

## **BIODATA**



- 1. Name** : Harish Kumar
- 2. Father & Mother Name** : Sh. Niranjana Dass & Smt. Padma Devi
- 3. Designation** : Professor in Computer Science and Engineering,  
UIET, Panjab University, Chandigarh (UT)  
India – 160014 (uiet.puchd.ac.in)
- : Honorary Director, Centre for Skill Development &  
Entrepreneurship, Panjab University, Chandigarh (UT)  
(csde.puchd.ac.in)
- 4. Employment Experience** : 1 Year (Industry), 19+ Year Teaching & Research

<b>Organization</b>	<b>Post</b>	<b>Period</b>
Panjab University	Professor in CSE	July 2016-Till Date
	Honorary Director, Centre for Skill Development & Entrepreneurship	November 2015-Till Date
	Associate Professor/ Reader in CSE	2010-2016
	Assistant Professor/ Lecturer in CSE	2002-2010
KCW, Ludhiana	Lecturer in CS	2001-2002
TCYOnline Solutions	Consultant	2000-2001

### **5. Educational Background:**

<b>Examination</b>	<b>University/Board</b>	<b>Year</b>
Ph.D. (Computer Science)	Panjab University, Chandigarh, India	2009
M. Tech. (Computer Science & Engineering)	Punjab Agricultural University, Ludhiana	2001
B. E. (Computer Engineering)	Punjab Technical University, Jalandhar, India	1999

### **Specialized Training:**

<b>Executive Education Training</b>	<b>Institution</b>	<b>Year</b>
Building Excellence in Professional Higher Education Institutions	Indian School of Business (ISB), Hyderabad	2014
Management Capacity Enhancement for Administrators	Indian Institute of Management (IIM), Lucknow	2014
Telecommunication Technology	FreeSwitch, Chicago (USA)	2016

- 6. Research Areas** : Next Generation Telecommunication Network, Cyber Security, Network Science, Tele-Health Convergence

### **7. Awards and Recognition:**

- Visvesvaraya Young Faculty Research Fellowship (YFRF) by Ministry of Electronics and IT, Government of India, 2016
- International Travel Grant Fellowship for Young Teachers by AICTE, MHRD, Govt. of India, 2008

- 2<sup>nd</sup> Teachers Excellence Award by Dr. GC Mishra Memorial Trust at Chandigarh on Teachers Day-2019
- Travel Grant by IIIT, Bangalore to attend 'Technology for Education (T4E)' workshop at Bangalore, 2009
- Merit Certificate, Government of Punjab, 1993

#### 8. Sponsored Projects/Consultancy Work:

SN	Title and Role	Funds / Agency	Duration
18	Multi-Modal Framework for Monitoring Active Fire Locations (AFL) and Precision in Allied Agricultural Activities using Communication Technologies (PI)	Rs. 81.25 Lacs (US\$116K)/ MeitY, GoI	April 2020-March 2022
17	Design of Monitoring & Surveillance System for Active Fire Locations in Haryana (PI)	Rs. 5.5 Lacs (US\$7900) / Agriculture Department, Haryana	September 2019 - March, 2020
16	Development of 5G based UAV Augmented Intelligent Monitoring and Surveillance System (Co-PI)	Rs. 186 Lacs (US\$265K)/ MeitY, GoI and Coral Telecom	2019-2022
15	ICMR Centre for Innovation and Bio-Design (CIBioD) (Co-PI) <a href="http://www.cibiod.in">www.cibiod.in</a>	Rs. 496 Lac (US\$709K)/ICMR,GoI	July 2019-2022
14	Kisan Mitra (PI)	Rs. 14.84 Lacs (US\$21K)/ Agriculture Department, Haryana	January 2019-February, 2020
13	Mobile Application Based Solution for Sanitation Monitoring of Hostels in Panjab University	Rs. 6.6 Lacs (US\$9.5K)/ Innobles Smart Technologies, Delhi	October 2018- March 2019
12	Visvesvaraya Young Faculty Research Fellowship (PI)	Rs. 37 Lacs (US\$53K) / Media Lab Asia, GoI	May 2016-March 2020
11	Technical Education Quality Improvement Programme-III (Nodal Officer-Academic)	Rs. 700 Lac (US\$1000K)/ World Bank and MHRD, GoI	April 2017-September 2020
10	Skill and Personality Development Programme Centre for SC/ST Students (SPDP) (PI)	Rs. 23.35 Lac (US\$33K)/ AICTE, GoI	2017-2020
9	Development of Unified IP based Communication Platform for Voice, Video, Data, Messaging & Chat Services (Co-PI)	Rs. 60 Lacs (US\$86K)/ Meity, GoI and Coral Telecom	2016-March 2020
8	Technical Education Quality Improvement Programme-II (Nodal Officer-Academic)	Rs. 1500 Lac (US\$2143K)/ World Bank and MHRD, GoI	September 2012-March 2017

SN	Title and Role	Funds / Agency	Duration
7	Facilities for TCS Application System (iON)	Rs. 2.0 Lac (US\$4K) Tata Consultancy Services	August 2012 - August 2015
6	Hostel Facility for SC/ST Students along with Community Skill Development Centre for their Skill Empowerment (PI)	Rs. 200 Lac (US\$286K)/ GoI AICTE,	March 2013- March 2017
5	Garnering Academia Perspective on Product Engineering Processes (PI)	Rs. 2.8 Lac (US\$4K)/ Infosys Limited	May 2011- July 2011
4	Simulation & Experimental test bed for Routing Algorithms in Mobile Ad-hoc Networks (Co-PI)	Rs. 11.05 Lac (US\$16K)/ DST, GoI	2009-2012
3	International Travel Grant Fellowship for Young Teachers	Rs. 74000/- (US\$1.1K) GoI AICTE,	2008
2	To explore the network requirement and implement Giga-Bit Ethernet technology along with ATM backbone of the University	Rs. 38.96 Lac (US\$56K)/ Panjab University	2005-2008
1	Conceptualize and development of Portal	TCY Learning Solutions	2001

