

## Dr. Ahsan Abdullah

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### EDUCATION

- **PhD Computer Science**  
Thesis title “Data Mining Using the Crossing Minimization Paradigm”  
UNIVERSITY OF STIRLING, Scotland, UK.  
{Thesis ranked at 3<sup>rd</sup> position out of 1.2 million on **google** search using keyword *crossing minimization*}
- **MSc Computer Science**  
UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, USA.
- **MSc Computer Engineering**  
UNIVERSITY OF SOUTHERN CALIFORNIA, Los Angeles, USA.
- **BSc Electrical (electronics) Engineering, with Honors**  
UNIVERSITY OF ENGINEERING AND TECHNOLOGY, Lahore, Pakistan.



### AWARDS & Honors

- Among the five Computer Scientists listed as the “Productive Scientists of Paksitan-2007” in the annual Directory published by **Pakistan Council for Science & Technology** [www.pcst.org.pk](http://www.pcst.org.pk)
- Receptient Dr. M. N. Azam prize in Computer Sciences for 2005 by the **Pakistan Academy of Sciences**, 2005.
- Won 6<sup>th</sup> National IT Excellence award in the category of “IT R&D” for 2004 by **NCR Pakistan**.
- Selected by the **Virtual University of Pakistan** for recording the course titled “Data Warehousing”.
- HEC Approved PhD Supervisor

STANDING of work on <b>Google</b>	GRANTS won
<ul style="list-style-type: none"><li>• 2<sup>nd</sup> rank out of 0.53 million hits using keywords (data mining Pakistan) on 1<sup>st</sup> Sep. 2008</li><li>• 5<sup>th</sup> and 8<sup>th</sup> rank out of 0.8 million hits using keywords (data mining agriculture) –do–</li><li>• 14<sup>th</sup> rank out of 0.59 million hits using keywords (agriculture data warehouse) –do–</li></ul>	<ul style="list-style-type: none"><li>• PTCL R&amp;D Fund, Rs. 30.58 millions</li><li>• French ICT Asia Program, € 40, 000</li><li>• PTCL R&amp;D Fund, Rs. 150,000</li><li>• Pakistan Science Foundation, Rs. 100,000 and 50,000</li><li>• Mehran Sugar Mills, Rs. 11,000</li><li>• ICRISAT India, Rs. 70,000</li></ul>

### INVITED TUTORIALS/KEYNOTE SPEAKER

- 4<sup>th</sup> Intelligent Symposium on Intelligent Information Technology in Agriculture, China, 2007
- Workshop on Data Warehousing & Data Mining at Pakistan Science Foundation, Islamabad, Feb. 2007
- IEEE International Multi topic Conference, Lahore, 2004
- NSF 2<sup>nd</sup> International Workshop on Frontiers of Information Technology, Islamabad, 2004.

### PRESENTATIONS DELIVERED (recent)

- International Conference and Workshop on Bioinformatics, Azerbaijan, Jun. 2008
- HELP University, Kuala Lumpur, Malaysia, 2006
- University of Montpellier, France, 2006
- Pakistan Science Foundation, Islamabad, 2005
- Higher Education Commission, Islamabad, 2005
- 7<sup>th</sup> International Conference on Precision Agriculture, Minneapolis, USA, 2004
- 8<sup>th</sup> World Multi-conference on Systemics, Cybernetics and Informatics, Orlando, USA, 2004
- University of Illinois at Chicago, Chicago, USA, 2004
- International Crops Research Institute for Semi Arid Tropics (ICRISAT), Hyderabad, India, 2004

### BOOKS

- A brief Introduction to Data Mining Aug. 08 180 pages
- Internet Guide for Pakistan Sep 98 335 pages
- Internet & Pakistan (2nd Ed) Nov 96 225 pages
- Internet & Pakistan Nov 95 180 pages

## List of (recent) Publications

### 2007-08 (Research Reports)

1. A Study of the Diffusion of Information & Communication Technologies [ICT] In Rural Pakistan.
2. Using the Agriculture Decision Support System (ADSS) For Analysis of Mealybug Infestation of the Cotton Crop In District Multan During 2005 & 2006.
3. Ana Analysis of Bt Cotton Cultivation In The Years 2005 And 2006 Using the ADSS
4. Analysis of Rice Cultivation Trends Using Agriculture Decision Support System (ADSS) OLAP Tool
5. Application of the ADSS for the Analysis of Sowing and Spraying Trends of Cotton Crop in District Multan.
6. Experiences in the Design and Development of a Full-Scale Agriculture Decision Support System (ADSS)
7. Which Group Of Pesticides Is Effective Against Certain Pests For Years 2001-02 And 2005-06?
8. Exploring the Susceptibility of Cotton Varieties Cultivated In Punjab to Sucking and Chewing Pests

