Curriculum Vitae of Dr. V Anil Kumar

Personal Details:

Name:	Dr. V Anil Kumar
Date of Birth:	29/02/1972
Designation:	Chief Scientist, CSIR Fourth Paradigm Institute (CSIR-4PI)
	Professor, Academy of Scientific and Innovative Research (AcSIR)
Address:	NAL Belur Campus, Bangalore – 560037, India
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Profile Summary:

Dr. V Anil Kumar is a Chief Scientist at CSIR Fourth Paradigm Institute (CSIR-4PI), Bangalore, India, and a Professor at Academy of Scientific and Innovative Research[1] (AcSIR). He completed his masters in Electronics (AI & Robotics) from Cochin University of Science and Technology and PhD from International Institute of Information Technology Bangalore (IIIT-B) in computer networking and security. His research interests are Cyber Security, Data Analytics and Threat Intelligence, High Performance Computing, and Internet Protocol Engineering. He has about 35 research papers in international journals and conference proceedings. He has obtained International patents in USA, Europe and World Intellectual Property Organization (WIPO), related next generation transport protocol security.

He received DAAD Fellowship from German Academic Exchange Service and subsequently worked at Fraunhofer Institute for Open Communication system (FOKUS), Germany from 2002 to 2004. From 2009 to 2010, he was with the French National Research Institute in Computer Science and Control (INRIA), France as a Senior Expert Engineer. He has worked on a large European Union Project called OneLab2 to establish a geographically distributed and federated network testbed. He was a member of the proof-of-concept demonstration of tri-party network testbed federation among PlanetLab US, PlanetLab Europe and PlanetLab Japan. In 2016, he was invited to participate in the 95th IETF meeting in Argentina with Fellowship from Internet Society.

Dr. V Anil Kumar was one of the project leaders for establishing a supercomputing facility for CSIR, which was ranked no. 1 in India and 58th fastest supercomputer in the world, as per the June 2012 list of top500 supercomputers. He was also the Chief Investigator of multiple sponsored R&D projects on cyber security from Ministry of Information Technology, Department of Science and Technology, Govt. of India and CSIR. He has also initiated a 5 yearlong project on Cyber Security Research and Observation (CySeRO) under the CSIR 12th Five Year Plan, and currently coordinating the CySeRO programme.

He has been interacting and collaborating extensively with International Community, and visited many countries like Germany, USA, Canada, Sri Lanka, France, Hungary and Argentina. He has delivered more than 40 invited talks/key notes and has been part of several scientific and technical committees at national and international level. He has been a member of several Project Review and Steering Groups (PRSG) constituted by Ministry of Electronics and Information Technology (MeitY) for review of strategic projects.

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[1] An institute of National Importance established through act of parliament.

Professional Experience:

Scientist at various levels (Scientist-B, Scientist-C, Scientist-E1, Principal Scientist, Senior Principal Scientist and Chief Scientist at CSIR Fourth Paradigm Institute, Bangalore India, 1996 – present

Professor at Academy of Scientific and Innovative Research (AcSIR)

Senior Expert Engineer at the French National Research Institute in Computer Science and Control [INRIA], Sophia Antipolis, France, 2009-2010 (on sabbatical).

DAAD Fellow at Fraunhofer Institute for Open Communication Systems (FOKUS), Berlin, Germany, 2002-2004 (on deputation from CSIR)

Academic Qualification:

PhD; International Institute of Information Technology – Bangalore (IIIT-B); Thesis Title: Feedback Manipulation in Next Generation Transport Layer Protocols: Emerging Threats and Countermeasures; Specialization: Computer Networking, Security and Protocol Engineering.

Master of Science in Electronics; Cochin University of Science and Technology; Specialization: Electronics (Artificial Intelligence and Robotics); Class/Division: First Class with Distinction.

International and National Patents Granted and Filed:

1. **V Anil Kumar** and Debabrata Das "Method and Device for Categorizing a Stream Control Transmission Protocol (SCTP) Receiver Terminal as a Malicious SCTP Receiver Terminal", US Patent No. 10,129,294 B2, date of grant: 13/11/2018, Country: US **(Patent Granted)**.