**9. Teaching Subjects** : Information Retrieval, Mobile Computing, Data Structure & Algorithms, Computer Networks, Web Technologies, Software Testing & Quality, Business Intelligence, Telecommunication Technology

**10. Publications:** Journals: 42                      Technical Reports: 02  
Book Chapters: 19                      Conference Proceedings: 40  
Product: 02                              Patent: 03 (Published)

**Selected List:                      Annexure – I (Page # 7)**

**11. Extension and Research Interaction:**

- **Sessions Chaired (15+)** in various conferences like ICC2008 (Oradea), ICTRD-2009, IEEE ICAER'10, NHSS-2011, ETNCC-2011 (Udaipur), RIET-2012, Confluence 2012 (Noida), NCRAET-2013, CHASCON, CSI Convention-2013 (Visakhapatnam), GCET-2018 (Tampa) etc.
- **Invited Talks (40+)** on different occasion at various institutes/ events like ETNCC-2011, NITTR Chandigarh, Infosys Limited, 5th SERC School (DST), MIET Meerut, BBSBEC, HRDC PU, ClueCon-2016 (Chicago), TelecoDays-2017 (Mumbai), GCET-2017, SAU (Delhi), DLIS PU-2019, CMD-OSS PU 2019, WSU-2019 (Sydney), DLIS-2020, AHC-2020 etc.
- Key Note Address during National Conference on 'Recent Trends in Computer and Communication Technology', February 21, 2015
- **Key Note address** during 5th International Conference on Future Network Systems and Security (FNSS), November 25-29, 2019, Melbourne, Australia
- Coordinator/ Team member to organize 15+ events like Cyber Security Symposium, Panel Discussions, Seminars, NanoSciTech-2012, National Conclave-2011, CHASCON-2011, IW-NMWR-2010, CCC-2009, WCES-2007, 91<sup>st</sup> ISC-2004 etc.

- Convener, Project Competition Team during CHASCON-2011
- Organizing Secretary, Association of Indian University's 3<sup>rd</sup> ANVENSEN-2010
- Coordinator, UGC sponsored Refresher Course in Information Technology 2011
- **Program Co-Chair**, International Conference on Integrated Interdisciplinary Innovations in Engineering (ICIIE-2020), August 28-30, 2020, Chandigarh, India (Sponsored by TEQIP-III and Indian National Science Academy)
- Organizer Special Session on 'Telecommunications and AI: Use-Cases in Healthcare and Agriculture', IEEE Conference on Innovative Technologies in Intelligent Systems & Industrial Applications (CITISIA), November 25-27, 2020, Sydney, Australia
- **Training Attended 15+** programmes at institutes & industry like IISc Bangalore, ISB Hyderabad, IIM Lucknow, IDC Chandigarh, CoE Pune, IISc Bangalore, Infosys Limited, ESPL, Microsoft, Virtual Labs IIT Delhi etc.

## **12. University/ Institute Visits for Interaction (International and National):**

India: IISc Bangalore, IIT Ropar, IIM Lucknow, Amity University, GB Pant University, MP University of Agriculture and Technology, South Asian University, ISB Hyderabad

USA: Massachusetts Institute of Technology (MIT), CyLab (Carnegie Mellon University), Pardee RAND Graduate School, Brown University, Florida Poly University

Australia: Deakin University (Melbourne), Western Sydney University (Sydney)

Europe: Agora University (Romania)

## **13. Administrative and Academic Initiatives:**

### • **Coordinator, CSE Department, UIET, Panjab University, Chandigarh**

*(August 2002–April 2009, January 2018-Till Date):*

- Instrumental in setting up of UIET an in-campus engineering institute of Panjab University as Branch Coordinator of Computer Science & Engineering since its inception in 2002. Successfully developed and implemented all the activities like curriculum development, laboratories, examination process etc. for B.E.-CSE and ME-CSE programme by leading team of faculty members and staff.
- Developed 07 laboratories on platforms like Linux, MS-Windows, Sun Solaris etc.
- Co-founded 'Telecommunication Research Laboratory'
- Designed and implemented managed Wifi and Wired network with in campus on OFC as backbone.
- Designed, proposed & started M.E.-CSE programme from 2008 onwards.
- Designed, proposed & started M.E.-CSE (Cyber Security) from 2019 onwards
- Switching from brick mortar architecture to complete Online Semester during COVID-19
- In-charge of e-Akademic portal for managing attendance, results etc.

### • **Honorary Director, Centre for Skill Development & Entrepreneurship**

- Set-up the center in Panjab University by ensuring provision in university budget.
- Organized 25+ skill development programmes in the university campus.
- Proposed and got established Skill Development Board (SDB) for taking care of skill needs of students.
- Developed a training incubator facility and initiated 10 trainee start-ups.
- Initiated 35 B.Voc. courses in Skill Development in the affiliated colleges.