### 2007

1. A. Abdullah & A. Hussain, Using biclustering for automatic attribute selection to enhance global visualization, Springer Verlag Lecture Notes in Computer Science, 4370 (2007), 35-47.
2. A. Abdullah, I. Pervaiz, W. Gillani, H. Mujtaba, S. Adeel “Exploring Socio-Economic Associations among Cotton Farmers Using Data Mining” in proceedings of Conference on 4<sup>th</sup> Intelligent Symposium on Intelligent Information Technology in Agriculture, China, Oct. 2007
3. A. Abdullah, W. Gillani, H. Mujtaba, Z. Majeed “Using data mining for ranking of cotton pesticides” in proceedings of 4<sup>th</sup> Intelligent Symposium on Intelligent Information Technology in Agriculture, China, Oct. 2007

### 2006

4. A. Abdullah & A. Hussain, “A new Biclustering technique based on crossing minimization”, Neurocomputing Journal 69, page 1882-1896, 2006. Impact Factor = 0.79
5. A. Abdullah & A. Hussain, “Data Mining a New Pilot Agriculture Extension Data Warehouse”, Journal of Research and Practice in Information Technology, vol. 38, no. 3, page. 229-249, 2006. Impact Factor = 0.205
6. A. Abdullah & A. Hussain, “Heuristics and meta-heuristics for bandwidth minimization of sparse matrices”, in proceedings of IEEE ICES’06 Conference, 2006.

### 2005

7. A. Abdullah & A. Hussain, Biclustering Gene Expression Data in the Presence of Noise, Springer Verlag Lecture Notes in Computer Science, 3696, (2005), 611. Impact Factor = 0.40
8. A. Abdullah, R. Bulbul and T. Mehmood, “Mapping nominal values to numbers by data mining spectral properties of leaves”, in proceedings of 3<sup>rd</sup> International Symposium on Intelligent Information Technology in Agriculture, Beijing, China Oct. 2005.
9. A. Abdullah & I. Ansari “Using data mining to simulate and study the impact of global climatic changes on cropping regions”, in proceedings of 3<sup>rd</sup> International Symposium on Intelligent Information Technology in Agriculture, Beijing, China Oct. 2005.
10. A. Abdullah, H. Kashif, S. Naveed and K. Amanullah, “Computerized Farm Guide: Using ICT for better dissemination of Agriculture Extension Information, in proceedings of 3<sup>rd</sup> International Symposium on Intelligent Information Technology in Agriculture, Beijing, China Oct. 2005.

11. A. Abdullah & A. Hussain, "Biclustering gene expression data in the presence of noise", in proceedings of *International Conference on Neural Networks*, Warsaw, Poland, Sep. 2005.
12. A. Abdullah & J. Ahmad, "A comparison of data sanitization and clustering techniques", in proceedings of the *Data Mining Workshop, British National Conference on Databases*, Sunderland, UK, Jul. 2005.

