

<p><b>DR. IKVINDERPAL SINGH</b></p> <p><b>Head &amp; Assistant Professor</b></p> <p><b>Department of Computer Science &amp; Applications</b></p> <p><b>SBJS Khalsa College, Amritsar, Punjab, India.</b></p> <p><b>ips_sikand@yahoo.com</b></p> <p><b>8968800616 (M)</b></p>	
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<b>1. Name</b>	:	Dr. Ikvinderpal Singh
<b>2. Father's Name</b>	:	S. Jasjit Singh
<b>3. Date of Birth</b>	:	04.12.1984 (Dec 04, 1984)
<b>4. Present Designation and Positions</b>	:	Head & Assistant Professor Department of Computer Science & Applications
<b>5. Home Address &amp; Address for Correspondence</b>	:	H.No.-3436A, Street No. 3, Azad Nagar, Putlighar, Amritsar. Ph. 0183-2400616, 8968800616 E-mail: ips_sikand@yahoo.com
<b>6. Academic Qualifications</b>	:	Ph.D. (Computer Sc.) Master's Degree in Computer Applications B.Sc.(IT)
<b>7. Teaching Experience</b>	:	5 years
<b>8. Research Experience</b>	:	3 years
<b>9. Research Interests</b>	:	Artificial Neural Networks, Fuzzy Systems, Parallel Architectures, Cloud Computing, Ad Hoc Networks, WSNs.
<b>10. Books &amp; Research Papers</b>	:	Books- 37 (List enclosed) Papers: 14 (List enclosed)

### A) Educational Qualifications

CLASS	UNIVERSITY/	YEAR	Division & %age/ Subjects
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	<b>BOARD</b>		
<b>Ph. D.</b> <i>(Computer Sc.)</i>	CMJ University, Shillong, Meghalaya.	2012	<b>Subject: “Neural Networks and Image Processing”</b> <b>Title of Thesis : “Study and Analysis for Face Identification and Recognition with Artificial Neural Networks”</b>
<b>Master’s Degree in Computer Applications</b>	Guru Nanak Dev University (Main Campus), Amritsar, Punjab.	2008	<b>FIRST, 74%, Computer Applications Subjects</b>
<b>B.Sc.(IT)</b>	Guru Nanak Dev University, Amritsar, Punjab.	2005	<b>FIRST, 64% Information Technology Subjects</b>

## **B) Academic Achievements & Published Work**

### ***Honors & Awards***

#### **International Scientific & Engineering Serials:**

##### **Certificate of Appreciation**

- National Conference: Spectrum of Information Technology Developments at India’s Perspective, SIT@IP-2012 at Baba Budha College, Bir Sahib, TarnTaran( February 17 & 18, 2012).

##### **Award of Honor**

- International Conference on History and Development of Mathematical Sciences & Symposium on Nonlinear Analysis (ICHDMS-2012), Department of Mathematics, MDU, Rohtak, Haryana (November 21-24, 2012).

##### **Academic Roll of Honors**

- Academic position during the year April, 2005, 1<sup>st</sup> in College during University Examinations (B.Sc. (IT)), Khalsa College, Amritsar.
- Academic position during the year April, 2005, Qualified MCA Entrance test held at GNDU, Amritsar.
- Passed MCA with Distinction from GNDU, Amritsar.

### **C) Academic Experience**

- 1) Assistant Professor (From 2008 to 2011), Postgraduate Department of Computer Sc. & Applications, Khalsa College, Amritsar.
- 2) Assistant Professor (From 2011 Continue), Postgraduate Department of Computer Science, Trai Shatabdi GGS Khalsa College, Amritsar.

### **D) Fields of Specialization**

Data Structures, Programming Techniques (C/C++), Soft Computing, Computer Architecture, Computer Networks, Operating Systems and Databases

### **E) Professional Skills**

**Major Languages:** C/C++, Java

**Platform used:** DOS, WINDOWS XP/ Vista/7/8

**Major RDBMS Packages:** ORACLE

**Office Automation Packages:** Office 2003/2007/2010, WordStar etc.

## **Published Work**

### **I) BOOKS PUBLISHED**

1. Test Your C Programming Skills, Ikvinderpal Singh, ISBN: 978-93-800162-5-2, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
2. Soft Computing, Ikvinderpal Singh, ISBN: 978-93-800169-7-9, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
3. Internet Applications, Ikvinderpal Singh and Sapandeep Kaur, ISBN: 978-93-810683-9-7, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
4. Fuzzy Systems, Joginder Singh and Ikvinderpal Singh, ISBN: 978-93-800164-9-8, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
5. Distributed Database Systems, Ikvinderpal Singh and Sukhwant Singh, ISBN: 978-93-810681-6-8, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
6. Mobile Computing, Ikvinderpal Singh, Baljinder Singh and Opinder Singh, ISBN: 978-93-810681-7-5, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).

