

# BIO DATA



**NAME** : **RAJ KUMAR**

**FATHER'S NAME** : LATE SH. M D BHATIA

**DEPARTMENT** : COMPUTER SCIENCE

**CURRENT DESIGNATION** : Assistant Professor (Stage -III)

**DATE AND PLACE OF BIRTH** : 20.01.1970, Hardwar

**SEX** : Male

**MARITAL STATUS** : Married

**NATIONALITY** : Indian

**ADDRESS FOR CORRESPONDENCE** : 55, Jagdish Nagar  
Near Sec. 2 Barrier  
JWALAPUR  
HARIDWAR (UTTARAKHAND)  
INDIA

**MOBILE NUMBER** : 8218463648

**Email** : [rajbhatia@gkv.ac.in](mailto:rajbhatia@gkv.ac.in)  
[rajbhatiagkv@gmail.com](mailto:rajbhatiagkv@gmail.com)

## ACADEMIC QUALIFICATIONS :

EXAMINATIONS	NAME OF THE BOARD/ UNIVERSITY	YEAR OF PASSING	DIVISION	SUBJECTS
High School	U P Board	1986	First	Eng, Hindi, Maths, Science., Soc Sc.
Intermediate	U P Board	1988	First	Eng, Hindi, Maths, Phy., Chemistry
B.Sc.	GKV, Hardwar	1991	First	Physics, Chemistry, Maths
PGDCA	GKV, Hardwar	1992	First	Computer Science
M.Sc..	GKV, Hardwar	1994	First	Physics
M.C.A.	IGNOU, New Delhi	2003	First	Computer Science

**RESEARCH DEGREE :**

DEGREE	TITLE	UNIVERSITY
PhD.	Deadlock Free Wormhole Routing	GKV, Hardwar

**FULL TIME EXPERIENCE:**

DESIGNATION	DEPARTMENT	DATE OF ACTUAL JOINING	
		FROM	TO
Lecturer	Rustamji Institute of Technology, Gwalior	10/2/2003	7/4/2003
Lecturer	Computer Science	09/04/2003	31/12/2005
Asst. Professor	Computer Science	01/01/2006	09/02/2007
Asst. Professor (Stage - 2)	Computer Science	10/2/2007	09/02/2012
Asst. Professor (Stage - 3)	Computer Science	10/2/2012	Till date

**RESEARCH EXPERIENCE : 14 YEARS****FIELDS OF SPECIALIZATION:**

- a) Distributed Computing
- b) Software Product Line
- c) Wireless Sensor Networks
- d) Cloud Computing

**ACADEMIC STAFF COLLEGE ORIENTATION/REFRESHER COURSE/FDP ATTENDED:**

NAME OF COURSE/ SUMMER SCHOOL	PLACE	DURATION
Orientation Course	Panjab University, Chandigarh	Four Weeks (2 Dec. – 29 Dec., 2008)
UGC Refresher Course “ <i>Information Technology</i> ”	Panjab University, Chandigarh	Three Weeks (30 Nov.-20 Dec., 2011)
AICTE Sponsored Faculty Development Programme	Omkarananda Institute of Management & Technology	Two Weeks (8 Dec. – 22 Dec., 2013)
AICTE Sponsored Faculty Development Programme	Sri Lal Bahadur Shastri Rastriya Sanskrit Vidyapeetha (Deemed to be University), New Delhi	One Week (6 Jan. – 10 Jan., 2020)
AICTE Training and Learning (ATAL) Academic Online Elementary FDP on “ <i>Blockchain Technologies and Its Applications</i> ”	Malviya National Institute of Technology, Jaipur	One Week (6 Sept. – 10 Sept., 2021)

AICTE Training and Learning (ATAL) Academic Online Elementary FDP on "Smart City Technologies"	Gurukula Kangri Vishwavidyalaya, Haridwar	One Week (20 Sept. – 24 Sept., 2021)
--	---	--------------------------------------