#### 2004

14. A. Abdullah & I. Ansari "Using Bayesian modeling to identify cropping regions of cultivated and uncultivated crop", *2<sup>nd</sup> International Workshop on Frontiers of IT*, ( by NSF, USA), Islamabad, 20-21 Dec. 2004.
15. A. Abdullah & A. Ashfaq "Critical analysis of OPSM Biclustering Technique", *2<sup>nd</sup> International Workshop on Frontiers of IT* ( by NSF, USA), Islamabad, 20-21 Dec. 2004.
16. A. Abdullah , A. Hussain & A. Ordys, "Biclustering noisy gene expression data", *International Conference on Bioinformatics and its Applications (ICBA'04)*, Nova Southeastern University Fort Lauderdale, Florida, USA, December 16-19, 2004
17. A. Abdullah & A. Hussain, "Analysis Of Unsupervised Clustering By Crossing Minimization", in proceedings of *Brain Inspired Cognitive Systems* Conference, Univ. of Stirling, Scotland, UK, Aug/Sep. 2004
18. A. Abdullah & A. Hussain, "A New Biclustering Technique Based On Crossing Minimization", in proceedings of *Brain Inspired Cognitive Systems* Conference, Univ. of Stirling, Scotland, UK, Aug/Sep. 2004
19. A. Abdullah , "Discovering pesticide application practices using Data Mining", in proceedings of *7th International Conference on Precision Agriculture and Other Precision Resources Management*, Minneapolis, USA, Jul 25-28, 2004
20. A. Abdullah and M. Umer "Applications of Remote Sensing in Pest Scouting: Evaluating Options and Exploring Possibilities", in proceedings of *7th International Conference on Precision Agriculture and Other Precision Resources Management*, Minneapolis, USA, Jul 25-28, 2004
21. A. Abdullah and M. Umer "Adding Analytical Processing Layer to Agri Data Warehouse: Experiences and Results", in proceedings of *7th International Conference on Precision Agriculture and Other Precision Resources Management*, Minneapolis, USA, Jul 25-28, 2004
22. A. Abdullah "Heuristics and Meta-heuristics for one-way clustering of gene expression data", in proceedings of *8th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2004)* Orlando, USA, July 18-21, 2004
23. A. Abdullah and M. Umer " Remote Sensing Techniques for Supplementing Pest Scouting: A Report", in proceedings of *8th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2004)* Orlando, USA, July 18-21, 2004
24. A. Abdullah and M. Umer " Experiences in Development and Use of a Low Cost OLAP Tool for Analyzing Agricultural Data", in proceedings of *8th World Multiconference on Systemics, Cybernetics and Informatics (SCI 2004)* Orlando, USA, July 18-21, 2004
25. A. Abdullah, and M. Umer, "Data Mining pest, pesticide and metrological data", in proceedings of *5th International Conference on Applications of AI in Agriculture, Egypt*, Mar. 2004.
26. A. Abdullah, S. Brobst S. and M. Umer, "The Case for an Agri Data Warehouse: Enabling Analytical Exploration of Integrated Agricultural Data", in proceedings of *IASTED International Conference on Databases and Applications*, Innsbruck, Austria, Feb. 2004

27. A. Abdullah, S. Brobst, I. Pervaiz, M. Umer, and A. Nisar, "Learning Dynamics of Pesticide Abuse through Data Mining", in proceedings of *Australasian Workshop on Data Mining and Web Intelligence, Dunedin, New Zealand*, Jan. 2004.

**2003**

28. A. Abdullah, S. Brobst, I. Pervaiz, M. Umer, and A. Nisar, "Agri Data Mining/Warehousing: Innovative Tools for Analysis of Integrated Agricultural and Meteorological Data", in proceedings of *First International Workshop on Frontiers of Information Technology ( by NSF, USA)*, Islamabad, Dec. 2003
29. A. Abdullah, and S. Brobst, "Clustering by recursive noise removal" in proceedings of *Atlantic Symposium on Computational Biology and Genome Informatics (CBGI'03) Cary, North Carolina, USA*, pp. 973-977, Sep. 03.

## **EXPERIENCE**

**Sep. 2008- to date**

**FAST National University of Computers & Emerging Sciences, Islamabad.**  
**Prof. & Head Center for Agro-Informatics Research (C@IR)**

### **R&D**

1. Founding Head of the Center for Agro-Informatics Research (C@IR) at the G-9/4 Islamabad campus of the University and Project Director of the Agriculture Decision Support System (ADSS) project **www.agroict.org**. The 26-month long Rs. 30.58 millions project launched in Jul. 2006 completed in Aug. 2008 employed 35 people and developed solutions for the agriculture sector. Organized three national workshops with two Federal Ministers i.e. for IT and Agriculture presided as Chief Guests, attracting 150+ professionals including 30+ PhD scholars. Complete 2-year project report available at [www.agroict.org/cair\\_adssbook.htm](http://www.agroict.org/cair_adssbook.htm)
2. Developing the discipline of Agro-Informatics, held workshops on Agro-Informatics in Sep 2006 and Apr. 2007 and also established a core working group. Complete syllabus for a 4-year bachelors program on Agro-Informatics submitted to HEC (Higher Education Commission) subsequently forwarded to concerned Universities for consideration of adpotation.
3. Supervising MS thesis and BS final year projects related to algorithms and implementation since 2002. The supervised work won 1<sup>st</sup> prize at the 13<sup>th</sup> National Annual Software Competition, 1<sup>st</sup> and 5<sup>th</sup> prizes at Pakistan Telecommunication Authority (PTA) report writing competition.