2. **V Anil Kumar** and Debabrata Das, "Method and device for robust Multi Path Transmission Control Protocol (MPTCP) against data sequence signal manipulation attack", App No. 2186DEL2015, date of filing: 19/07/2016, Country: India **(Patent Pending)**.

3. **V Anil Kumar** and Debabrata Das, "Method and Device for Detecting Malicious SCTP Receiver Terminal", European Patent No. EP 3103237 B1, Date of grant: 19/02/2020, Country: United Kingdom, France and Germany **(Patent Granted)**.

4. **V Anil Kumar** and Debabrata Das "Method and System for Detection and Elimination of Optimistic SACK Spoofing based Denial of Service Attacks on SCTP through Data Enriched SACK" Indian Patent No. 364591, Date of grant: 13/04/2021, Country: Indian **(Patent Granted)**.

Major Research and Infrastructure Projects:

1. A Darknet/Network Telescope based Cyber Security Monitoring and Inference Framework, **Chief Investigator**, funded by Ministry of Electronics and Information Technology (MeitY), Govt. of India.
2. Feasibility Evaluation, Impact Quantification and Mitigation of Low-rate Denial-of-Service Attacks on Multipath Transmission Control Protocol (MPTCP), **Chief Investigator**, funded by Department of Science and Technology, Govt. of India under ICPS mission.
3. Quantitative estimation of the prevalence of IP spoof based DoS/DDoS attacks through backscatter analysis of network traffic, **Chief Investigator**, funded by CSIR, India under EMPOWER scheme.
4. Augmentation of CSIR Multi-Tera FLOPS supercomputing facility, **Chief Investigator,** funded by CSIR, India.
5. CSIR integrated skill initiative, **Member**, funded by CSIR
6. Analysis and Detection of a New Class of Denial-of-Service Attacks, **Chief Investigator,** funded by Ministry of Information and Communication Technology, India
7. CySeRO – Cyber Security Research and Observation, **Work Package Leader**, funded by CSIR, India under 12th Five Year Plan
8. HPC Could Resource at CSIR for Covid-19 Research Support for Indian Researchers, **Member**, funded jointly by CSIR and AMD (donation), USA.
9. CHAMP: Setting up of **C**SIR **H**PC, **A**I & **M**L **P**latform, **Member**, funded by CSIR, India.
10. Intelligent System – Intelligent Technologies and Solutions, **Member**, funded by CSIR, India under the Mission mode project
11. OneLab2 – An Open Federated Network Testbed, **Member** at INRIA, France, funded by European Union, FP6
12. Vulnerability Analysis and Intrusion Detection at Transport Layer of the Internet Protocol Suite, **Member**, DAAD, Germany under DAAD Fellowship at Fraunhofer FOKUS, Berlin
13. VISION - Visualization Infrastructure for Scientific Insight by Observation and Navigation, **Member**, funded by CSIR, India
14. Setting up of Multi-Tera FLOPS Supercomputing Facility for CSIR, **Member**, funded by CSIR, India
15. Vehicular Adoc Network (VANET) Security, Member, funded by Industry (Cognizant).

Deputation / Visits Abroad:

Period	Country	Institute/Place
Jun. 2002 – Mar. 2004 (2 years)	Germany	Fraunhofer Institute for Open Communication Systems (FOKUS), Berlin
19 to 25 Jan. 2007 (7 days)	Sri Lanka	South Asian Network Operation Group (SANOG), Colombo
16 to 25 Apr. 2007 (10 days)	Canada	University of British Colombia, and CanSecWest-2007, Applied Security Conference, Vancouver

