

# **Dr. Krishan Kumar Saluja**

Assistant Professor

Department of Computer Science & Engineering  
Shaheed Bhagat Singh College of Engineering & Technology,  
Moga Road, Ferozepur- 152004, Punjab, India

Phone : +919463000845 (M), +911632246845 (R), +911632500803 (O)

Fax : +911632242138

E-mail : [ksaluja@ieee.org](mailto:ksaluja@ieee.org) , [k.saluja@rediffmail.com](mailto:k.saluja@rediffmail.com), [kksaldec@iitr.ernet.in](mailto:kksaldec@iitr.ernet.in)

## **Research Interests:**

My general research interests are in the areas of Information Security and Computer Networks. Specific research interests include Intrusion Detection, Protection from Internet Attacks, Web performance, Network architecture/protocols, and Network measurement/modeling.

## **Education:**

- Ph.D., Department of Electronics & Computer Engineering, Indian Institute of Technology IIT, Roorkee, March, 2008.

Thesis Title : “Protection from Distributed Denial-of-Service DDoS attacks in ISP Domain”

- M.S., Department of Computer Science and Engineering, Birla Institute of Technology and Science BITS, Pilani, Rajasthan, 2001.
- B.Tech. Department of Computer Science & Engineering, National Institute of Technology NIT, Hamirpur, H.P., July 1995.

## **Professional Experience:**

- 1<sup>st</sup> August, 2006 – Current: Assistant Professor, Deptt. of Computer Science & Engineering CSE, SBS College of Engineering & Technology SBSCET, Ferozepur.
- 25<sup>th</sup> July, 2004 – 25<sup>th</sup> July, 2007: Research fellow, Deptt. of Electronics & Computer Engineering , Indian Institute of Technology IIT, Roorkee.
- 1<sup>st</sup> August, 2001 – 31<sup>st</sup> July, 2006: Senior Lecturer, CSE, SBSCET, Ferozepur.
- 1<sup>st</sup> August, 1996 – 31<sup>st</sup> July, 2001: Lecturer, CSE, SBSCET, Ferozepur.

## Professional Trainings:

Course	Institute/Industry	Final Exam Score	Completion date
CCNA 1: Networking Basics	Temasek Polytechnic, Singapore	91	24-08-1999
CCNA 2: Router and Routing Basics	Temasek Polytechnic, Singapore	100	29-08-1999
CCNA 3: Switching Basics and Intermediate Routing	International Institute of Technology, Hyderabad (IIITH)	95	18-01-2001
CCNA 4: WAN Technologies	International Institute of Technology, Hyderabad (IIITH)	100	24-01-2001

## Seminars/Short Term courses attended in last 5 years:

Name of the course	From	To	Institute / Industry
Workshop on Broadband Technologies	8 <sup>th</sup> Dec., 2005	9 <sup>th</sup> Dec., 2005	I.I.T. Roorkee & Alcatel
Mathematical Modeling of Real Life Problems	4 <sup>th</sup> July, 2005	15 <sup>th</sup> July, 2005	I.I.T. Roorkee (QIP Centre), Roorkee
Remote Sensing & GIS Applications with Special Emphasis to Infrastructure Planning	6 <sup>th</sup> June, 2005	10 <sup>th</sup> June, 2005	I.I.T. Roorkee (QIP Centre), Roorkee
Inculcating and Developing Entrepreneurial Attitude (Need of 21 <sup>st</sup> Century)	19 <sup>th</sup> July, 2004	23 <sup>th</sup> July, 2004	S.B.S.C.E.T, Ferozepur
Database Systems	16 <sup>th</sup> Dec., 2002	27 <sup>th</sup> Dec., 2002	T.T.T.I , Chandigarh
Induction Programme for Faculty of Engineering Colleges	15 <sup>th</sup> July., 2002	26 <sup>th</sup> July, 2002	T.T.T.I. , Chandigarh
Data Ming and its Applications in Supporting Very Large Databases	24 <sup>th</sup> June, 2002	5 <sup>th</sup> July, 2002	Bhopal Engineering College , Bhopal (M.P.)