7. Windows Based Computer Courses, Ikvinderpal Singh and Baljinder Singh, ISBN: 978-93-810683-5-9, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
8. Computer Organization and Architecture, Ikvinderpal Singh and Baljinder Singh, ISBN: 978-93-810683-1-1, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
9. Fundamentals of Computer and C Programming, Ikvinderpal Singh, Joginder Singh, Rajwinderpal Sharma, ISBN: 978-93-810683-8-0, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
10. Fundamentals of Computers, Operating Systems and Information Technology, Ikvinderpal Singh and Pardeep Bhandari, ISBN: 978-93-810683-3-5, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
11. Digital Image Processing, Ikvinderpal Singh and Baljinder Singh, ISBN: 978-93-800162-1-4, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
12. Electronics Analog and Digital, Ikvinderpal Singh and Baljinder Singh, ISBN: 978-93-800169-5-5, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
13. Network Operating Systems, Harmandeep Singh, Ikvinderpal Singh and Baljinder Singh, ISBN: 978-93-810681-9-9, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
14. Solved programming in C, Ikvinderpal Singh, ISBN: 978-93-800161-9-1, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
15. Solved programming in C++, Ikvinderpal Singh, ISBN: 978-93-800161-8-4, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
16. Artificial Neural Networks, Ikvinderpal Singh, ISBN: 978-93-800162-0-7, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
17. Microprocessors: 8085 and 8086, Ikvinderpal Singh and Jagbir Singh, ISBN: 978-93-800165-7-3, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
18. Network Design and Performance Analysis, Rajwinderpal Sharma and Ikvinderpal Singh, ISBN: 978-93-810684-1-0, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
19. Data Structures: An Algorithmic approach, Ikvinderpal Singh, ISBN: 978-93-800167-0-2, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
20. Data Structures: An Algorithmic approach with C, Ikvinderpal Singh, ISBN: 978-93-800166-9-6, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
21. Data Structures: An Algorithmic approach with C++, Ikvinderpal Singh, ISBN: 978-93-800168-5-6, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
22. Expert C++ Programming, Ikvinderpal Singh, ISBN: 978-93-800167-7-1, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).

23. Expert C Programming, Ikvinderpal Singh, ISBN: 978-93-800167-6-4, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
24. Computer oriented Numerical and Statistical Techniques, Ikvinderpal Singh, ISBN: 978-93-800167-8-8, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
25. C++ and Data Structures, Ikvinderpal Singh, ISBN: 978-93-800167-9-5, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
26. Advanced Computer Organization and Architecture, Ikvinderpal Singh, ISBN: 978-93-81068694, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
27. System Software, Ikvinderpal Singh, ISBN: 978-93-810687-1-7, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
28. Data Mining and Warehousing, Ikvinderpal Singh, ISBN: 978-93-810687-0-0, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
29. Operating Systems, Ikvinderpal Singh, ISBN: 978-93-810687-2-4, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
30. Advanced Data Structures, Ikvinderpal Singh, ISBN: 978-93-810687-9-3, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
31. Database Management System, Ikvinderpal Singh, ISBN: 978-93-826092-9-2, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
32. Software Engineering, Ikvinderpal Singh, ISBN: 978-93-826092-2-3, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
33. Advanced Software Engineering, Ikvinderpal Singh, ISBN: 978-93-826092-3-0, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
34. Information Systems, Ikvinderpal Singh, ISBN: 978-93-826093-3-9, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
35. Compiler Design, Ikvinderpal Singh, ISBN: 978-93-826094-2-1, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
36. System Analysis & Design, Ikvinderpal Singh, ISBN: 978-93-826092-6-1, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).
37. Object Oriented Modeling, Analysis and Design, Ikvinderpal Singh, ISBN: 978-93-826094-1-4, Khanna Book Publishing Co. (P) Ltd., Delhi 110006 (India).