Mar. 2009 – Feb. 2010 (1 year)	France	French National Research Institute in Computer Science and Control (INRIA), Sophia Antipolis
24 to 27 Jun. 2009 (4 days)	Hungary	EU OneLab Project General Assembly, Budapest
10 to 28 Nov. 2009 (18 days)	USA	Department of Computer Science, Princeton University, Princeton
9 to 19 Nov. 2012 (11 days)	USA	Super Computing Conference Salt Lake City
1 to 10 Apr. 2016 (10 days)	Argentina	95th Internet Engineering Task Force (IETF) Meeting Buenos Aires
23 to 29 March 2019 (7 days)	Czech Republic	104th Internet Engineering Task Force (IETF) Meeting Prague

Participation in Major International Meetings/Events:

1. 104th Internet Engineering Task Force (IETF) Meeting at Prague, Czech Republic
2. 95th Internet Engineering Task Force (IETF) Meeting at Buenos Aires, Argentina
3. Supercomputing 12 (SC12) at Salt Lake City, Utah, USA
4. 2nd Onelab General Assembly, Budapest, Hungary
5. PlanetLab US and PlanetLab Europe Collaboration Meeting, Princeton University, USA
6. CanSecWest, Applied Security Conference, Vancouver, Canada
7. South Asian Network Operation Group (SANOG) Meeting, Colombo, Srilanka

Publications:

1. V Anil Kumar and Debabrata Das, "Data Sequence Signal Manipulation in Multipath TCP: The Vulnerability, Attack and its Detection", Elsevier Computers and Security, vol. 103, 2021.
2. R Harish, A Aswin Kumar, V Anil Kumar and P P Amritha, "Facilitating Cryptojacking Through Internet Middle Boxes", Advances in Electrical and Computer Technologies, Lecture Notes in Electrical Engineering, vol. 711, pp. 41-52, Springer, Singapore, 2021.
3. V Anil Kumar and Debabrata Das, "Data Sequence Map Flooding in MPTCP Framework: Potential Challenges and Efficient Countermeasures", the proceedings of 11th International Conference on Computing, Communication and Networking Technologies (ICCCNT 2020), IEEE publication, July 2020.
4. Shyamasundar L B, V Anil Kumar and Jhansi Rani, "Fine-tuning Resource Allocation of Apache Spark Distributed Multinode Cluster for Faster Processing of Network-trace

Data", International Journal of Advanced Computer Science and Applications (IJACSA), volume 10, issue 11, 2019.

5. Niranjana R, V Anil Kumar and Shina Sheen, "Darknet Traffic Analysis and Classification using Numercal AGM and Mean Shift Clustering Algorithm", Springer Nature (SN) Computer Science, vol. 1, issue 1, 2020.

6. L. B. Shyamasundar, V. Anil Kumar and J. R. Prathuri, "Analyzing Big Data Originated from Data Communication Networks using K-Means Algorithm to Understand the Nature of Incoming Malicious Connections", 2020 Third International Conference on Multimedia Processing, Communication & Information Technology (MPCIT), Shivamogga, India, pp. 129-132, 2020.

7. M. Suresh, V. Anil Kumar, M. Sethumadhavan, P. P. Amritha, "Exploitation of HTTP/2 Proxies for Cryptojacking", Proceedings of the 7th International Symposium on Security in Computing and Communications, Springer Communications in Computer and Information Science, vol. 1208, 2019.

8. S R Duggempudi, V Anil Kumar and M Sethumadhavan, "Acknowledgement Spoofing at Kernel level and TCP Sender Behaviour Analysis", Proceedings of International Conference on Soft Computing and Signal Processing, Springer Publication, Advanced Intelligent System and Computing (AISC), vol. 1118, 2019.

9. M. Suresh, P P Amritha, A K Mohan and V Anil Kumar, "An Investigation on HTTP/2 Security", Journal of Cyber Security and Mobility, River Publishers, Vol. 7_1, pp. 161-180, March 2018.

10. V Anil Kumar and Debabrata Das, "Data Enriched SACK: A Novel Acknowledgement Generation Scheme for Secure SCTP", IEEE Communications Letters, Vol. 18, No. 12, pp. 2109-2112, December 2014.