- *Member of PU Core Team to sensitize and mobilize around 4000 participants for one-month long Yoga Camp and then for International Yoga Day-2016 in Capitol Complex, Chandigarh (UT)*
  - Planning, training, interface with UT Administration for Panjab University's participation in the event which is presided by Prime Minister of India on June 21, 2016
- **Warden, GC Chatterji Hall (Boys Hostel # 2), Panjab University, Chandigarh (2011-2016)**
  - Successfully took care of around 350+ residents belonging to various departments of the university. Around 80+ are the research scholars.
  - Took initiative to involve all residents for cooperative cultural & sports activities, cleanliness & tree plantation drives, academic and entertainment activities.
  - Development of structured Wifi facility with in all the hostels premise's for the usage by 6000+ residents
  - Introduced Air-Conditioned common cum reading room facility for the residents
  - Initiated the concept of 'Room with Kitchenette' for the Research Scholars by redesigning the Hostel Room
  - Introduced the software based double entry system of accounting & record keeping enhancing transparency which was replicated in all 21 PU Hostels.
  - Pursued the construction of Servant Quarters using Hostel/ Mess Funds for the benefit of Mess Workers
- **Programme Officer, National Service Scheme (NSS), Panjab University (2011-2016)**
  - Organized a total 6 number of camps of one-week duration.
  - Motivated and involved the students into various activities like environmental awareness, social service, blood donation, organ donation, team work, community kitchen, Swatch Bharat.
- **Coordinator, Online Admissions, Panjab University (2017)**
  - First time online admission for 120+ courses in paperless mode.
  - Online facility included all the processes like form filling by applicant along with uploading the documents, fee deposit, verification of the documents by staff, merit list generation etc., for around 25000 applicants
  - Objective was that students should come to the university campus only after confirmation of admission and to attend the academic course.
- *Assistant Coordinator, IGNOU Study Centre, Panjab University (2012)*
- **Member of:**
  - Standing Committee of PU Alumni Association (PUAA) (2019-Till Date)
  - Advisory Committee, 'Internal Quality Assurance Cell' (IQAC), PU (2019-2020)
  - Core Group of 'IT Sector of PMKVY' for Chandigarh (UT) (2018-Till Date)
  - Board of Management, Government College for Girls Community College, Ludhiana (2016-till date)
  - Library Committee, AC Joshi Library (2012-2014)
  - Core Group of Computer Engineering Division Board of Institution of Engineers (India)
  - National Academic Depository (NAD) Cell, PU (2017-till date)
  - Academic Council, Panjab University (2016-2018)

- Board of Control of DCSA, PU (2012-2015)
- Number of Selection, Expert and Inspection Committees of Panjab University
- National Board of Accreditation (NBA) committees for some institutes
- AICTE's Expert Visit Committees for couple of institutes
- Committee to introduce e-Tender system in PU (2010)
- University Computer Purchase Committee (2010-2013)

#### **14. Additional Information:**

- **Academic Member of:**

- Research Board in Engineering, PU (2018-2019)
- Research Degree Committee in Information Technology, PU (2018-2019)
- Board of Studies in CSE/IT of Panjab University (2003 - till date) and Punjab Technical University (2013 - 2017)
- RDC in NanoScience and Nanotechnology, PU (2014-2015)
- Board of Studies in Library Science of Panjab University (2013 - 2017)
- RMC in Physical Education (2012-2013)
- Academic Committee for CABA-MDTP course of National Council for Promotion of Urdu Language, MHRD, GoI (2011-till date)

- Thesis:

- Ph.D.: 'Auto-Configuration of IP Addresses in Mobile Ad-Hoc Networks (MANET)'
- M.Tech.: 'Client Server Approach for Online Registration'

- Life Member Professional Societies:

- Computer Society of India (Membership# 00097526.)
- Indian Society for Technical Education (Membership# LM-45155)
- Chandigarh Region Innovation & Knowledge Cluster (CRIKC) (Membership# 147/2019)

- Date of Birth : December 17, 1978

- Nationality : Indian

**15. Office Address** : Room # 203, Academic Block # 1, UIET,  
Panjab University, Sector-25,  
Chandigarh (UT) -India

E-mail: harishk@pu.ac.in harishkpu@gmail.com  
Phone: 91-9815964121, 91-172-2534995, 2534988

#### **16. Research Students:**

**PhD Scholars:** Awarded: 04                      Registered: 05;                      Enrolled: 01

**ME Students:** Thesis Completed: 21, In-Progress: 02

**Details: Annexure – II (Page # 14)**

## Annexure-I: Publications Selected List

### Product

1. 'Nah-Sanchar', an open source VoIP-based, RFC compliant, secure Unified Communication system which is scalable from less than 10 lines to 300K lines from a system on chip to server class computing machines.
2. 'e-Notice Board' which can be remotely controlled from any computing device over the Internet.

### Patent

3. 'A System for Detection and Mitigation of Security Attacks in High Availability SIP-Based Communication' published on December 06, 2019 in Indian Patent Registry (Application No. 201911048091 A)
4. 'Antiviral Coating Materials and Method of Preparation Thereof' published on August 07, 2020 in Indian Patent Registry (Application No. 202011027405 A)
5. 'A Portable Currency Sanitizing Wallet Device' filed on July 25, 2020 in Indian Patent Registry (Application No. 202011031887)