## **II) RESEARCH PAPERS/ARTICLES PUBLISHED**

### ***A) International/National Journals***

1. Ikvinderpal Singh, “**Face Recognition through Multilayer Perceptron (MLP) and Learning Vector Quantization (LVQ)**”, IJARCSEE, Bhopal, India, Vol. 1, Issue 10, Dec-2012, pp. 87-90 (ISSN: 2277-9043).
2. Ikvinderpal Singh, Kanwarpal Singh, “**An Energy Efficient Dynamic Source Routing for Mobile Networks**”, IJICC, International Journal of Interactive Computer Communication, VOL.01 No. 02, April 2012, pp. 2-11 (ISSN No. 2250 –2661).
3. Ikvinderpal Singh, Baljinder Singh, “**Autonomic Computing Wireless Sensor Networks**”, IJICC, International Journal of Interactive Computer Communication, VOL.01 No. 02, April 2012, pp. 18-29 (ISSN No. 2250 –2661).
4. Ikvinderpal Singh, Baljinder Singh, “**Mobile Adhoc Networks (Applications and Challenges)**”, IJICC, International Journal of Interactive Computer Communication, VOL.01 No. 02, April 2012, pp. 83-90 (ISSN No. 2250 –2661).

#### **B) Papers Published in Proceedings of International Conferences**

1. Ikvinderpal Singh, “**Diagnosis of heart Disease using genetic algorithm and fuzzy expert System**”, proceedings of 2012 International Conference on History and Development of Mathematical Sciences & Symposium on Nonlinear Analysis (ICHDMS-2012), Department of Mathematics, MDU, Rohtak, Haryana (November 21-24, 2012), C-10, pp. 53.
2. Ashish Chaturvedi and Ikvinderpal Singh, “**Energy Efficient Optimization of Ad Hoc Network with Various Evolutionary Techniques**”, proceedings of 2012 International Conference on History and Development of Mathematical Sciences & Symposium on Nonlinear Analysis (ICHDMS-2012), Department of Mathematics, MDU, Rohtak, Haryana (November 21-24, 2012), E-9, pp.97.

#### **C) Papers Published in Proceedings of National Conferences**

1. Ikvinderpal Singh, Joginder Singh, “**Cloud Computing**” UGC sponsored National Conference, ETCIT 2011, March 5 (ISBN: 9788170721246, pp.137-140).
2. Ikvinderpal Singh, presented a paper entitled “**High Growth of Banking Sector in Indian Economy**”, UGC sponsored National Seminar on Research Methodology in Applied Economics organized by Dept. of Economics, BBK DAV College for Women, Amritsar on October 12-13, 2012.
3. Ikvinderpal Singh, presented a paper entitled “**Cloud Computing: High Performance Computing**”, UGC sponsored National Seminar on High Performance Computing: Design, Analysis and its Applications organized by P.G. Dept. of Computer Science and Applications,

BD Arya Girls College, Jalandhar Cantt. on 3<sup>rd</sup> March, 2012 (ISBN: 9788192270975, pp. 245-250).

**D) Papers Communicated for International/National Publication**

1. Ikvinderpal Singh, Ashish Chaturvedi, ***“Back propagation neural network model for recognizing facial images with inclusion of noise”***, Accepted for International Scientific & Engineering Serials.
2. Ikvinderpal Singh, Ashish Chaturvedi, ***“Human Face recognition through color of facial skin”***, Accepted for International Scientific & Engineering Serials.
3. Ikvinderpal Singh, ***“Cloud Computing: Smarter Computing for a Smarter World”***, submitted for publication in IJRCM, JAGADHRI, Haryana, India.
4. Ikvinderpal Singh, Kanwarpal Singh, ***“Comprehensive Survey of an Image Based Authentication Techniques”***, Accepted for 2<sup>nd</sup> International Conference on "Innovative Developments in ICT: Today & Tomorrow" on March 2-3, 2013.
5. Ikvinderpal Singh, Rajwinderpal, ***“Study and Analysis of Multicast Routing Protocols in Ad Hoc Networks”***, Accepted for Second International Conference on Competency Building Strategies in Business and Technology for Sustainable Development to be held on 22<sup>nd</sup> Feb 2013 at SGSBM Campus.