11. V Anil Kumar and Debabrata Das, "Feedback Manipulation Flooding Attack: Feasibility Evaluation and Impact Quantification on Stream Control Transmission Protocol", the 7th International Conference for Internet Technology and Secured Transactions (ICITST-2012), London Dec. 2012.

12. V Anil Kumar, P S Jayalekshmy, G K Patra, R P Thangavelu, "Remote Exploitation of TCP Sender for Low-rate Flooding Denial-of-Service Attack", IEEE Communications Letters, Vol. 13, Issue. 1, Jan. 2009.

13. V Anil Kumar, G K Patra, R P Thangavelu, A Sahu, P S Jayalekshmy, "Transport Layer Protocol Exploitation Attempts for DoS/DDoS Attacks", Journal of Computer Science, Vol. 2, No. 4, pp 272-280, Jan-Feb 2007.

14. V Anil Kumar and Dorgham Sisalem, "TCP based Denial-of-Service Attacks to Edge Network: Analysis and Detection", LNCS, Vol. 3356, pp 214-223, Springer-Verlag.

15. V Anil Kumar, "Sophistication in distributed denial-of-service attacks on the Internet", Current Science, 2004, Vol. 87, No.7, pp 885-888.

16. G K Patra, V Anil Kumar, R P Thangavelu, "A New Concept of Key Agreement using Chaos-synchronization based Parameter Estimation", LNCS, vol. 4812, pp. 263-266, Springer-Verlag.

17. G K Patra, V Anil Kumar, R P Thangavelu, "Secure Chaotic Synchronization using Negative Feedback of Super-positioned Signals", LNCS, vol. 4812, pp. 193-207, Springer-Verlag.

18. S. Sivapoornam, V Anil Kumar, G K Patra, N Ch S N Iyengar, "Analysis and Detection of Reflector based Distributed Denial of Service Attacks", Proceedings of International Conference on Soft Computing and Intelligent Systems (ICSCIS-07), Jabalpur, December 27-29, 2007.

19. Malay Mukul, Debjani Roy, Shibasis Satpathy, and V Anil Kumar, "Bootstrapped spatial statistics: a more robust approach to the analysis of finite strain data", Journal of Structural Geology 26 (2004) 595-600.

20. Sivapoornam S, V Anil Kumar, et al. "Analysis and Mitigation of Reflection based Distributed Denial of Service Attacks", Journal of Computer and Mathematical Sciences, 1(3), 354-362, 2010.

21. G K Patra, V Anil Kumar, R P Thangavelu, "Analysis of Synchronization based Parameter Estimation Attack on Switched Bi-directional Chaotic Key Stream Generator", in the proceedings of International Conference on Information Processing, Bangalore, pp. 298-307, August 2007.

22. V Anil Kumar and Dorgahm Sisalem, "Analysis and Detection of Denial-of-Service Scenario generated by TCP Receivers to Edge-network", in proceedings of 12th International Conference on Advanced Computing and Communication, ADCOM-2004.

23. G K Patra, T R Ramamohanan, V Anil Kumar, R P Thangavelu, "Improvement in Security Level of First-Generation Chaotic Communication System by Mutual Synchronization", IEEE press as the proceedings of the14th International Conference on Advanced Computing and Communication, ADCOM-2006.

24. V Anil Kumar, G K Patra, R P Thangavelu and P S Jayalekshmi, "An Overview of TCP Related Denial-of-Service Attacks and Associated Challenges", National workshop on towards securing end-systems in the networked world challenges and possible solutions, June 2006, Hyderabad, India.

25. G K Patra, Tahir Ali, V Anil Kumar, R P Thangavelu "Multiparty Secure Key Exchange Algorithm Using Neural Cryptography", In Proceedings of National Workshop on Cryptography, September 2004.

26. V Anil Kumar, R.P. Thangavelu and G.K. Patra, "Secure and Active Hop-count Mapping for early Detection of IP Spoofed Denial-of-Service Attacks", in Proceedings of National Conference on Hardware and Software Solutions for Secure Networks, Hyderabad, 23-24 January 2004.

