Dr. Rakesh Kumar Jha

Name: Dr. Rakesh Kumar Jha
Designation: Associate Professor
School: Electronics and Communication Engineering
Email ID: rakesh.jha@smvdu.ac.in, jharakesh.45@gmail.com
Contact Number and Extn. 01991- 285524 and 2245, +919906088419
Qualification: B. E, M. Tech (NIT Jalandhar), Ph.D. (NIT Surat); (GATE)
Ph.D. Thesis title: WiMAX Infrastructure modeling using OPNET Modeler with LBRRA Scheme Optimization, attack Modeling and Security Analysis with Proposed Solution

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Field(s) of specialization:
>	Wireless Communication and Its security issues
>	Analog and Digital Communication
>	Optical Fiber Communication
>	Internet of Things (IoT)

Experience:

Teaching, Research and Administration: 10 Years, Industrial: More than 01 Years   Total: 11 Years

Associate Professor (Faculty) Jan '08 2018 – to present SMVD University, India

Assistant Professor (Faculty) July '30 – to 7th January 2018   SMVD University, India

Associate Consultant   8th June '2008 – 24th July 2009   Capgemini India Pvt. Ltd.

Research Scholar 27th July 2009 – 27th July 2012   NIT, Surat

Total Teaching and Industrial Experience = 11 Years 3 Months

Areas of Interest / Specialization:

Wireless Communication, Optical Fiber Communication, Analog and Digital Communication, Network Security issues, NBIoT, Device to Device Communication (D2D), Power Optimization in Wireless Communication, Ultra Dense Network(UDN).

Brief Bio-data:

Dr. Rakesh K. Jha is an Associate Professor in the Department of Electronics and Communication Engineering, Shri Mata Vaishno Devi University, Katra, Jammu and Kashmir, India. He is carrying out his research in wireless communication, power optimizations, wireless security issues, and optical Fiber communication. He is main author of most popular article in 5G with more then 1271 citations. He has done **B.Tech (Hon's)** in Electronics and Communication Engineering from R.G.T.U. Bhopal, India in 2006, and **M.Tech from NIT Jalandhar (Hon's),** India in 2008. Received his **Ph.D. degree from NIT Surat, India in 2013**.

He has completed his 10th exam from govt. High school and Class 12th From Science College; he was topper throughout his career.

He has published more than **60** Journal Papers out of which more than **50 SCI** Journal papers including **IEEE Transactions, IEEE Journal, Elsevier, Springer, Taylor & Francis, Hindwai etc**. He has published **20 Interference including ITU-T, IEEE ANTS, INDICON, IEEE ANTS, and APAN.** Dr. Jha's one concept related to the router of Wireless Communication has been accepted by ITU (International Telecommunication Union) in 2010. He has received **young scientist author award by ITU in Dec 2010**. He has received **APAN fellowship** in 2011, 2012-**Srilanka**, 2016 and in 2017-**China**, 2018-**Singapore**, 2018-**New Zealand**, 2019-**South Korea** and a student travel grant from COMSNET 2012. He is a Senior Member of IEEE, GISFI, and SIAM, International Association of Engineers (IAENG), ACCS (Advanced Computing and Communication Society), CSI etc. He has filed **07 Patents** out of which **04** are published.

Dr Jha had 10 years of rich academic, Industrial and research experience in various institutes/University including NIT-Surat, Capgemini India Pvt. Ltd and SMVD University. He has also served as organizing member and TPC member for several national and international conferences. He has organized many workshops and has been invited as a resource person in many workshops organized by prestigious research institutes. He has guided **05** Ph.D. students (03 Completed and 02 Submitted their thesis) and **04** students are presently pursuing. He has guided more than **15** M. Tech and more than **50** B. Tech students for various projects. More than **2500** citations in his credit in wireless communication.

Other details of Dr Jha is available at https://sites.google.com/site/researchwithrakeshjha/home .

