services Committee, won the Services Award in 2006.
4. Planning committee in the department is responsible for planning Lab and courses scheduling for each semester. Distributing the teaching load for each faculty according to some rules and preferences of faculty. I was responsible for collecting

faculty preferences and arranging the priorities according to the available courses and lab sections.

5. As a member of Department Computer Utilization Committee, I was actively involved in determining the computer needs of the faculty in the EE Dept. I was a member of a subcommittee formed for this purpose. Also, the update and upgrading of software and hardware equipments at the different EE Laboratories.
6. In the Project/Seminar & Speaker Committee, I organized seminar activities from the department and out of the department. Also, I processed visa applications for international speakers.
7. For the Newsletter Committee, I provided information about EE-Department and EE Club technical and social activities.
8. Ad Hoc Committee formed by the EE Department chairman to define duties and activities of each of our department secretaries to avoid task conflicts and duplication of work.
9. Ad Hoc Committee to establish a center of Excellence in Signal Processing in KFUPM.
10. My role as EE Department Research Coordinator was to coordinate the evaluation of publications for conference attendance either based on journal publications or presentation of a conference paper. Also collection of research data of the faculty in our department for the research newsletter and different reports for the college or the university. I Coordinate with Deanship of Scientific Research for the input on research activities from EE Department

My service has been particularly outstanding as member and chairman of the Project/Seminars & Speaker Committee during the years 2005-Present.

Also, I served as an active Committee Member for IEEE conference and IEEE technical Exchange meeting for over six years. I am the Administration and Finances Coordinator of the IEEE Signal Processing Saudi Arabia Chapter.

OTHER ACTIVITIES & COMMUNITY SERVICE

- I provided community services in Japan and Saudi Arabia to local, regional and international events.
- I was selected as an official guide to the 12th Asian Games in Hiroshima, as a volunteer guide to athletes as I speak Arabic, English, French, Japanese and beginner in Spanish, Malay and Indonesian.
- I helped in the local arrangement committees of conferences and technical exchange meetings in KFUPM.
- Served as a host to new faculty comers to the EE Department, KFUPM, in many occasions.