## **Subjects taught:**

- |                                  |                             |
|----------------------------------|-----------------------------|
| i) Computer Networks             | ii) Data structures         |
| iii) Object Oriented Programming | iv) Operating Systems       |
| v) RDBMS-I                       | vi) RDBMS-II                |
| vii) Programming using C++       | viii) Programming Languages |
| ix) Advanced Computer Networks   | x) Graphics User Interface  |

## **Technical proficiency:**

- **Programming languages** : FORTRAN, Turbo Pascal, ANSI C, Turbo C++, Perl, tcl
- **Front ends** : Visual Basic, Power Builder
- **Back ends** : SQL server, Access
- **Web** : VB.Net
- **Simulators** : Network Simulator NS-2, MATLAB
- **Networking** : LAN/WAN Designing, Configuration and troubleshooting on CISCO products
- **Operating systems** : Windows variants, Linux
- **Analysis Tools** : Gnuplot, xgraph, Statistica, Waka etc.

## **Important Administrative Responsibilities:**

- Teacher in Charge, Computer Science and Engineering Department, S.B.S. College of Engineering and Technology for four years earlier and currently holding the position from 02.08.2007 onwards.
- Main Contact, Cisco Local Networking Academy, SBS College of Engineering and Technology, Ferozepur for two years.
- Network Management of Campus wide Network

## **Major Academic / Development Activities at SBSCET:**

- Conducted various entrance exams like CET, SAT in capacity of Supdt.
- Member of Board of studies for SLIET, Longowal and Punjab Technical University.
- Chaired various purchase committees
- Setup computer laboratories in CSE Department
- Worked as resource person for the establishment of computer labs and commissioning Internet Connectivity in nearby colleges

## **Project/Consultancy:**

- Established CISCO Local Networking academy in collaboration with United Nations Development Programme UNDP New Delhi under Asia Pacific Development Information Programme APDIP. Received 15lacs free of cost CISCO equipments from CISCO under APDIP.

## **Professional Memberships:**

- Life member of Indian Society for Technical Education (ISTE)
- IEEE Student Member (80629795)

## **Key references:**

- Dr. H. B. Sharda  
Principal,  
Shaheed Bhagat Singh College of Engineering & Technology, Ferozepur  
Moga Road, Ferozepur-152004  
Panjab, India  
Ph. No.: +911632242138  
[principal@sbscet.ac.in](mailto:principal@sbscet.ac.in)
- Dr. R. C. Joshi (Ph.D. Research Guide)  
Professor – Department of Electronics & Computer Engineering,  
Indian Institute of Technology, Roorkee  
Roorkee – 247667,  
Uttarakhand, India.  
Ph.No.: +911332285650  
[joshifcc@iitr.ernet.in](mailto:joshifcc@iitr.ernet.in)
- Dr. Kuldip Singh (Ph.D. Research Guide)  
Professor - Department of Electronics & Computer Engineering,  
Indian Institute of Technology, Roorkee  
Roorkee – 247667,  
Uttarakhand, India.  
Ph.No.: +911332275816, +911332275227  
[kds56fec@iitr.ernet.in](mailto:kds56fec@iitr.ernet.in)

## **Publications:**

### **Text Books:**

**Title** : “Fundamentals of Computer Programming &  
Information Technology”

**ISBN** : 978-81-272-3953-4

### **International Refereed Journals:**

1. Krishan Kumar, R.C. Joshi, and Kuldip Singh, “Tolerating DDoS Attacks using Dynamic Rate limiting,” International Review on Computers and Software ,ISSN 1828-6003, Volume 1 N.2, pp. 156-163, September 2006.
2. Krishan Kumar, R.C. Joshi, and Kuldip Singh, “Distributing overheads in ISP domain to detect DDoS attacks,” International Journal of Computers & Applications, 2007 ACTA press, (Accepted- Paper 202-2326).
3. Krishan Kumar, R.C. Joshi, and Kuldip Singh, “Detecting DDoS attacks using Traffic Feature Distributions in ISP Domain,” International Journal of Digital Information & Management, (under review- Document control No. RP 235).

### **International Book Chapter:**

1. Krishan Kumar, R.C. Joshi, and Kuldip Singh, “An ISP Level Distributed approach to detect DDoS Attacks,” Innovative Algorithms and Techniques in Automation, Industrial Electronics and Telecommunications, ISBN: 978-1-4020-6265-0 (Print) 978-1-4020-6266-7 (Online), **Springer** Netherlands, DOI 10.1007/978-1-4020-6266-7, Pages 235-240, September 04, 2007.