**E) Few Notable Conferences/Seminars Attended**

1. Ikvinderpal Singh, participated in UGC-CPE Two Days Workshop on ***“Internet and its Applications”***, held on Khalsa College, Amritsar on November 25-26, 2010.
2. Ikvinderpal Singh, Attended Seminar on ***“Software Measurement”***, (November 12, 2010) by Dr. Hardeep Singh, Dean & Prof. G.N.D.U, Organized by Postgraduate Department of Computer Sc. & Applications, Khalsa College, Amritsar.
3. Ikvinderpal Singh, Attended Seminar on ***“Basics of Electronics”***, (September 24, 2010) presented by R.K Popli by Postgraduate Department of Computer Sc. & Applications, Khalsa College, Amritsar.
4. Ikvinderpal Singh, Attended Seminar on ***“Parallel and Distributed Computing”***, (October 9, 2009) by Postgraduate Department of Computer Sc. & Applications, Khalsa College, Amritsar.
5. Ikvinderpal Singh, participated in UGC-CPE Two Days Workshop on ***“Internet and its Applications”***, held on Khalsa College, Amritsar on November 25, 2008.

**LIST OF COURSES TAUGHT DURING THE CURRENT AND THE LAST THREE ACADEMIC YEARS (YEAR/ SEMESTER-WISE)**

Serial No.	Title of the course taught	Post-graduate/ Under-graduate
1.	Soft Computing	PG
2.	Distributed Database Systems	PG
3.	System Simulation	PG
4.	Fuzzy Systems	PG
5.	Advanced Data Structures	PG
6.	Network Design and Performance Analysis	PG
7.	C Programming	UG
8.	C++ Programming	UG
9.	Computer Networks	UG
10.	Operating Systems	UG
11.	Database Management Systems	UG
12.	Fundamentals of Computer and IT	UG
13.	Data Structures	UG
14.	Windows Based Computer Courses	UG

**BRIEF STATEMENT OF THE GOALS SET BY YOU IN TEACHING THE COURSES**

**Soft Computing: -**

1. Clarify the difference between Soft and Hard Computing by taking examples of Robotics.
2. Why is the need of Soft Computing?
3. What are the different Components of Soft Computing?
4. Application areas of Soft Computing.
5. Detail description of each and every type of neural networks.
6. Fuzzy Logic, Fuzzy Sets, Fuzzy Relation and Fuzzy Rules.
7. Concept of Genetic Algorithms.
8. Use of probability in Soft Computing.

**Distributed Database Systems: -**

1. Introduction to distributed databases, comparison of distributed and centralized systems.
2. Levels of transparency in a distributed system and Fragmentation.
3. Join and union operations involving a query, aggregate functions, and parametric queries.



4. Introduction to query optimization.
5. Properties and goals of transaction management, distributed transactions, recovery mechanism in case of transaction failures, distributed deadlocks.
6. Reliability and concurrency control.
7. Distributed database administration, authorization and protection in distributed databases, distributed database design.

**Network Design and Performance Analysis: -**

1. Requirements, planning, and choosing technology.
2. Traffic engineering and capacity planning.
3. Network performance modeling- Creating traffic matrix.
4. Different Technology Comparisons, selecting service provider, vendor, service levels etc.
5. Access Network Design, Backbone N/W design, Documentation and network management.
6. Network optimization theory, optimization tools, and optimization techniques.

**Data Structures: -**

1. Clarifying the concepts of Data Structures by taking examples of Data Processing in day-to-day life.
2. What is the need for so many data structures?
3. Concept of Algorithm and General Design Strategies for Algorithms.
4. Analysis of Algorithms; Time-Space Complexity.
5. Examples: Search Algorithm Comparisons; Recursive Algorithms (Quick-sort Algorithm and Towers of Hanoi Problem); Fundamental Internal Sorting Algorithms.
6. Applications, Representation/ Storage of data structures with special reference to perform operations like traversal, insertion, deletion, searching on Arrays, Linked Lists, Stacks, Queues, Trees, Graphs, Sets.
7. Files, Design Issues in File Organization Selection, Hashing, Indexing with B-trees
8. Implementing programs using C language.
9. Extending concepts of OOPs and making students understand the utility of building library of data structures and using that to solve real-life data processing applications.