27. G K Patra and V Anil Kumar, "Analysis of Synchronization using Chaotic Systems Sampled at Non-uniform Time-steps for use in Secure Communications", in the proceedings of the third Innovative Conference on Embedded Systems, Mobile Communication and Computing (ICEMC2), Infosys, Mysore, 11-14, Aug. 2008.

28. G K Patra and V Anil Kumar "Computerized Chaos in Cryptography: Problems and solutions", in the proceedings of national conference on Cryptography and Network Security, VIT, Vellore, 18-19 Feb. 2009.

29. PMD Nagarjun, V Anil Kumar, et al. "Simulation and analysis of RTS/CTS DoS attack variants in 802.11 networks", International Conference on Pattern Recognition, Informatics and Mobile Engineering (PRIME), 2013.
30. M Brahma, G K Patra, R P Thangavelu, V Anil Kumar, "Mobile based payment model for HPC clouds", International Conference on Recent Trends in Information Technology (ICRTIT), 2011.
31. G K Patra, V Anil Kumar, and R P Thangavelu, "Trends in High Performance Computing: Opportunities and Challenges", National Conference on Scientific Computing and Applied Mathematics, (NCSCAM2011), pp. 15-21, VLBJCET, Coimbatore, June 2011.
32. G K Patra and V Anil Kumar, "Synchronization by Non-uniformly Sampled Periodic Driving to Avoid Possible Parameter Estimation", International Journal of Enhanced Research in Science, Technology & Engineering, Vol. 2, Issue. 3, March 2013.
33. G K Patra and V Anil Kumar, "Security Assurance in High Performance Computing Cloud", International Conference on Cloud Computing and Service Engineering (CLUSE-2012), India, pp. 26-32, ISEEC, UK, 2012.

Awards/Honors:

Indian Internet Research Forum Fellowship for IETF participation

Best paper award in IEEE Third International Conference on "Multimedia Processing, Communications and Information Technology" - MPCIT 2020

Best presentation award (First Prize) for paper entitled "Cyberspace security dynamics inference: a data driven approach" (DIGI_68) in Indian International Science Festival (IISF) - 2016, New Delhi, India.

Invitation with fellowship from Internet Society (ISOC) to be part of the 95th IETF (Internet Engineering Task Force) Standardization Meeting at Buenos Aires, Argentina.

DAAD Fellowship awarded by German Academic Exchange Service, Germany

Invitation from INRIA, France for Collaborative work in the areas of Computer Networking and Internet Technologies

Interviewed by MyFIRE Consortium of European Union on Future Internet Experimental Facility

Best paper award in two international conferences

Keynotes/Invited Talks/Presentations:

1. High Performance Computing from an Interconnect Perspective, Advance Training on High-Performance Computing, Cyber Security and Data Science, CSIR Skill Initiative programme under Skill India Initiative of GoI, 21-25 March 2022.
2. Cyberspace and Attacks: New Observations and Perspectives with Changing Scenario, National Power Training Institute, 25 February, 2022.
3. Supercomputing and Cybersecurity: An Engineering Perspective, AICT sponsored faculty development programme, MVJ college of Engineering, 01 September 2021.