### **International Conferences**

1. Krishan Kumar, R.C. Joshi, and Kuldip Singh, “Predicting Number of Attackers using Regression analysis,” In Proceedings of **IEEE** International Conference on Information and Communication Technology,” DOI 10.1109/ICICT.2007.375402 ISBN: 984-32-3394-8, pp. 319-322, March,2007, Dhaka, Bangladesh.
2. Krishan Kumar, R.C. Joshi, and Kuldip Singh, “A Distributed Approach using Entropy to Detect Attacks in ISP Domain,” In Proceedings of **IEEE** International Conference on Signal Processing, Communications and Networking, 2007, DOI 10.1109/ICSCN.2007.350758, ISBN 1-4244-0997-7, pp. 331-337, MIT, Chennai, Feb., 2007.

3. Anjali Sardana, Krishan Kumar, R.C. Joshi, and Kuldip Singh, "Detection and Honey-pot Based Redirection to Counter DDoS Attacks in ISP Domain," Third **IEEE, CS** International Symposium on Information Assurance and Security (IAS07), Domain, Digital Object Identifier 10.1109/ISIAS.2007.4299773, pp.:191 – 196, UK, Aug. 2007.
4. Krishan Kumar, R.C. Joshi, and Kuldip Singh, "A Distributed Approach to Detect DDoS Attacks in ISP Domain," **21<sup>st</sup> IEEE**, International Conference on Advanced Information and Networking Applications, Canada, (**AINA-2007**), (Accepted - to be published on IEEE eXplore).
5. Krishan Kumar, R.C. Joshi, and Kuldip Singh, "Detecting Low Rate Degrading and High Bandwidth Disruptive DDoS attacks in ISP Domain," In Proceedings of International Conference on Information Security and Computer Forensics, ISBN 81-8284-141-0, pp 83-88, Chennai, Dec. 2006.
6. Krishan Kumar, R.C. Joshi, and Kuldip Singh, "Filtering High Bandwidth DDoS Attacks using Traffic Level Measurements," In Proceedings of International Conference of Next Generation Communications ICONGENCOM-06, pp.210-213, Allahabad , Dec. 2006.
7. Bhavana. Gandhi, Krishan Kumar, R.C. Joshi, "An Efficient DSP-Based Technique to Detect the Signature of Shrew Attacks," In Proceedings of International Conference of Signal and Image Processing ICSIP-2006, Vol. 2, pp. 897-902, Coimbatore, Dec. 2006.
8. Bhavana Gandhi, K. Kumar, R.C. Joshi, "A Novel EPSD Based Approach for Characterization of DDoS Attacks," In Proceedings of International Conference of Next Generation Communications ICONGENCOM-06, pp. 214-218 , Allahabad, Dec. 2006.
9. Rajesh Sharma, Krishan Kumar, Kuldip Singh, and R.C. Joshi, "Shared Based Rate Limiting: An ISP level Solution to Deal DDoS Attacks," In Proceedings of **IEEE** Annual India Conference, 2006, Digital Object Identifier 10.1109/INDCON.2006.302831, pp.1-6, IIT Delhi, Sep., 2006.

#### **National Conferences/Seminars:**

1. Krishan Kumar, Rajesh Sharma, Vijay Kumar Allu, Kuldip Singh, and R C Joshi, "An ISP level solution to defend Distributed Denial of Service attacks," National Conference on Mathematical Techniques (MATEIT 2006).pp 53-57, Delhi.

2. Krishan Kumar, R C Joshi, and Kuldip Singh,“ An Integrated Approach for Defending Against Distributed Denial-of-Service (DDoS) Attacks,” **IRISS-2006** , IIT Madras. Available at <http://www.cs.itm.ernet.in/~iriss06/paper.html> .

## **Teaching Statement**

Throughout my academic life I have learned to appreciate good teachers, the ones that could deliver their ideas clearly, and that could engage all the students in the class. Those professors managed to instill not only the knowledge about the topic they taught, but also a deeper desire to learn more. The best teachers achieved this by showing their own enthusiasm and desire to learn from their students. I believe that a good teacher never stops learning. Teaching is yet another level for understanding the material, and it is a great opportunity for self improvement. Moreover, it offers a great reward when the students surpass the teacher and generate new and insightful ideas. So far, I have taught B.Tech. subjects only, but I hope I will have the opportunity to teach some of the topics related to my research in future and that will definitely excite me most in my faculty career.