#### SEMINAR/ SYMPOSIUM/ WORKSHOPS/ CONFERENCES ATTENDED:

1.	कंप्यूटर विज्ञान विभाग गु० का० वि० वि० हरिद्वार एवं वैज्ञानिक तथा तकनीकी शब्दावली आयोग, नयी दिल्ली द्वारा, 6–10 जनवरी, 1997 में आयोजित कंप्यूटर विज्ञान की हिन्दी तकनीकी शब्दावली का विकास एवं अनुप्रयोग विषय पर राष्ट्रीय कार्यशाला
2.	International Vedic Conference on Contribution of the Vedas to the World, organized by GKV, Hardwar from 27 <sup>th</sup> Jan. – 30 <sup>th</sup> Jan. 2005.
3.	2 <sup>nd</sup> National Conference on Intelligent Systems and Networks, organized by Center for Advanced Technology, Haryana Engineering College, Jagadhary (Haryana) from Feb.25-26, 2005.
4.	National conference on Development of Reliable Information Systems, Techniques and Related Issues organized by Ajay Kumar Garg engineering College, Gaziabad from March 16- 17, 2012.
5.	1 <sup>st</sup> International Conference on Emerging Advance Technologies for Human Development (EATHD – 2012) organized by Shanti Institute of Technology, Meerut from Aug.11-12, 2012.
6.	2 <sup>nd</sup> International Conference on Issues and Challenges in Networking, Intelligence and Computing Technologies, organized by Krishna Institute of Engineering & Technology, Gaziabad from Sept. 7- 8, 2012.
7.	National Workshop on "Business Analysis using Python", Organized by Department of Computer Science, Gurukul Kangri Vishwavidyalaya, Haridwar during 01-02 November, 2019.
8.	Two Days National Workshop on "Matlab Implementation Using Neural Networks", Organized by Department of Computer Science, Gurukul Kangri Vishwavidyalaya, Haridwar during 22-23 January 2020.
9.	NAC Sponsored Workshop "A Paradigm Shift from Content Based to Outcome Based Education", organized by Thapar Institute of Engineering & Technology, Patiala from Aug. 26- 27, 2021.

#### PH. D. GUIDANCE EXPERIENCE:

SN	Name of Research Scholar	Topic of Research Work	Research Area	Status
1.	Lalit Kishore	Performance Evaluation of Interconnection Networks with Source Routing	Interconnection Network	Awarded

2.	Tushar agarwal	Security Management in Wireless sensor Networks	Wireless Sensor Network	Awarded
3.	Shard Goyal	A Study on Performance Evaluation of Wireless sensor Networks	Wireless sensor Network	Awarded
4.	Nishant Kumar	Optimizing QoS by Scheduling Algorithms in Cloud Computing Environment	Cloud Computing	Awarded
5.	Shelendra Pal	Analysis and Design of an Efficient Tool for Cancer Detection	Awarded	Awarded
6.	Satendra Kumar	Test Case Prioritization Techniques for Software Product Line	Software Engineering	Awarded
7.	Ashish Saini	Study and Analysis in Software Product Line Testing	Software Engineering	Submitted