4. Packets, Protocols and Attacks in Cyberspace: The Trends and Dynamics, Eminent Lecture Series #7, Amritha Vishwa Vidya Peetham, 28 August 2021.
5. Design and Implementation of Programable Network Architecture for Zero Trust Architecture, 3rd meeting of ZTA Working Group (online), 19 April 2021.
6. Feedback Manipulation in Next Generation Transport Layer Protocols, International Institute of Information Technology – Bangalore (IIIT-B), 20, January 2021.
7. Darknet Traffic Analysis and Security Inference, AICTE Faculty Development Programme on Artificial Intelligence and Its Applications in CPS, 5-9, October 2020.
8. "IoT and Botnets", DST sponsored Workshop on sensor networks, IoT and Internet of Everything, Aizawl, Mizoram, 11-13, September 2019.
9. The Evolution and Sophistication of DoS/DDoS Attacks on the Internet, National Power Training Institute, Ministry of Power, Government of India, Hotline Training Centre, Bangalore, December 02-06, 2019.
10. Watching Dark IP Address Space: The Gain and Pain, C-DAC Technology Conclave 2019, C-DAC, Pune, April 4-6, 2019.
11. DDoS Attacks on Cyberspace and Mitigation Technologies, National Workshop on Technology Trends in Cyber Security (WorTICS 2018), Society for Electronics Transaction and Security (SETS), Chennai, July 29-30, 2018.
12. Feasibility Evaluation, Impact Quantification and Mitigation of Low-Rate Low-rate Cyber Attacks on Multipath Transmission Control Protocol, DST ICPS Cyber Security Workshop, IIT Delhi, March 13, 2018.
13. Denial-of-Service Attacks on Cyberspace: From Evolution to the State-of-the-Art, Application of Computational Mathematics, Department of Mathematics, St. Joseph's College, Bangalore, 15-16, March 2018.
14. Cyber Security Research at CSIR Fourth Paradigm Institute: Opportunities and Challenges, Student Faculty Interaction, Cyber Security Center, Amrita Vishwa Vidyapeetham, Coimbatore, 26 February 2018.
15. Packets, Protocols and Attacks in Cyberspace, Army Signaling Group, C-DAC, Noida, November 30, 2017.
16. Stream Control Transmission Protocol and potential Denial-of-Service Attack, Pre-IETF Conference, Indian Internet Engineering Society, Infosys, Bangalore, India, November 8-9, 2017.
17. Low-Rate Denial-of-Service on Multipath Transmission Control Protocol (MPTCP), DST ICPS Cyber Security Workshop, Department of Computer Science, IIT Kanpur, October 23 – 24, 2017.
18. Python for Packet Processing, ACM India Summer School on Information and System Security, VIT University, Vellore, May 29 - June 16, 2017.
19. Packets, Protocols and Attacks in Cyberspace, ACM India Summer School on Information and System Security, VIT University, Vellore, May 29-June 16, 2017.
20. Cyber Security Dynamics Inference: A Data-driven Approach, Asia Pacific Advanced Network (APAN-43) Conference, New Delhi, 12-17, February 2017.
21. Security Dynamics in Cyberspace: From Evolution to State-of-the-art, India International Trade Fest (IITF), Pragati Maidan, New Delhi, 20 November 2016.
22. Security Challenges and Countermeasures in Next Generation Transport Protocols, Technical Workshop on Trends on Networking and Communication, International Institute of Information Technology (IIIT-B), Bangalore, 21 April, 2016.
23. Attacks and Countermeasures in Critical Infrastructure, Information, Network and Smart Grid Security Workshop, Central Power Research Institute (CPRI), Bangalore, 3-4, March 2016.