Research Profile

Research Publications in Journal (SCU Papers Only):

S. No.	Title of the Paper	Author	Year	Journal	Volume	PP.	Impact Factor
1	A Survey of 5G Network: Architecture and Emerging Technologies	Akhil Gupta and Rakesh Kumar Jha	2015	IEEE Access	Vol. 3	1206-1232	4.098 (Most Popular Paper)
2	Power Optimization in 5G Networks: A Step towards GrEEn Communication	Akhil Gupta and Rakesh Kumar Jha	2016	IEEE Access	Vol.4	1355-1374	4.098

3	Sector-Based Radio Resource Allocation (SBRRA) Algorithm for Better Quality of Service and Experience in Device-to-Device (D2D) Communication	Rakesh Kumar Jha et.al	2017	IEEE Transactions on Vehicular Technology	Vol. 67	5750 - 5765	4.432
4	Device-to-Device Communication in Cellular Networks: A Survey	Pimmy Gandotra and Rakesh Kumar Jha	2016	Journal of Network and Computer Applications	Vol.71	99-117	5.273
5	A survey on device-to-device (D2D) communication: Architecture and security issues	Rakesh Kumar Jha et.al	2017	Journal of Network and Computer Applications	Vol. 78	9-29	5.273
6	Green Communication in Next Generation Cellular Networks: A Survey	Rakesh Kumar Jha et.al	2017	IEEE Access	Vol. 5	11727 - 11758	4.098
7	A Survey on Software Defined Networking: Architecture for Next Generation Network (1st Rank in his category)	Sanjeev Singh and Rakesh Kumar Jha	2017	Journal of Network and Systems Management	Vol. 25 No. 2	321–374	1.676
8	A survey on green communication and security challenges in 5G wireless communication networks	Pimmy Gandotra and Rakesh Kumar Jha	2017	Journal of Network and Computer Applications	Vol. 96	39-61	5.273
9	A survey on ultra-dense network and emerging technologies:	Rakesh Kumar Jha et.al	2017	Journal of Network and Computer Applications	Vol. 95	54-78	5.273

	Security challenges and possible solutions						
10	Implementation of Intrusion Detection System using Adaptive Neuro-Fuzzy Inference System for 5G wireless communication network	Rakesh Kumar Jha et.al	2017	AEU - International Journal of Electronics and Communications	Vol. 74	94-106	2.853
11	Performance Analysis of Proposed OpenFlow-Based Network Architecture Using Mininet	Rakesh Kumar Jha et.al	2016	Wireless Personal Communications volume	Vol. 86	943-958	0.929
12	A Survey on Energy Efficient Narrowband Internet of Things (NBIoT): Architecture, Application and Challenges	Rakesh Kumar Jha et.al	2018	IEEE Access	Vol. 7	16739-16776	4.098
13	Power optimization using massive MIMO and small cells approach in different deployment scenarios	Rakesh Kumar Jha et.al	2016	Wireless Networks	Vol. 23	959-973	2.405
14	A comprehensive survey on spectrum sharing: Architecture, energy efficiency and security issues	Rakesh Kumar Jha et.al	2018	Journal of Network and Computer Applications	Vol. 103	29-57	5.273
15	Performance comparison of various modulation	Naazira Badar and Rakesh Kumar Jha	2017	Optical and Quantum Electronics	Vol. 49	Article No. 192	1.547