### Journal

6. Sahil Kansal, Harish Kumar and Sakshi Kaushal, "A request allocation model for processing data in federated cloud computing", Journal The Electronic Library, Emerald Publisher, DOI 10.1108/EL-01-2019-0005, 2020 (SCI IF: 0.954)
7. Kushal Kanwar, Harish Kumar and Sakshi Kaushal, "Complex network based comparative analysis of Delhi Metro network and its extension", Journal Physica A: Statistical Mechanics and its Applications, Volume 526, 2019, (SCI IF: 2.132)
8. Kushal Kanwar, Sakshi Kaushal and Harish Kumar, "A Hybrid Node Ranking Technique for Finding Influential Nodes in Complex Social Networks", Journal Library Hi Tech, Emerald Insight, 2019, (SCI IF: 1.459)
9. Veenu MOR and Harish KUMAR, "A Proposed System Using Genetic Algorithm for Energy Efficiency in Wireless Mesh Networks", Gazi University Journal of Science, Volume 32, Number 2, pp 440-456, 2019
10. N Gupta, Nitish Mahajan, Sakshi Kaushal, Harish Kumar & Naresh Kumar, "Predictive model for hardware calibration to transmit real-time applications in VoIP networks", Concurrency & Computation: Practice & Experience, Wiley, 2019 (SCI IF: 1.14)
11. Amita Chauhan, Nitish Mahajan, Harish Kumar and Sakshi Kaushal, "Analysis of DDoS Attacks in Heterogeneous VoIP Networks: A Survey", International Journal of Innovative Technology and Exploring Engineering, Volume 8, Issue 6S3, pp 242-246, 2019
12. Ravneet Kaur, Sarbjeet Singh and Harish Kumar, "Rise of Spam and Compromised Accounts in Online Social Networks: A State-of-the-art Review of Different Combating Approaches." Journal of Network and Computer Applications, Elsevier, Volume 112, 2018, pp 53-88, (SCI IF: 5.273)
13. Ravneet Kaur, Sarbjeet Singh and Harish Kumar, "AuthCom: Authorship verification and compromised account detection in online social networks using AHP-TOPSIS embedded profiling based technique", Journal of Expert System with Applications, Volume 113, pp 397-414, 2018 (SCIE IF: 4.292)
14. Sahil Kansal, Harish Kumar, Sakshi Kaushal and Arun Kumar Sangaiah, "Genetic algorithm-based cost minimization pricing model for on-demand IaaS cloud service", The Journal of Super Computing, pp 1-26, 2018 (SCIE IF: 1.326)
15. Sakshi Kaushal, Harish Kumar, Sarbjeet Singh, Jasleen Kaur, Shubhani Aggarwal, Sundarapandian Vaidyanathan, "Modeling and Simulation of Analytical Approach to

- Handle Real-Time Traffic in VoIP Network”, International Journal of Simulation and Process Modelling, Volume 13, Issue 1, pp 35-42, InderScience, 2018
16. Veenu Mor and Harish Kumar, “A Model for Energy Usage in IEEE 802.11s Based Mesh Networks”, Proceedings of the Indian National Science Academy, Volume 85, Number 1, pp 257-274, 2018
  17. Kushal Kanwar, Harish Kumar and Sakshi Kaushal, “A Metric to Compare Vulnerability of the Graphs of Different Sizes”, Electronic Notes in Discrete Mathematics, Volume 63, Elsevier, 2017, pp 525-533
  18. Mehgna Choudhary, Harish Kumar and Sakshi Kaushal, “The Case Analysis on Sentiment Based Ranking of Nodes in Social Media Space”, Journal of Multimedia Tools and Applications, Springer, 2017, DOI: 10.1007/s11042-017-4700-3 (SCIE IF: 1.530)
  19. Raman Singh, Harish Kumar, RK Singla and RR Ketti, “Internet Attacks and Intrusion Detection System: Study and Review”, Journal of Online Information Review, Volume 41, Issue 2, 2017, Emerald Insight, pp 171-184, (SCI IF: 1.534)
  20. Veenu Mor and Harish Kumar, “Energy Efficient Routing Metric in Wireless Mesh Network”, Gazi University Journal of Science, Volume 30, Number 2, pp 45-59, 2017
  21. Lokesh Jain, Harish Kumar and RK Singla, “Improved Rule Promotion based Localized Crop Information Dissemination System for Farmers of Punjab (India) using Mobile Phone Technology”, Journal of Cybernetics and Systems, Volume 47, Issue 6, Taylor & Francis, pp 499-521, 2016 (SCIE IF: 1.434)
  22. Raman Singh, Harish Kumar and RK Singla, “An Intrusion Detection System using Network Traffic Profiling and Online Sequential Extreme Learning Machine”, Expert Systems With Applications, Volume 42, Elsevier, 2015, pp 8609-8624 (SCIE IF: 3.928)
  23. Raman Singh, Harish Kumar and RK Singla, “A Reference Dataset for Network Traffic Activity based Intrusion Detection System”, International Journal of Computer Communication and Control, Volume 10, Issue 3, Agora University, pp 390-402, May 2015 (SCIE IF: 1.374)
  24. Lokesh Jain, Harish Kumar, Ravinder Kumar Singla, Pritpal Singh and Jagjeet Singh Lore, “Error Reduction in Promoted Confidence Factor of a rule using Improved Fuzzy Rule Promotion Technique”, Journal of Cybernetics and Information Technologies, Volume 14, Issue 1, pp 72-83, 2014
  25. Lokesh Jain, Harish Kumar and R K Singla “Assessing Mobile Technology Usage for Knowledge Dissemination among Farmers in Punjab”, Journal of Information Technology for Development, Taylor & Francis, Volume 21, issue 4, pp 668-676, 2014 (SCIE IF: 1.333)
  26. AkashDeep, Karanjeet S. Kahlon and Harish Kumar, “A Review of Scheduling Algorithms in IEEE 802.16 Networks”, Egyptian Informatics Journal, Volume 15, Issue 1, Elsevier, pp 25-36, March 2014 (SCI IF: 2.306)
  27. Raman Singh, Harish Kumar and R K Singla, “TOPSIS Based Multi-Criteria Decision Making of Feature Selection Technique for Network Traffic Dataset”, International Journal of Engineering and Technology, Volume 5, Issue 6, Dec 2013- Jan 2014, pp 4598-4604
  28. Harish Kumar and Akanksha Bisaria, “Word Utterance based Technique for Search in News Videos”, Panjab University Research Journal [Science], Volume 63, pp 1-7, 2013
  29. Harish Kumar, Harneet Arora and RK Singla, “Energy-Aware Fisheye Routing (EA-FSR) Algorithm for Wireless Mobile Sensor Networks”, Egyptian Informatics Journal, Volume 14, Issue 3, Elsevier, November 2013, pp 235-238, (SCI IF: 2.306)
  30. Raman Singh, Harish Kumar and R K Singla, “Issues Related to Sampling Techniques for Network Traffic Dataset”, International Journal of Mobile Network Communications & Telematics (IJMNCT), Volume 3, Issue 4, August 2013, pp 75-85
  31. Rajni Sobti, Harish Kumar and R. K. Singla, “Review of Cooperation Schemes for MANET”, Panjab University Research Journal – Science, Volume 60, 2010, pp 47-58