### RESEARCH PUBLICATIONS:

- [1]. Vinod Kumar and **Raj Kumar**, "*Deadlock Detection and Recovery Algorithm for Wormhole Routing in Meshes Without Virtual Channels*", Proceedings of the 2<sup>nd</sup> National Conference on Intelligent Systems and Networks, organized by Center for Advanced Technology, Haryana Engineering College, Jagadhri (Haryana) from Feb.25-26, 2005, pp. 174-180. 2004-05
- [2]. L K Arora, **R K Bhatia** and K J Bhatia, "*Study of Evaluation for Interconnection Networks*", Proceedings of National Conference on Emerging Technologies and Trends in IT, ITS Ghaziabad from April 06 – 07, 2007, pp.309 -312. 2006-07
- [3]. Lalit Kishore, **Raj Kumar**, "*Raising Up\*/Down\* Routing in Irregular Interconnection Networks*", Proceedings of International Conference on IT & Management, MAMIT, Jagadhri, Haryana, page- 314-320, ISBN: 0978-93-80697-02-4, 8-May-2010. 2009-10
- [4]. **Raj Kumar** and Sharad Goyal, "*Comparative Performance Analysis of Load-Balanced Clustering in Wireless Sensor Networks (WSNs)*", In Pragyan: Journal of Information Technology, Vol.8, No.1, pp. 10-16, June 2010. ISSN No.: 0974-5513. (Published) 2009-10
- [5]. **Raj Kumar** and Sharad Goyal, "*Conserving Energy of WSNs by Using 3Rs Way*", in Proceedings of the 4<sup>th</sup> National Conference on Computing for Nation Development (INDIACom-2010), February 2010, ISSN No.: 0973-7529; ISBN No.: 978-81-904526-9. 2009-10
- [6]. Lalit Kishore, **Raj Kumar**, "*Stratagems to perk up the Up\*/Down\* Routing Scheme*", IMS-MANTHAN an International Journal, ISSN-0974-7141 (Print) ISSN-0976-1713 (Online), Volume 5- Issue 2, pp. 53-58, Dec-2010. 2010-11

- [7]. Lalit Kishore, **Raj Kumar**, "*Network-on-Chip Evaluation Study for Energy*", 2010-11  
 Proceeding on International Conference on Reliability, Infocom Technology and Optimization, Lingaya's University, Faridabad. ISBN:978-81-909732-2-9, Vol-01, page 633-637 on 1-3 Nov, 2010.
- [8]. Lalit Kishore, **Raj Kumar**, "*Optimizing Up\*/Down\* Routing By Minimal Paths*", 2010-11  
 International Journal of Computer Applications, ISBN:0975 – 8887, Volume 5– No.1, page 17-20, August 2010.
- [9]. Lalit Kishore, **Raj Kumar**, "*Heightening Up\*/Down\* Routing for Irregular Interconnection*", Accepted in IACSIT and IEEE sponsored International Conference on Electronics and Information Engineering (ICEIE-2010), August 1 - 3, 2010, Kyoto, Japan. (Accepted) 2010-11
- [10]. Lalit Kishore, **Raj Kumar**, "*Performance Evaluation on the Basis of Energy in NoCs*", International Journal of Innovative Technology and Creative Engineering (IJITCE), ISSN:(Online) 2045-8711, (Print) 2045-869X, No-01, Vol-02, Feb, 2011. 2010-11
- [11]. Lalit Kishore, **Raj Kumar**, "*Simulation and Analysis of Packet loss in Mesh Interconnection Networks*", in IJCA proceedings on Development of Reliable Information Systems, Techniques and Related Issues, DRISTI(1):35 - 38, April 2012, which is published by Foundation of Computer Science, New York, USA. 2011-12
- [12]. Tushar Agarwal, **Raj Kumar**, Hitesh Rajvansi, Sohan Garg, "*Design and Development of Secured Routing Scheme for Wireless Sensor Networks*", in International Journal of Engineering Research and applications (IJERA), Vol. 1, Issue 3, pp. 974- 985, Sept. 2011. (ISSN : 2248- 9622). 2011-12
- [13]. Tushar Agarwal, **Raj Kumar**, Pramod Sharma, Sohan Garg, "*An Engineering approach for Secure Wireless Sensor Networks*", in International Journal of Modern Engineering Research (IJMER), Vol. 1, Issue 2, pp. 733-741. (ISSN : 2249-645). 2011-12
- [14]. Lalit Kishore, **Raj Kumar**, "*A Survey on Recent Enhancements of Interconnection Networks*", International Conference on Recent Trends in Computing (ICRTC 2012) SRM University, NCR Campus, India, October 4-5, 2012. 2012-13
- [15]. Lalit Kishore, **Raj Kumar**, "*Simulating the Mesh with Source Routing for Packet Loss*" International Conference on Communications & Electronics (ICCE-2012), KIET, Ghaziabad, 19-20 October 2012. 2012-13
- [16]. Lalit Kishore, **Raj Kumar**, "*C<sup>2</sup>Mesh: New Proposed Topology*", International Conference on Communications & Electronics (ICCE-2012), KIET, Ghaziabad, 19-20 October 2012. 2012-13
- [17]. Lalit Kishore, **Raj Kumar**, "*Performance Analysis of Interconnection Networks for Packet Delay using Source Routing*", International Conference on Issues & Challenges in Networking, Intelligence & Computing Technologies (ICNICT'2012), KIET, Ghaziabad, 7-8 September, 2012. 2012-13