24. Packets, Attacks and Protocols in Cyberspace, Special team of IT professional of Government of India, at C-DAC, Noida, 13 January, 2016.
25. Feedback manipulation and associated Concerns in next generation transport layer protocol on the Internet, Embedded Safety and Security Summit 2015, NIMHANS Convention center, Bangalore, 17 June 2015.
26. Supercomputing for Mathematicians, Mathematics Faculty Training Programme of Visveswara Technological University held at M S Ramaiaha college of Engineering, 14, July 2015.
27. Cyber security in context of big data, National Seminar on Big Data Challenges and Opportunities – A perspective with Security and Social Media Analytics, Avinashalingam University, Coimbatore, 19- 20 Feb. 2015.
28. Multipath TCP: An innovative transport layer protocol for high performance data transfer, GA- RUDA-NKN Partner Meet, IISc, Bangalore, 19-20 September 2014.
29. Supercomputing performance from a protocol and interconnect perspective, Keynote Talk, International Conference on High Performance Computing and Applications (ICHPCA-2014), Bhubaneswar, India, Dec. 2014.
30. Trends in Supercomputing, National Conference on Scientific Computing (NCSC-2013), Indian Institute of Information Technology (IIIT), Trivandrum, 20-21 June 2013.
31. DDoS Attacks on the Internet: The Challenges and Countermeasures, TEQIP sponsored Industry Institute Interaction Programme, PSG College of Technology, Coimbatore, 22-23 November 2013.
32. Security Dynamics on the Internet, Workshop on 4G and Wireless Networks, Atria Institute of Technology, Bangalore, 29 October, 2010.
33. Federation of PlanetLab like Network Testbeds Through Slice based Architecture, Euro-India Future Internet Research and Experiments Collaboration Workshop, Pune, 16 December, 2010.
34. Low-rate Denial-of-Service Attacks, CanSecWest-2007, the applied security conference, 18-20 April 2007, Canada.
35. On Detecting ACK Spoofing Attacks, Department of Electrical and computer Engineering, University of British Colombia, 20, April 2007, Vancouver, Canada.
36. Sophistication in Denial-of-Service Attacks: Conventional Brute Force vs. Low-rate Tactical Flooding, 9th South Asian Network Operational Group Conference, (SANOG-9), 23-24 January 2007, Colombo, Sri Lanka.
37. "Detection and Characterization of Network Security Events at Internet-scale", half a day tutorial at the third Innovative Conference on Embedded System, Mobile Communication and Computing (ICEMC2), Infosys, Mysore, 11-14, Aug.2008.
38. "Living and Learning in a Foreign Culture", Asia pacific Week, Berlin Germany, Sep. 24, 2003.
39. "Network Traffic Analysis for Detection and Characterization of Malicious Incidents on the Internet" Invited talk at Electronic Corporation of India Limited (ECIL), Hyderabad, 7, Nov. 2008.
40. TCP Related DoS Attacks and Associated Challenges, National Conference on Cyber Security, 8-10 March 2007, Bangalore, India.
41. An Overview of TCP Related Denial-of-Service Attacks and Associated Challenges, National workshop on towards securing end-systems in the networked world challenges and possible solutions, June 2006, Hyderabad, India.

42. Analysis and Detection of Denial-of-Service Scenario generated by TCP Receivers to Edge-network, 12th International conference on Advanced Computing and Communication, ADCOM-2004, Ahmedabad, India.
43. TCP based Denial-of-Service Attacks to Edge Network: Analysis and Detection, 7th International Conference on Information Technology, CIT-2004, Hyderabad, India.
44. "Network Intrusion Detection Systems, its need and capabilities in a packet switched environment", 16th May 2001, C-MMACS, Bangalore, India.
45. "An introduction to information security in networked society", Brainstorming session on "Quantum information and cryptography" arranged by C-MMACS, Bangalore, India.
46. "Simple Network Management Protocol based Bandwidth Measurement system for Internet access link" at C-MMACS, Bangalore, India.

Other Scientific and Technical Activities:

1. Member, Project Review and Steering Group (PRSG), Ministry of Electronics and Information Technology (MeitY) for project titled Establishment of a National Facility for Security Testing, Evaluation and Certification of IoT Devices & Embedded Systems leading to Security Assurance.
2. Member, Project Review and Steering Group (PRSG), Ministry of Electronics and Information Technology (MeitY) for project: Enhancing Security using Lightweight Cryptography in IoT with OneM2M as the Service Platform and 3GPP-5G as the underlying Communication Network.
3. Expert Member, Working Group for Zero Trust Architecture for Ministry of Electronics and Information Technology (MeitY), 2021.
4. Chairman, Grievance Committee, CSIR Fourth Paradigm Institute.
5. Head, Programmable Network Architecture Subcommittee of Zero Trust Architecture for Ministry of Electronics and Information Technology (MeitY), 2021.
6. Expert Member, Board of Studies for Computer Science and Engineering, Coimbatore Institute of Technology (CIT), Coimbatore, 2021.
7. Expert Member, Promotion Assessment Committee for Technical Staff, National Aerospace Laboratories (NAL), Bangalore, 2021.
8. Expert Member, Promotion Interview Board, Center for Development of Advanced Computing (C-DAC), 2019.
9. Member Programme Committee of International Conference on Internet Research and Engineering (ICIRE 2019), Bangalore, 2019.
10. Member, Appeal Committee, Certification Body for ISO 27001 (Information Security), 2019.
11. Member, Search and Selection Committee for Mentor Selection for Society for Electronics Transaction and Security (SETS), Chennai, 2018.
12. Chairman, JRF/SRF Recruitment Committee for Himalayan Mission Project for CSIR-4PI, 2018.
13. Member, Working Group on PPP in Development of Standards, Confederation of Indian Industry (CII) Task Force on Public Private Partnership for Security of the Cyber Space, 2018.
14. Invited Member, Advisory Committee for Society for Electronics Transaction and Security (SETS) Chennai, 2018.
15. Mentor, Network Protocol Analysis Group, C R Rao Advanced Institute for Mathematics, Statistics and Computer Science (AIMSCS), Hyderabad, since 2018.
16. Member, Project Review and Steering Group (PRSG), Ministry of Electronics and Information Technology (MeitY), Government of India, 2018-2019.

17. Member, Technical Expert Group for IT Infrastructure Procurement and Implementation, Kidwai Memorial Institute of Oncology, Bangalore.
18. Member, Selection Committee for Project Staff for AI mission project, CSIR, May 9, 2018
19. Member, Organizing Committee, Workshop on Modelling and Simulation, CSIR-4PI, Bangalore, June 19-22, 2018.
20. Member, Assessment Committee of Technical Officers of National Aerospace Laboratories, 2018
21. Member, Expert Committee for Supercomputing Facility for Cryptanalysis at CR Rao Advanced Institute of Mathematics, Statistics and Computer Science (AIMSCS), Hyderabad, 2018.
22. Member, Program Committee, National Conference on Parallel Computing Technologies, PARCOMPTECH, 2017
23. Member Security Auditing Committee of CSIR ERP System
24. Member, Internet Society (ISOC)
25. Member, Cyber Security and IT Policy Committee National Aerospace Laboratories, Bangalore
26. Member, Program Committee, International Conference on High Performance Computing and Applications (ICHPCA-2014)
27. Member, Technical Programme Committee, International Conference on Electronics Computing and Communication Technologies (IEEE CONECCT-2015)
28. Member, Assessment Committee, CSIR-NIO, Goa.
29. Member Assessment Committee, CSIR-NAL, Bangalore
30. Member, Program Committee, National Conference on Parallel Computing Technologies, PARCOMPTECH, 2015
31. Session Chair, International Conference on High Performance Computing and Applications (ICHPCA-2014)
32. Member Security Advisory Committee, Indian Institute of Astrophysics Bangalore
33. Member National organizing Committee, 2nd National Workshop on National Knowledge Network
34. Life member Computer Society of India
35. Member, Programme Committee, National Conference on Parallel Computing Technologies-2013, C-DAC
36. Reviewer, IEEE CONECCT2013 Conference
37. Jury Member, Programme Committee, GARUDA Challenges – a National Level Competition for Scientists and Students on HPC and Grid Computing -2011
38. Special invitee, Domain Expert Group, CSIR NMITLI Project Proposal Evaluation - 2011
39. Expert Member, Selection Committee, C-DAC
40. External Expert, M.Tech Theses Evaluation Committee, Vellore Institute of Technology (VIT)
41. Funder Coordinator SPARK (Student Programme for Advancement of Research Knowledge), CSIR-4PI.
42. Nodal Officer, National Knowledge Network (NKN)
43. Expert Member, M.Tech Thesis Evaluation Committee, Center for Cyber Security, Amrutha Vishwavidyapeetham, Coimbatore.
44. Expert Member, Selection Committee, Indian Institute of Astrophysics, Bangalore.