**Systems Simulation: -**

1. Clarifying the concepts of simulating situations by taking examples of animal-chase game, inventory problem, queuing system problem, a chemical reaction problem etc.
2. Concepts related to Systems and System Design.

3. Simulation Using Monte-Carlo Method.
4. Generation of Uniformly Distributed Random Numbers.
5. Generating non-uniformly distributed random numbers.
6. Inventory problems and role of simulation in solving some typical Inventory problems.
7. Queuing problems and role of simulation in solving some typical Queuing problems.
8. Concepts related to model validation and experiment design.
9. Building library of useful tools for simulation.
10. Features of various high-level languages, mathematical and statistical libraries and special purpose simulation languages.

### **Operating Systems: -**

1. Familiarizing students with a typical computing machine they have been using in the lab and explaining them the features of memory management, input-output device handling, security, and processor related activities, file-management system, network management.
2. Explaining the features of a single user operating system-DOS and multiple user operating system WINDOWS 2000/ Linux.
3. Memory management: Memory allocation techniques.
4. Processor Scheduling Algorithms: Pre-emptive and Non-preemptive.
5. File-management systems: FAT32, NTFS, and Unix-File System.
6. Inter-process communication, Deadlocks and Its prevention.
7. Security to OS, concepts of Firewalls and Cryptography.
8. Networking Issues with respect to OS.
9. Input-output devices handling; Hardware Abstraction Layer and Plug and Play facilities.
10. Study of Design Objectives, file-systems, system security concepts, process management capabilities, configuring and tuning of computing machines with the help of operating systems.

### **Database Management Systems: -**

1. Explaining the functioning of different functional subsystems of a typical business organization and importance of data reservoir to handle business efficiently.
2. Role of database management system.
3. Various popular data models: Hierarchical, Network and Relational and a comparison between them.
4. Concepts of Relational Algebra, Calculus and RDBMS.
5. Data Integrity.

6. Relevance of normalizing relational tables, Process of Normalizing relational tables. Functional dependencies and Multi-valued dependencies.
7. Concurrency problem and handling it using locks and time-stamp mechanisms.
8. Security aspects: Authentication and Authorization.
9. Query processing and optimizing query processing.
10. Creating tables using oracle, multi-join tables and writing SQL queries to answer where data processing situations.
11. Concepts of data warehousing and data mining.
12. Formal knowledge of various popular databases used back-end tools in various data processing applications.

## **METHODOLGY ADOPTED FOR THE FEEDBACK FROM YOUR STUDENTS REGARDING THESE GOALS**

### **Methods Used**

- Direct Question-Answering (Very Frequent)
- Tutorial Assignments (Frequent)
- Assigning seminars on allied and advanced topics on the subject matter and encouraging students to prepare talks using latest material and preparing their presentations with the help of various audio-visual tools (Very Frequent)
- Lecturing (Frequent)
- Programming Problems
- Case-studies and Group-Discussions to encourage Team work and Group Analysis (4-5 times in a semester)
- To encourage students to look for various web-sites (2-3 times in a semester)
- Class Test (4-5 times in a semester)
- Providing them question banks (1-2 times in a semester)
- Taking students to the library and exposing them to books available in the library (5-6 times in a semester)

### **Utilizing the feedback**

- In augmenting the lecture notes and examples where students find it difficult to understand
- In identifying the group of students (Talented (5 to 10): to take seminars on complex topics; Average Group: (30 to 35) To solve various programming problems and seminars on routine

challenging topics Below Average (5 to 10): to cover topics that have been covered in class in detail but still certain clarifications are sought)

- In purchasing books and software to assist in teaching
- In building a library of important material collected by students on various topics

## **FUTURE PLANS**

### **Teaching:**

- Preparation of teaching manuals.
- Simple Articles to promote literacy in popular IT magazines and newspapers.
- Active Participation in software development centre and encouraging students to promote themselves as free lancers
- Special training classes for programming languages.

### **Research:**

- To work on possible applications of Routing Algorithms
- To understand functioning and working of Soft Computing Tools.
- To work on various fields of interest like Robotics.

Above information is true by my knowledge.

**(Dr. Ikvinderpal Singh)**