- [18]. Lalit Kishore, **Raj Kumar**, "*Performance Analysis of Interconnection Networks for Packet Delay Using Source Routing*", in Special Issue of Internal Journal of Computer Applications, November 2012, ISSN 0975 – 8887. 2012-13
- [19]. Lalit Kishore, **Raj Kumar**, "*Alternatives of XY-Routing for Mesh*", International Conference on Issues & Challenges in Networking, Intelligence & Computing Technologies (ICNICT'2012), KIET, Ghaziabad, 7-8 September, 2012. 2012-13
- [20]. Lalit Kishore, **Raj Kumar**, "*Performance Evaluation of Mesh with Source Routing*", 1<sup>st</sup> International Conference on Emerging Advance Technologies for Human Development (EATHD-2012), SIT Meerut on , 11 & 12 August 2012, and published in the proceedings of the conference on pages 42-48. 2012-13
- [21]. Lalit Kishore, **Raj Kumar**, "*Simulation and Analysis of Packet loss in Mesh Interconnection Network with Source Routing*", International Journal of Advanced Research in Computer Science and Software Engineering, ISSN: 2277 128X, Volume 2, Issue 6, June 2012. 2012-13
- [22]. **Raj Kumar** and Sharad Goyal, "*Perspective of WSNs Simulators*", in Int. Journal of Information Engineering (IJIE), Vol. 3, Issue 2, June 2013, pp. 37- 44, ISSN No.: 2225-8442 (Print); ISSN No.: 2226-7921 (Online). 2012-13
- [23]. Sharad Goyal and **Raj Kumar**, "*Topology Analysis in Wireless Sensor Networks*", in USSTC: 7th Uttarakhand State Science and Technology Congress, 2012. (Published) ([www.ucost.in](http://www.ucost.in)) 2012-13
- [24]. L.K. Arora, **Raj Kumar**, "*C<sup>2</sup>Mesh*", in Proceedings of 2013 IEEE 3<sup>rd</sup> International Advanced Computing Conference (IACC), pp. 282- 286, Feb, 2013. (ISBN : 978-1-4673-4527-9). 2012-13
- [25]. Tushar Agarwal, **Raj Kumar**, Pramod Sharma, Sohan Garg, "*WSNs: Comparison Study of Existing Routing Protocols*", in International Journal of Multidispl. Research & Adves. In Engg. (IJMRAE), Vol. 4, No. III, pp. 153- 165, July 2012. (ISSN : 0975-7074). 2012-13
- [26]. Tushar Agarwal, **Raj Kumar**, Pramod Sharma, Sohan Garg, "*Design & Development of an Effective Routing Technique for Wireless Sensor Networks*", in International Journal of Advanced Research in Computer Science and Software Engineering (IJARCSSE), Vol. 2, Issue 4, pp. 373- 376, April 2012. 2012-13
- [27]. Lalit Kishore Arora, **Raj Kumar**, "*Performance Evaluation of Mesh with Source Routing for Packet Loss*", in International Journal of Scientific research Engineering & Technology (IJSRET), Vol. 1, Issue 5, pp 124- 129, August 2012, ISSN 2278-0882 2013-14