32. Akanksha Saini and Harish Kumar, "Effect of Black Hole Attack on AODV Routing Protocol in MANET", International Journal of Computer Science and Technology, Volume 1, Issue 2, December 2010, pp 57-60, ISSN: 2229-4333
33. Harish Kumar and R. K. Singla, "Simulation Analysis of Address Auto-configuration Protocols for MANET with Random Waypoint Mobility Model", Journal of Computer Science, Volume 3, Issue 6, Sep-Oct, 2009, pp 1258-1266
34. Harish Kumar and R. K. Singla, "Architecture for address auto-configuration in MANET based on Extended Prime Number Based Address Allocation (EPNA)", WSEAS Transactions on Computers, Volume 8, Issue 3, March 2009, pp 549-558
35. Harish Kumar and R. K. Singla, "Characteristics and Complexity Comparison of Best Effort Address Auto-configuration Protocols for Mobile Ad-hoc Networks", Panjab University Research Journal – Science [PURJS], Volume 58, 2008, pp 231-237
36. Harish Kumar, R.K. Singla and Siddharth Malhotra, "Issues & Trends in Auto-Configuration of IP Address in MANET", International Journal of Computers, Communications & Control, Volume III (Special Issue), 2008, pp 353-357 (SCIE IF: 1.374)
37. Harish Kumar and R. K. Singla, "Simulation Analysis of Address Auto-configuration Protocols for MANET with Obstacle Mobility Model", International Journal HIT Transactions on ECCN (Electronics, Communication, Computer & Networks), Volume 2, Number 8, pp 420-426, Oct-Dec, 2007
38. Harish Kumar, Karun Verma and R. K. Singla; "Performance Analysis of Routing Protocols of Wireless Ad-hoc Networks for a Conference Type Environment", Panjab University Research Journal [Science], Volume 56, 2006, pp 199-205

#### **Technical Reports**

39. Harish Kumar, Parneet Kaur and Kamal Wadhwa, "The Impact of CCE on Student Proficiency – a study", In collaboration with TCYonline.com, 2016 (Online at: <http://csde.puchd.ac.in/show-noticeboard.php>)
40. Harish Kumar, Sakshi Kaushal, Parneet Kaur and Kamal Wadhwa, "Outcomes of Online Assessment– an Inclusive Analytical Study", In collaboration with TCYonline.com, 2019

#### **Book Chapters**

41. Kushal Kanwar, Sakshi Kaushal and Harish Kumar, "An AHP-TOPSIS based framework for the selection of node ranking techniques in complex networks", Book Title: Machine Learning, Image Processing, Network Security and Data Science; Book Series: Communication in Computer and Information Science, Volume 1241, pp 527-542, Springer, 2020
42. Amita Chauhan, Nitish Mahajan, Harish Kumar and Sakshi Kaushal, "Framework for SIP-Based VoIP System with High Availability and Failover Capabilities: A Qualitative and Quantitative Analysis", Book Title: ICT Systems and Sustainability, Book Series: Advances in Intelligent Systems and Computing Springer, Volume 1077, pp 273-286, Springer, 2020
43. Sahil Kansal, Harish Kumar and Sakshi Kaushal, "Cooperative Game Theory based Request Distribution Model for Federated Cloud Environment", Book Title: Advanced Computing and Intelligent Engineering, Book Series: Advances in Intelligent Systems and Computing, Volume 1089, pp 213-223, Springer, 2020
44. Ravneet Kaur, Sarbjeet Singh and Harish Kumar, "MetaCom: Profiling Meta Data to Detect Compromised Accounts in Online Social Networks", Book Title: Future Network Systems and Security, Book Series: Communications in Computer and Information Science, Volume 1113, pp 65-80, Springer, 2019
45. Rakshita Bansal, Monika Rani, Harish Kumar and Sakshi Kaushal, "Temporal Event Detection Using Supervised Machine Learning Based Algorithm", Book Title: Innovations in Bio-Inspired Computing and Applications, Book Series: Advances in Intelligent Systems and Computing, Volume 939, pp 257-268, Springer, 2018