	schemes over free space optical (FSO) link employing Gamma–Gamma fading model						
16	Bandwidth Spoofing and Intrusion Detection System for Multistage 5G Wireless Communication Network	Rakesh Kumar Jha et.al	2017	IEEE Transactions on Vehicular Technology	Vol. 67 Issue 1	618-632	4.432
17	Chromatic dispersion compensation techniques and characterization of fiber Bragg grating for dispersion compensation	Aasif Bashir Dar and Rakesh Kumar Jha	2017	Optical and Quantum Electronics	Vol.49	Article No. 108	1.547
18	Attack modeling and intrusion detection system for 5G wireless communication network	Rakesh Kumar Jha et.al	2017	International Journal of Communication Systems	Vol. 30 Issue 10	e3237	1.278
19	Device to device communication: A survey	Rakesh Kumar Jha et.al	2019	Journal of Network and Computer Applications	Vol. 129	71-89	5.273
20	Joint power allocation and relay selection strategy for 5G network: a step towards green communication	Rakesh Kumar Jha et.al	2018	Telecommunication Systems	Vol. 68	201-215	1.707
21	Possible Security Attack Modeling in Ultradense Networks Using High-Speed Handover Management	Rakesh Kumar Jha et.al	2017	IEEE Transactions on Vehicular Technology	Vol. 67 Issue 3	2178-2192	4.432

22	Design and comparative performance analysis of different chirping profiles of tanh apodized fiber Bragg grating and comparison with the dispersion compensation fiber for long-haul transmission system	Rakesh Kumar Jha et.al	2017	Journal of Modern Optics	Vol. 64 Issue 6	555-566	1.657
23	Power optimization using optimal small cell arrangements in different deployment scenarios	Akhil Gupta and Rakesh Kumar Jha	2017	International Journal of Communication Systems	Vol. 30 Issue 13	e3279	1.278
24	A novel method for parallel indexing of real time geospatial big data generated by IoT devices	Suresh V.Limkar and Rakesh Kumar Jha	2019	Future Generation Computer Systems	Vol. 97	433-452	5.768
25	Performance analysis of an 80 (8 × 10) Gbps RZ-DPSK based WDM-FSO system under combined effects of various weather conditions and atmospheric turbulence induced fading employing Gamma–Gamma fading model	Rakesh Kumar Jha et.al	2018	Optical and Quantum Electronics	Vol. 50	Article No. 44	1.547
26	Prolonging User Battery Lifetime Using Green	Rakesh Kumar Jha et.al	2018	IEEE Communications Letters	Vol. 22 Issue 7	1490-1493	3.457

	Communication in Spectrum Sharing Networks						
27	Green NOMA With Multiple Interference Cancellation (MIC) Using Sector-Based Resource Allocation	Rakesh Kumar Jha et.al	2018	IEEE Transactions on Network and Service Management	Vol. 15 Issue 3	1006-1017	4.682
28	Energy-efficient device-to-device communication using adaptive resource-block allocation	Pimmy Gandotra and Rakesh Kumar Jha	2019	International Journal of Communication Systems	Vol. 32 Issue 8	e3922	1.278
29	SDOWN: A Novel Algorithm and Comparative Performance Analysis of Underlying Infrastructure in Software Defined Heterogeneous Network	Sanjeev Singh and Rakesh Kumar Jha	2019	Fiber and Integrated Optics	Vol. 38 Issue 1	43-75	0.525
30	Novel Beamforming Approach for Secure Communication in UDN to Maximize Secrecy Rate and Fairness Security Assessment	Rakesh Kumar Jha et.al	2018	IEEE Internet of Things Journal	Vol. 6 Issue 4	5935-5947	9.515
31	TPA: Prediction of Spoofing Attack Using Thermal Pattern Analysis in Ultra Dense Network for High Speed Handover Scenario	Rakesh Kumar Jha et.al	2018	IEEE Access	Vol. 6	66268-66284	4.098