- [28]. Nishant Kumar, Mayank Aggarwal, **Raj Kumar**, Spandan Singh, Chirag Goel, "*An Application Deployment to OpenShift Cloud using Existing Git Repository from Local Client*", in International Journal of Engineering and Computer Science, Vol. 4, Issue 1, Jan. 2015. ISSN 2319-7242. 2014-15
- [29]. Nishant Kumar, Mayank Aggarwal, **Raj Kumar**, "*A Comparative Analysis of Scheduling Algorithms affecting QoS in Cloud Environment*", in International Journal of Computer Science and Network, Vol. 4, Issue 1, pp. 142-147, Feb. 2015. ISSN 2277-5420. 2014-15
- [30]. Shelendra Pal, Vipul Sharma, **Raj Kumar** and Shyam Kamal "*Using Finite Difference Time Domain for Cancer Detection: A Selective Review*", in International Journal of Sensor, Wireless Communications and Control, Vol. 5, issue 2, 2015. ISSN : 2210-3287 (online), 2210-3279(print). 2015-16  
<https://www.scopus.com/sourceid/21100817136>
- [31]. Nishant Kumar, **Raj Kumar**, "*Optimized Cost Model with Optimal Resource Usage for Cloud*", 50<sup>th</sup> Golden Jubilee Annual Convention on "Digital Life", CSI, New Delhi. 2015-16
- [32]. Satendra Kumar, **Raj Kumar**, "*Test Case Prioritization Techniques for Software Product Line: A Survey*", IEEE International Conference on Commuting Communication and Automation (IICCCA-2016), School of Computing Science and Engineering, Galgotia University, Greater Noida on 29-30<sup>th</sup> April, 2016. 2016-17
- [33]. Amit Prakash, Karamjit Bhatia, **Raj Kumar**, "*Multiple- objective Particle Swarm Optimization Algorithm for Independent Task Scheduling in Distributed Heterogeneous Computing Systems*", International Journal of Computer Trends and Technology, Vol. 45, Issue 1, pp. 10- 20, March 2017, ISSN 2231- 2803. 2016-17
- [34]. Satendra Kumar, Rajkumar, "*Cost- Based Test Case Prioritization Technique for Software Product Line*", in International Journal of Scientific Progress and Research, Vol. 40, Issue115, pp. 2016- 212, No. 4, 2017. ISSN 2349-4689. 2017-18
- [35]. Nishant Kumar, Raj Kumar and Mayank Agarwal, "*Energy Efficient DVFS with VM Migration*", in European Journal of Advances in Engineering and Technology, 5(1), 2018, PP. 61-68. ISSN 2394-658X. 2017-18
- [36]. N. Kumar, M. Aggarwal and R. Kumar, "*Optimized Cost Model with Optimal Disk Usage for Cloud*", Big Data Anal. Adv. Syst. Comput., pp 481- 485, 2018. (SCOPUS INDEXED journal) 2018
- [37]. A. Saini, Rajkumar and S. Kumar, "*Software Product Line Configuration Generation Using Different Types of Tools- A Comparison*", in International Journal of Computer Science and Engineering, Vol. 6, Issue 4, April 2018, pp.105- 109. E-ISSN : 2347- 2693. (UGC Approved, No. 63193) 2017-18