46. Riya Goyal, Sakshi Kaushal and Harish Kumar, "Fuzzy AHP Based Technique for Handover Optimization in Heterogeneous Network", Book Title: Communication, Computing and Networking, Book Series: Lecture Notes in Networks and Systems, Volume 46, pp 293-301, Springer, 2018
47. Ravneet Kaur, Sarbjeet Singh and Harish Kumar, "Authorship Analysis of Online Social Media Content", Book Title: Communication, Computing and Networking, Book Series: Lecture Notes in Networks and Systems, Volume 46, pp 539-549, Springer, 2018
48. Shubhani Aggarwal, Nitish Mahajan, Sakshi Kaushal and Harish Kumar, "Load Balancing and Clustering Scheme for Real-Time VoIP Applications", Book Title: Advances in Computer Communication and Computational Sciences, Book Series: Advances in Intelligent Systems and Computing, Volume 760, pp 451-461, Springer, 2018
49. Chinu Singla, Sakshi Kaushal, Amandeep Verma and Harish Kumar, "A Hybrid Computational Intelligence Decision Making Technique for Processing Multimedia Applications over Cloud", Book Title: Computational Intelligence for Multimedia Big Data on the Cloud with Engineering Applications, Elsevier Publishers, pp 147-157, 2018
50. Veenu Mor and Harish Kumar, "Energy Efficient Approaches in Wireless Network: A Review", Book Title: Next Generation Networks, Book Series: Advances in Intelligent Systems and Computing, Volume 638, pp 135-146, Springer, 2018
51. Harish Kumar and Prabhjot Kaur, "Social Media User Ranking based on Temporal Trust", Book Title: Information and Communication Technology for Intelligent Systems-Volume1, Book Series: Smart Innovation, Systems and Technologies, August 2017, pp 597-607, Springer SIST Series
52. Lokesh Jain and Harish Kumar, "Mobile Networks and Indian Agricultural Sector", Book Title: Routing Protocols and Architectural Solutions for Optimal Wireless Networks and Security, Chapter 4, 2017, pp 60-79, IGI Global Publisher, DOI: 10.4018/978-1-5225-2342-0.ch004
53. Monika Rani and Harish Kumar, "Wireless Networks: Greedy Routing in Vehicular Area Networks", Book Title: Routing Protocols and Architectural Solutions for Optimal Wireless Networks and Security, Chapter 5, 2017, pp 80-94, IGI Global Publisher, DOI: 10.4018/978-1-5225-2342-0.ch005
54. Meghna Chaudhary and Harish Kumar, "A Framework to Rank Nodes in Social Media Graph based on Sentiment Related Parameters", ICT for Sustainable Development (ICT4SD), Vol II, Springer International Publishing, ISBN: 978-981-10-0133-8, pp 271-279, December 2015
55. Kirti Thakur and Harish Kumar, "Classifying Nodes in Social Media Space", ICT for Sustainable Development, Vol I, Springer International Publishing, ISBN: 978-981-10-0129-1\_30, pp 279-287, December 2015
56. Sahil Kansal, Gurjeet Singh, Harish Kumar and Sakshi Kaushal, "Pricing Models in Cloud Computing", Information and Communication Technology for Competitive Strategies, ACM ISBN: 978-1-4503-3216-3/14/11, pp 1-5, November 14-16, 2014
57. Manpreet Kaur and Harish Kumar, "Keyword Based Search and Ranking in NPTEL Lecture Videos", Transformations in Engineering Education (ICTIEE-2014), Natarajan, R. (Ed.), 2015, pp 79-88, ISBN 978-81-322-1930-9, DOI: 10.1007/978-81-322-1931-6\_12, Publisher: Springer International Publishing
58. Raman Singh, Harish Kumar and R.K. Singla, "Analyzing statistical effect of sampling on network traffic dataset", ICT and Critical Infrastructure-Vol I, ISBN: 978-3-319-03106-4 (Print), 978-3-319-03107-1(Online), Springer International Publishing, pp 401-408
59. Lokesh Jain, Harish Kumar and R.K. Singla, "Localization of Information Dissemination in Agriculture using Mobile Networks", ICT and Critical Infrastructure-Vol I, ISBN: 978-3-319-03107-1(Online), Springer International Publishing, pp 409-415

60. Raman Singh, Harish Kumar and RK Singla, "Traffic Analysis of Campus Network for Classification of Broadcast Data", Intelligent Infrastructure, ISBN: 978-1-25-906170-7, Publisher: Tata McGraw Hill, pp 163-166
61. Harneet Arora, Harish Kumar and RK Singla, "Simulated Performance Comparison of Link- State Routing Algorithms in Wireless Ad-Hoc Sensor Networks", Emerging Trends & Technologies in Computer Science and Engineering, ISBN: 978-93505-9033-1, Publisher: MacMillan, pp 198-205
62. Harish Kumar and RK Singla, "Proposal of Commodity Exchange Model using ICT to Reduce Corruption in NREGA", E-Governance: Techno-Behavioral Implications, ISBN: 978-93-81361-43-6, Publisher: Excel, pp 211-217