32	RBA: Region Based Algorithm for secure harvesting in Ultra Dense Network	Rakesh Kumar Jha et.al	2019	IEEE Access	Vol. 7	52997-53011	4.098
33	Power optimization with low complexity using scaled beamforming approach for a massive MIMO and small cell scenario	Akhil Gupta and Rakesh Kumar Jha	2018	Wireless Networks		1-15	2.405
34	Software Defined Optical Networks (SDON): proposed architecture and comparative analysis	Rakesh Kumar Jha and Burhan Num Mina Llah	2019	Journal of the European Optical Society-Rapid	Vol. 15 Issue 1	Article No. 16	1.253
35	Rank-Based Secrecy Rate Improvement Using NOMA for Ultra Dense Network	Garima Chopra, Rakesh Kumar Jha and Sanjeev Jain	2019	IEEE transactions on Vehicular Technology	Vol. 68 Issue 11	10687-10702	4.432
36	Performance Analysis of Grouped Multilevel Space-Time Trellis Coding Technique Using Cognitive Radio in Different Deployment Models	Rakesh Kumar Jha et.al	2019	Wireless Communications and Mobile Computing			1.396
37	E2ARC: Energy-efficient adaptive resource block allocation with low complexity in device-to-device communication	Rakesh Kumar Jha et.al	2018	Transactions on Emerging Telecommunications Technologies	Vol 29 Issue 11	e3525	1.258

38	Power and energy optimization with reduced complexity in different deployment scenarios of massive MIMO network	Rakesh Kumar Jha et.al	2019	International Journal of Communication Systems	Vol. 32 Issue 6	e3907	1.278
39	RFID based food rationing system	Rakesh Kumar Jha et.al	2018	Hardware X	Vol. 4	e00043	1.372
40	Energy and spectral efficiency optimization using probabilistic based spectrum slicing (PBSS) in different zones of 5G wireless communication network	Rakesh Kumar Jha et.al	2019	Telecommunication Systems	Vol. 73	59-73	1.707
41	Zonal-Based GrEEn Algorithm for Augmenting the Battery Life in Spectrum Shared Networks via D2D Communication	Pimmy Gandotra and Rakesh Kumar Jha	2018	IEEE Transactions on Vehicular Technology	Vol . 68 Issue 1	405-419	4.432
42	Dispersed beamforming approach for secure communication in UDN	Rakesh Kumar Jha et.al	2019	Wireless Networks		1-18	2.405
43	SDOWN: A novel algorithm for better Quality of Service and Experience in Software Defined Optical Wireless Network	Sanjeev Singh and R.K.Jha	2019	Optik	Vol. 176	662-684	1.914

44	TWDM-PON-AN optical backhaul solution for hybrid optical wireless networks	Fayiqa Naqshbandi and Rakesh Kumar Jha	2016	Journal of Modern Optics	Vol. 63 Issue 19	1899-1916	1.657
45	Computing over encrypted spatial data generated by IoT	Suresh V. Limkar and Rakesh Kumar Jha	2019	Telecommunication Systems	vol. 70	193–229	1.707
46	Protocol design and resource allocation for power optimization using spectrum sharing for 5G networks	Rakesh Kumar Jha et.al	2019	Telecommunication Systems	Vol. 72	95-113	1.707
47	RBA: Detection and Protection Analysis Using Region-Based Algorithm in Ultra-Dense Networks	Rakesh Kumar Jha et.al	2019	IEEE Access	Vol. 7	52997-53011	4.098
48.	A survey on security issues of 5G NR: Perspective of artificial dust and artificial rain	Rakesh Kumar Jha et.al	2020	Journal of Network and Computer Applications	--	--	5.23
49.	ANGUISH: Security Attack In NB-IoT Using Game theory and Hardware Analysis	Rakesh Kumar Jha et.al	2020	Transactions on Emerging Telecommunications Technologies	--	--	1.258
50.	NB-IoT Security: A Survey	Rakesh Kumar Jha et.al	2020	Wireless Personal Communications	--	--	0.929

Books Publications:

S. No.	Year	Publication
1	2011	Security Issues in AD-HOC and Infrastructure (WLAN) Networks-Wireless communication and Its Security Issues with OPNET Modeler
2.	2015	A Journey starts from basic understanding of NS2 to NS3
3.	2015	Hybrid Optical Networks