- [38]. Nishant Kumar, R. Kumar, "*Energy Efficient Host Overloading Detection Algorithm in Cloud Computing*", in International Journal of Computer Science and Engineering, Vol. 6, Issue 7, July 2018, pp.1521- 1525. E- ISSN : 2347- 2693. (UGC Approved, No. 63193) 2018-19
- [39]. Shelendra Pal, Rajkumar and Vipul Sharma "*Two dimensional Finite difference Time Domain Tool for cancer detection on Scilab*", in International Journal of Computer Sciences and Engineering, Vol. 6, Issue 9, 2018. E-ISSN : 2347-2693. (UGC Approved, No. 63193) 2018-19
- [40]. Ashish Saini, Rajkumar and Satendra Kumar. "*A Systematic Literature Survey on Software Product Line Testing*", International Journal of Research and Analytical Reviews (IJRAR), Jan. 2019, Vol. 6, Issue 1, E-ISSN 2348-1269, P- ISSN 2349-5138. (UGC Approved, No. 43602) 2018-19
- [41]. Satendra Kumar, Rajkumar, et.el., "*Adapted Rank Order Clustering-based Test Case Prioritization for Software product Line Testing*", International Journal of Advanced Intelligence Paradigms, June 2019 (SCOPUS INDEXED journal) <https://www.scopus.com/sourceid/20400195003> 2018-19
- [42]. Satendra Kumar, Raj Kumar, Monika Rani. "*Collaborative Filtering-based Test Case Prioritization and Reduction for Software Product Line Testing*", in Proc. in TENCON 2019, A premier international technical conference of IEEE Region 10. 2019-20
- [43]. Ashish Saini, Rajkumar, Satendra Kumar, "*Artificial Neural Network Approach for Software Product Line Testing*", in International Journal of Scientific & Technology Research, Vol. 8, Issue 11, Nov. 2019, ISSN 2277-8616. (SCOPUS INDEXED) <https://www.scopus.com/sourceid/21100894501> 2019-20
- [44]. Shelendra Pal, Rajkumar and Vipul Shrama, "*Cancer Prediction in Skin Cell Culture using Finite Difference Time Domain*", International Journal on Emerging Technologies 10(4): 171-176(2019), ISSN No. (Print): 0975-8364, ISSN No. (Online): 2249-3255 (SCOPUS INDEXED) <https://www.scopus.com/sourceid/21100901133> 2019-20
- [45]. Nishant Kumar and **Raj Kumar**, "*Scheduling of Tasks (Cloudlets) in Heterogeneous Processing Cloud Environment*", International Journal on Emerging Technologies 11(3): 2020, ISSN No. (Print): 0975-8364, ISSN No. (Online): 2249-3255 (SCOPUS INDEXED) <https://www.scopus.com/sourceid/21100901133> 2019-20
- [46]. Satendra Kumar, **Rajkumar Bhatia** and Mohit Mittal, "*A Hybrid Approach to Perform Test case Prioritisation and Reduction Software Product Line Testing*", International Journal of Vehicle Autonomous Systems, Vol.15 No.3/4, 2021 (SCOPUS INDEXED) DOI: [10.1504/IJVAS.2020.116439](https://doi.org/10.1504/IJVAS.2020.116439) <https://www.scopus.com/sourceid/18868> 2020-21



- [47]. Ashish Saini, **Rajkumar** and Satendra Kumar, "[Software Product Line Testing - A Proposal of Distance Based Approach](#)", Springer International Conference of Artificial Intelligence and Sustainable Engineering (AISE-2021), Jan 18- 20, 2021, National Institute of Technology, Goa. 2020-21
- [48]. Ashish Saini, Satendra Kumar, **Rajkumar** and Mohit Mittal, "[Prediction of Euclidean Distance between Existing and Target Product for Software Product Line Testing using FeatureIDE](#)", Int. J. of Engineering Systems Modelling and Simulation, 12(4), 239-251, 2021. (SCI INDEXED) 2021-22  
<https://www.scopus.com/sourceid/21100198227>
- [49]. Ashish Saini, **Raj Kumar**, Gaurav Kumar, Satendra Kumar, Mohit Mittal, 2021--22  
"[Software Product Line Regression Testing Based on Fuzzy Clustering Approach Using Distance Method](#)", International Journal of Engineering Systems Modelling and Simulation. DOI: **10.1504/IJESMS.2021.10043161**  
<https://www.scopus.com/sourceid/21100198227>

#### BOOKS AUTHORED :

- [1]. [Object Oriented Techniques \(with Java\)](#) Published by S.K. Kataria & Sons, New Delhi in 2010-11. (Co author : Lalit Kishore Arora)
- [2]. [Concepts of Programming and OOPs](#) Published by S.K. Kataria & Sons, New Delhi in 2013. (Co authors : Dr. Lalit Kishore Arora and Dr. Anjali Arora)