### Conference

63. Parneet Kaur, Harish Kumar and Sakshi Kaushal, "Competitive Examinations in India: e-Assessment Based Case Study", IEEE 10th International Conference on Technology for Education (T4E), pp 162-165, Goa, December 9- 11, 2019
64. Parneet Kaur, Harish Kumar and Sakshi Kaushal, "Conceptual Framework of an Intelligent Tutor for Teaching English Grammar to High School Students", ACM 11th International Conference on Education Technology and Computers (ICETC 2019), pp 64-70, October 28-31, 2019, Amsterdam, Netherlands
65. Manpreet Singh, Sarbjeet Singh, Nadesh Seen, Sakshi Kaushal, Harish Kumar, "Comparison of learning techniques for prediction of customer churn in telecommunication", IEEE 28th International Telecommunication Networks and Applications Conference (ITNAC), November 21-23, 2018, DOI: 10.1109/ATNAC.2018.8615326, University of New South Wales, Sydney, Australia.
66. Nishant Gupta, Naresh Kumar and Harish Kumar, "Comparative Analysis of Voice Codecs over Different Environment Scenarios in VoIP", IEEE 2nd International Conference on Intelligent Computing and Control Systems (ICICCS 2018), June 14-15, 2018, Madurai, India, pp 540-544
67. Rakshita Bansal, Monika Rani, Harish Kumar, Sakshi Kaushal, "Temporal Information Retrieval and its Application: A Survey", Springer Fifth International Conference on Emerging Research in Computing, Information, Communication and Applications-ERCICA, July 27-28, 2018, Bangalore, India
68. Riya Goyal, Tanu Goyal, Nishant Gupta, Nitish Mahajan, Sakshi Kaushal and Harish Kumar, "Exploration of 5G Technology for Cellular Communication: A Survey", IEEE 2nd International Conference on Intelligent Computing and Control Systems (ICICCS 2018), June 14-15, 2018, Madurai, TamilNadu, India, pp 330-334
69. Harish Kumar and Harsimar Kaur, "Clustering and Ranking Social Media Users based on Temporal Analysis", IEEE International Conference on Infocom Technologies and Unmanned Systems (Trends and Future Directions) (ICTUS), December 18-20, 2017, pp 271-275, Amity University, Dubai, UAE
70. Ramita Jindal, Harish Kumar and Sakshi Kaushal, "Vehicle Detection and Tracking in Intelligent Transportation System", 11th Chandigarh Science Congress (CHASCON), March 9-11, 2017, Panjab University, Chandigarh
71. Veenu Mor and Harish Kumar, "Principles of Energy Efficiency in Wireless Mesh Network", ACM Information and Communication Technology for Competitive Strategies (ICTCS'16), March 4-5, 2016, Udaipur, India
72. Raman Singh, Harish Kumar and RK Singla, "Performance Analysis of an Intrusion Detection System using Panjab University Intrusion Dataset", IEEE Proceedings of 2015 RAECS, UIET Panjab University Chandigarh, December 21-22, 2015, pp 1-6
73. Kirti and Harish Kumar, "Challenges in Protecting Personated Information in Cyber space", IEEE International conference on emerging trends in network & computer communication (ETNCC), pp 167-171, May 17-20, 2015, Windhoek

74. Meghna Chaudhary and Harish Kumar, "Challenges in Protecting Personnel Information in Social Network Space", IEEE International conference on emerging trends in network & computer communication (ETNCC), pp 99-104, May 17-20, 2015, Windhoek
75. Veenu Mor and Harish Kumar, "Energy efficient techniques in Wireless Mesh Network", IEEE Conference on Recent Advances in Engineering and Computational Sciences (RAECS), March 6-8, 2014, Chandigarh, India, pp 1-6, ISBN: 978-1-4799-2290-1, DOI: 10.1109/RAECS.2014.6799561
76. Lokesh Jain, Harish Kumar and R.K. Singla, "Hybrid architecture for localized agricultural information dissemination", IEEE Conference on Recent Advances in Engineering and Computational Sciences (RAECS), March 6-8, 2014, Chandigarh, India, pp 1-3, ISBN: 978-1-4799-2290-1, DOI: 10.1109/RAECS.2014.6799533
77. Raman Singh, Harish Kumar and R K Singla, "Analysis of Feature Selection Techniques for Network Traffic Dataset", IEEE International Conference on Machine Intelligence and Research Advancement (ICMIRA-2013), December 21-23, 2013, pp 42-46, Katra, J&K, India, DOI: 10.1109/ICMIRA.2013.15
78. Raman Singh, Harish Kumar and R.K. Singla, "Sampling Based Approaches to Handle Imbalances in Network Traffic Dataset for Machine Learning Techniques", 5th International Conference on Wireless & Mobile Networks (WiMoN-2013), June 01-02, 2013, Istanbul, Turkey, pp 37-48, DOI: 10.5121/csit.2013.3704
79. Harish Kumar and RK Singla, "Impact of Electronic Content in Education: A teacher's perspective", 41st ISTE Annual National Convention (Theme: The Role and Relevance of Regulatory Bodies in Higher Education), December 16-18, 2011
80. Harish Kumar, Raman Singh and RK Singla, "An Approach to Increase Bandwidth Utilization under Suspected Flood Attack", International Conference on Communication and Networks (CSI-COMNET-2011), December 04-06, 2011, Udaipur, India, pp 39
81. Harish Kumar, Harneet Arora and RK Singla, "Simulation Analysis of Optimized Link State Routing Protocol in Wireless Sensor Networks", IEEE International Conference on Emerging Trends in Networks and Computer Communications (ETNCC-2011), IE(India), Udaipur, April 22-24, 2011, pp 192-194
82. Harish Kumar and Harneet Kaur, "Issues and Trends in Wireless Sensor Networks", 25<sup>th</sup> National Convention of Computer Engineers and National Seminar on Networked Home Systems and Services (NHSS-2011), The Institution of Engineers (India), Udaipur, February 4-6, 2011, pp 13-18, ISBN: 978-81-7906-266-1
83. Monika Rani, Gurpal Singh and Harish Kumar, "Performance Comparison of TCP-NewReno and TCP Over Dynamic Source Routing Protocol", 25th National Convention of Computer Engineers and National Seminar on Networked Home Systems & Services (NHSS-2011), IE(India), Udaipur, February 4-6, 2011, pp 113-116, ISBN: 978-81-7906-266-1
84. Akanksha Saini and Harish Kumar, "Comparison between various Black Hole Detection Techniques in MANET", National Conference on Computational Instrumentation (NCCI-2010), CSIR-CSIO, Chandigarh, March 19-20, 2010, pp 157-161
85. Manisha Kapoor and Harish Kumar, "Analysis of service discovery characteristics in Mobile Ad hoc Network (MANET)", National Conference on Computing, Communication and Control (CCC-09), Panjab University, Chandigarh, October 23-24, 2009, pp 246-249
86. Harish Kumar and Monika Rani, "A Low Cost Keyword Based Image Processing and Retrieval System for Teaching and Research", Institution of Engineers (India) National Seminar on ICT for Rural Development: Access and Applications (ICTRD-2009), September 11-12, 2009, pp 17-20, ISBN: 978-81-7906-197-8
87. RK Singla, Harish Kumar and Siddharth Malhotra, "Power Management in Mobile Ad Hoc Networks"; National Conference on Emerging Trends in Wireless Communication and E-security, Panjab University, Chandigarh, January 11-12, 2007, pp 306-311