Conference Publications: More then **25 Conference Paper (Top 8)**

Sl. No.	Details of Conference Proceedings(since last promotion)	
1.	Author (s): Rakesh K. Jha, Dr. Upena D Dalal Role (First Author/Main Supervisor/ Co-author): Title of the paper: Resource Allocation in Mobile WiMAX Network: An Optimal Approach Name of Conference and Dates: ISBN/ISSN No.: APAN Conference, Srilanka	
2.	Author (s): Rakesh K. Jha, Dr. Upena D Dalal Role (First Author/Main Supervisor/ Co-author): Title of the paper: Location based radio resource allocation (LBRRA) for WiMAX networks Name of Conference and Dates: ISBN/ISSN No.: IEEE ANTS Year of Publication: 2011	
3.	Author (s): Rakesh K. Jha, Dr. Upena D Dalal Role (First Author/Main Supervisor/ Co-author): Title of the paper: Performance comparison of Intelligent Jamming in RF (Physical) Layer with WLAN Ethernet Router and WLAN Ethernet Bridge Kaleidoscope: Beyond the Internet?-Innovations for Future Networks and Services Name of Conference and Dates: ISBN/ISSN No.: ITU-T Year of Publication: 2010	
4.	Author (s): Rakesh K. Jha, Dr. Upena D Dalal Role (First Author/Main Supervisor/ Co-author): Title of the paper: Location based radio resource allocation (LBRRA) in WiMAX and WiMAX-WLAN interface network Name of Conference and Dates: ISBN/ISSN No.: COMSNET Year of Publication: 2012	
5.	Author (s): Rakesh K. Jha, Varun Mishra Role (First Author/Main Supervisor/ Co-author): Title of the paper: Power optimization of wireless network Name of Conference and Dates: ISBN/ISSN No.: INDICON Year of Publication: 2013	
6.	Author (s): Rakesh K. Jha, Anubhav Tiwari Role (First Author/Main Supervisor/ Co-author): Title of the paper: Zigbee Based Home Automation and Agricultural Monitoring System A mesh networking approach for autonomous and manual system control Name of Conference and Dates: ISBN/ISSN No.: APAN Conference, China Year of Publication: 2017	

7.	Author (s): Rakesh K. Jha, Pimmy Gandotra	
	Role (First Author/Main Supervisor/ Co-author):	
	Title of the paper: Next generation cellular networks and green communication	
	Name of Conference and Dates: ISBN/ISSN No.: COMSNET	
	Year of Publication: 2018	
8.	Author (s): Rakesh K. Jha, Garima Chopra	
	Role (First Author/Main Supervisor/ Co-author):	
	Title of the paper: Security issues in ultra-dense network for 5G scenario	
	Name of Conference and Dates: ISBN/ISSN No.: COMSNET, Year of Publication: 2018	

Research Supervised:

S. No.	Year	Role	Research Topic	Status
1. Dr Akhil Gupta	2013-2017	Guide	Power Optimization and Security Analysis with Proposed Solution of 5G Wireless Communication Networks	PhD. Completed (Full Time)
Mr. Sanjeev Singh	2014 -2017	Guide	SDN-Optical Interface (Comprehensive Area of Research)	Ph.D. Completed
Mr. Suresh Limkar	2014-2017	Guide	Internet of Things(IoT) (Comprehensive Area of Research)	Ph.D. Completed
Miss Pimmy Gandotra	2016-2017	Guide	Device to Device Communication	Ph.D. Submitted
Miss Garima Chopra	2016-2017	Co-Guide	Ultra-Dense Network (UDN)	Ph.D. Submitted
Miss Haneet Kour	2015-2017	Guide	Power Optimization Using Spectrum Sharing For 5G Networks	M.Tech (Full Time)
Miss Pimmy Gandotra	2014-2016	Guide	Resource Allocation in Device to Device Communication for 5G Networks	M.Tech (Full Time)
Miss Akshita Abrol	2014-2016	Guide	Power Optimization of 5G Network	M.Tech (Full Time)
Miss Reeta Devi	2014-2016	Guide	Physical Layer Security in Next Generation Networks	M.Tech (Full Time)
Miss Fayiqa Naqshbandi	2014-2016	Guide	Time and Wavelength Division Multiplexed Passive Optical Network	M.Tech (Full Time)