### **Teaching**

4. Developed and recorded the course titled "Data Warehousing" for the Virtual University of Pakistan. In one year the course offered three times and attracted 800 students.
5. Conducted a week-long *Train the trainers program*, on "High performance data ware house design and construction" trained 10 faculty members from 4 campuses of COMSATS Institute [www.ciit.edu.pk](http://www.ciit.edu.pk) . The program conducted in Jul. 2002 in collaboration with NCR Education Center.
6. Teach core MS Computer Science courses of Advanced Algorithms and Applied Algorithms. Teach core BS Computer Science courses of Data Structures, Design & Analysis of Algorithms, and Operating Systems. Also teach elective Computer Science courses such as E-Commerce.
7. Planned, arranged and organized National Software Competition 2002 (NaSCon) with theme Business Intelligence (BI) Systems. BI theme was used for the first time in Pakistan, and NaSCon was the first ever annual event of Islamabad Campus. Got sponsorship of Rs. 157,000 for the event.

**Sep 98- Aug 2000**

**Asst. Prof. of Computer Sciences & Manager Student Affairs**

**Founding Member, Fauji Foundation Institute of Management & Computer Sciences, Rawalpindi (now Foundation University)**

1. **Manager Student Affairs:** Developed and launched the open house plan to introduce the nascent institute in Islamabad, Lahore and Peshawar. Responsible for day-to-day administrative affairs of the students, dealt with their parents too. Headed the discipline committee, and also resolved fee payment issues.
2. **Computerization:** Designed, planned and oversaw establishment of the computer center and campus networking and corresponding civil works for over 70 PCs in an NT environment. Evaluated proposals negotiated with vendors and drafted the corresponding contract.
3. **Coursework:** Taught courses in data structures, discrete maths, algorithms, data communication, database design and database development using Oracle and Dev/2000.
4. **FaujiSoft:** Provided consultancy for establishment of Fauji Foundation software house. Services rendered ranged from selection and evaluation of hardware/software to interviews of personnel including senior executives.

**Apr 98-Sep 98 Manager Marketing**

Systems Research Private Limited, Rawalpindi, Pakistan

- Responsible for placement of SAP consultants.
- Re-establishing disgruntled and broken leads by developing personal rapport.
- Developed proposals for establishing overseas marketing offices.

**Feb 92-Apr 98 Manager MIS**

Founding Member, National University of Sciences & Technology (NUST), Rawalpindi, Pakistan

1. **Computerized Examination System (CES):** Analysis, designing and coding of Pakistan's first CES. Using CES thousands of questions entered/edited with graphical display of database selecting questions randomly satisfying certain objective functions, e.g. duration, difficulty level etc. to generate a multiple choice question paper and grading it using an OMR (Optical Mark Reader). The system in active use since 1994.
2. **Internet Connection:** Responsible for analysis, designing, implementing and managing Pakistan's first X.25 based real-time on-line connection between NUST and Internet via MSU (Michigan State University).
3. **NUST Intranet/WAN:** Responsible for designing, implementing and making functional Pakistan's first Intranet. The TCP/IP based Intranet established over leased lines in star topology connecting HQ NUST, College of Signals and College of EME all in Rawalpindi.
4. **Preparation of proposals:** Prepared PC-1s, feasibility studies and also defended them for grant of funds for IT projects. Proposals upto Rs. 10 million approved. Also developed IT/Computerization plans, wrote security/usage policies etc. and gave presentations on IT to VVIPs.
5. **Computerization and IT Plan:** Responsible for system analysis, design, tender preparation, tender scrutinization, tender evaluation, negotiating with vendors and contract drafting. Planned the computerization of NUST and affiliated colleges for 10 years i.e. 1992 to 2002. First 5-year plan implemented.
6. **Installation:** Participation/Coordination and supervision of installation of entire computer system at NUST and the affiliated colleges consisting of several Unix/VMS servers, LAN, ASCII/Graphic Terminals etc. also did power/communication cabling.
7. **Presentations:** Prepared, arranged and participated in several presentations of Rector NUST before VVIPs such as Chief of the Army Staff and President of Pakistan.

**OTHER ACHIEVEMENTS**

- Developed and deployed Pakistan's no. 1 job site of 2001 as per Spider Magazine.
- Author of Pakistan's first book on Internet "Internet & Pakistan" 1995
- Merit scholarship for overseas graduate studies from Govt. of Pakistan 1987-1991.
- Illustrator/Cartoonist Daily Trojan (University newspaper), USC, USA 1988-1990.
- Second Prize Relay race, International games, USC, Log Angeles, USA 1990.
- First Prize Pakistan Electronics and Engineering Exhibition, UET Lahore 1986.
- President Electronics Advisory Group, UET, Lahore 1985-1986.
- Second Prize Mr. University Body Building contest, UET, Lahore 1985.
- Assistant Editor, "Echo", University magazine, UET, Lahore 1982-84.