88. Harish Kumar and R. K. Singla, "Issues in Mobile Ad hoc Networks", 41st National Convention of Computer Society of India, Science City, Calcutta, November 23-25, 2006, pp 35-39, ISBN: 0-07-062171-3
89. Karun Verma and Harish Kumar, "Performance Analysis of Routing Protocols of Wireless Ad-hoc Networks for a Combat Area Environment", National Conference on Issues & Trends in Wireless Networks, TIET, Patiala, India, December 17-18, 2004, pp 175-181
90. Sarabjeet Singh, Harish Kumar and Gaurav Mittal, "Basic Infrastructure Tradeoffs and their analysis for Sensor Networks", National Conference on Issues & Trends in Wireless Networks, TIET, Patiala, December 17-18, 2004; pp 31-35
91. Harish Kumar, Karun Verma and Sarbjeet Singh, "Performance Analysis of Routing Protocols for Mobile Ad-hoc Networks for a Conference type Environment with Obstacles", 39th Annual National Convention of Computer Society of India, Mumbai, December 1-4, 2004, ISBN: 0-07-059776-6, pp 46-54
92. RK Singla and Harish Kumar, "Management of Security Risk in a Linux Server Environment", International Conference on E-security, Cyber Crime & Law, MGSIPAP, Chandigarh, February 19-20, 2004, pp 134-150

## PhD Scholars

SN	Name	Funding Status	Year/ Status	Topic
1	Lokesh Jain (Currently Associate Professor, PAU)	Salary (In-service)	2010/ Awarded (2015)	Agricultural Information Dissemination System Using Mobile Networks
2	Raman Singh (Currently Assistant Professor, Thapar University)	TEQIP-II Fellowship	2010/ Awarded (2015)	Development of Malware Detection Technique With Network Traffic Profiling
3	Veenu Mor (Currently Computer Programmer, PU)	Salary (In-service)	2011/ Awarded (2019)	Energy Efficient Routing Model for Wireless Mesh Networks
4	Sahil Kansal (Currently Assistant Professor Galgotias University, Noida)	Rajiv Gandhi National Fellowship	2012/ Awarded (2019)	Optimal Pricing Framework for Cloud Computing Service Model
5	Parneet Kaur	UGC BSR Fellowship	2015/ Synopsis Approved	Cognitive Skills Based Online Learning and Assessment Framework to Improve Educational Outcomes
6	Kushal Kanwar	Visvesvaraya Fellowship	2015/ PreThesis Approved	A Framework for Contagion Spread in Complex Networks
7	Ravneet Kaur (Currently Assistant Professor PEC, Chandigarh)	Visvesvaraya Fellowship	2015/ Submitted	Design & Development of User Profiling based Technique for Detecting Compromised Accounts in Online Social Networks
8	Nitish Mahajan	MeiTY Project Fellow	2017/ Synopsis Approved	Development of Unified Communication System with Data Analytics for Next Generation Networks
9	Kirti	DRDO Research Fellow	2018/ Synopsis Approved	A Framework for Avalanche Risk Probability Assessment Based on Snow and Terrain Using Artificial Intelligence
10	Babita Rani	UGC-NET	2020	

## M.E. Students

SN	Name	Completion Year	Topic
1	Rajni	2008	Study and Analysis of Cooperation & Authentication in MANET
2	Manisha Kapoor	2010	Service Discovery in Mobile Ad-hoc Network using Web Service Protocol
3	Akanksha Saini	2010	Effect of Black Hole Attack on AODV Routing Protocol in Mobile Ad-hoc Networks (MANET)
4	Harneet Arora	2011	Link State Based Routing in Wireless Sensor Networks

<b>SN</b>	<b>Name</b>	<b>Completion Year</b>	<b>Topic</b>
5	Akanksha Bisaria	2011	Rank Based Video Retrieval Using Transcripts
6	Taranvir Kaur	2012	Game Theory Based Transmission Control Protocol for Adhoc Networks
7	Hardeep Singh	2012	Performance Analysis of Unsupervised Machine Learning Techniques for Network Traffic Classification
8	Gurvinder Singh Aulakh	2013	Performance Analysis of AODV, PUMA and ANTNET Routing Protocols in MANET
9	Manpreet Kaur	2013	Keyword Based Search & Ranking in NPTEL Lecture Videos
10	Manish Kumar	2013	Offline and Online Signature Based Bot Detection
11	Jaskirat Pannu	2014	Dataset Labelling for Network Traffic Archive
12	Naveen Kumar	2014	User Perception Based Ranking in NPTEL Lecture Videos
13	Megna	2015	Ranking of Nodes on Social Media Platform Based on Sentiments
14	Kirti	2015	Classification of Social Media Users Based on Sentiment Analysis
15	Harsimran Kaur	2016	Trust Modeling in Social Networking Sites
16	Prabhjot Kaur	2016	Ranking and Clustering Social Media Users based on Temporal Analysis
17	Ramita Jindal	2017	Nighttime Vehicle Lamp Detection and Tracking
18	Subhani	2017	Load Balancing and Clustering Scheme for Real-Time VoIP Applications
19	Rakshita	2018	A Supervised Machine Learning Technique for Temporary Event Detection
20	Riya	2018	An Optimized Handover Management Technique in LTE Networks
21	Amita	2019	Detection and Mitigation of DDoS Attacks in High Availability SIP-Based VoIP Communication Networks
22	Shubham Gupta	2020 (Expected)	
23	Shubham Sharma	2020 (Expected)	