			(TWDM-PON) for Next Generation Optical Access	
Mr. Asif Bashir Dar	2014-2016	Guide	Design and Comparative Performance Analysis of Different Chirping Profiles of Tanh Apodized Fiber Bragg Grating and Comparison with the Dispersion Compensation Fiber for Long-haul Transmission System	M.Tech (Full Time)
Miss Naazira Bazar	2014-2016	Guide	Design and Performance Analysis of a Wavelength Division Multiplexing Based Free Space Optical Communication System	M.Tech (Full Time)
Mr. Abid Bashir	2014-2016	Guide	Design and Simulative Analysis of an Optical Intrusion Detection & Prevention System (OIDPS)	M.Tech (Full Time)
Miss Burhan Liah	2014-2016	Guide	Software Defined Networking in Optical Networks	M.Tech (Full Time)
Mr. Wasim Array	2014-2016	Guide	Enhanced Performance Assessment for Hybrid Optical and Wireless Access Network	M.Tech (Full Time)
Miss Sonam Bhagat	2014-2016	Guide	Performance Evaluation of 128 Channels at 10 Gbps Data-Rate Using Hybrid (Raman-EDFA) Optical Amplifier at Different Transmission Distances	M.Tech (Full Time)

Mr. Umer Ashraf	2014-2016	Guide	To Enhance the Channel Capacity of Optical Fiber Using Hybrid Combination of WDM and OTDM	M.Tech (Full Time)
Miss Ambica Raina	2014-2016	Guide	Performance Analysis of Open Flow Base Network	M.Tech (Full Time)

Patents: List of patents Filed

S.No	Patent/ Copyright	Applicant	Year of Application	Published/Granted	
1.	ZONAL BASED GREEN ALGORITHM FOR ENHANCING BATTERY LIFETIME OF USER TERMINALS	Rakesh Jha, Pimmy Gandotra, Sanjeev Jain	2018	Yes	No
2.	SECTOR BASED ARCHITECTURE FOR DEVICE-TO-DEVICE (D2D) COMMUNICATION	Rakesh Jha, Pimmi Gandotra, Sanjeev Jain	2017	Yes	No
3.	SYSTEM AND METHOD FOR REDUCING INTERFERENCE IN A COMMUNICATION NETWORK	Rakesh Jha, Akhil Gupta	2017	Yes	No
4.	POWER OPTIMIZATION WITH LOW COMPLEXITY USING SCALED BEAMFORMING APPROACH	Rakesh Jha, Akhil Gupta	2017	Yes	No
5.	Region Based Algorithm (RBA) for Secure Harvesting in Ultra Dense Network	Rakesh Jha, Garima Chopra and Sanjeev Jain	2018		No

Award and Honours:

Name of the body	Year of award	Nature of the award
ITU-T (International Telecommunication Union)	2010	Young Author Reorganization(ITU-T)
APAN Fellowship (By Srilanka Govt)	2012	Given to young researcher
APAN Fellowship (By India Govt)	2010	Given to young researcher
COMSNET (IIT Group)	2011	Student Grants
Bharat Shiksha Ratan Award	2015	Nominated by G.S.H.E. G
APAN Fellowship -China	2017	Given to young researcher
APAN Fellowship -Singapore	2018	Given to young researcher
APAN Fellowship -Auckland	2018	Given to young researcher
APAN Fellowship -Korea	2019	Given to young researcher
IEEE Senior Member	2015	IEEE Society

Research Citations:

Rakesh Kumar Jha

SVNIT,SMVD University Jammu

Wireless Security Issues
Power Optimization
NBIoT
5G
AI

	All	Since 2015
Citations	2591	2389
h-index	21	18
i10-index	30	27