

Dr. R APARNA

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Faculty ID: SIT0094

Education

	Degree	Year	Institute	Specialization
1	Ph.D	2012	SIT, Tumakuru	Cryptography and Information Security
2	M.S	2000	BITS, Pilani	Software Systems
3	B.E.,	1995	SIT, Tumakuru	Computer Science and Engg.

Professional Experience

	Date (from-to)	Designation	Organization
1	20-7-2015 till date	Professor	SIT, Tumakuru
2	01-01-2011 to 19-7-2015	Associate Professor	SIT, Tumakuru
3	10-03-2005 to 31-12-2010	Assistant Professor	SIT, Tumakuru
4	20-08-2002 to 09-03-2005	Senior Lecturer	SIT, Tumakuru
5	21-12-1995 to 19-08-2002	Lecturer	SIT, Tumakuru

(Please fill in reverse order. Current designation should be at the top)

Positions held

(Please give details of any administrative posts, co Ordinator roles/ responsibilities held)

1. Head, Department of ISE, from 01-01-2016 to 31-12-2018

2. Head, Department of ISE, from 01-01-2022 to till date

Affiliations of Professional organizations

- Life Member, ISTE
- Fellow, Institution of Engineers
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Awards and Honors

- NIL

Courses Taught

Undergraduate Courses

- Data Structures
- Programming Languages
- Fundamentals of C Programming
- Analysis and Design of Algorithms
- Compiler Design
- Microprocessors
- Advanced Microprocessors
- Distributed Systems
- Unix and C Programming
- Ad Hoc Wireless Networks
- Computer Architecture
- Cryptography and Network Security
- Computer Organization
- Logic Design
- Computer Organization and Architecture
- Operating Systems
- Advanced Data Structures and Algorithms
- Network Security
- Cryptography and Blockchain Technology
- Unix System Programming
- Computer Architecture

Postgraduate Courses

- Ethical Hacking
- Advanced Algorithms
- Cloud Security
- Operating Systems security

Research Guidance

Sl. no	Name of the Scholar	Title	Year of completion
1.	V M Aparanji	Development of Soft Control Algorithms for Multi-segment Humanoid Mechanisms	2018
2.	Hemavati	Multi-Label Classification Using Optimized Ensemble Techniques With Dimensionality Reduction	2024
3.	Sowmya G V	Energy Efficient Computational Intelligence Based Routing Algorithm for Wireless Sensor Network	2025
4.	Rudramurthy V C	Energy Efficient Protocols for Secured Routing, Data Aggregation and Mitigation of Hot-spot Problem in WSN	2025

Research Areas

- Cryptography and Information Security
- Security in Wireless Sensor Networks
- Edge Computing

Sponsored Projects

Completed Projects:

1. Title: Creating Side-Channel Attacks Infrastructure Framework
Funding Agency: ABB GISL Pvt. Ltd. Bangalore
Amount: Rs. 15 Lakhs
Duration:2 years
Role: Co-investigator

Publications

Journals

- R. Aparna, B.B.Amberker, Analysis of Key Management Schemes for Secure Group Communication and Their Classification, International Journal of Computing and Information Technology, Vol. 17, No.2, pp. 203-214, June 2009.

- R. Aparna, B.B.Amberker, A Key management Scheme for Secure Group Communication using Binomial Key Trees, International Journal of Network Management , John-Wiley Publication, Vol.20, No.6, DOI:10.1002/nem.742, pp.383-418, Nov.2010.
- R. Aparna, B.B.Amberker, An Efficient Key management Scheme for Handling Bursty Behavior in Secure Group Communication using Binomial Key Trees, International Journal of Security and Communication Networks, John-Wiley Publication, Vol. 4, No.4, DOI:10.1002/sec.250, pp.1027-1043, Aug.2011.
- R. Aparna, B.B.Amberker, Key management Schemes for Multi-Layer and Multiple Simultaneous Secure Group Communication, International Journal of Communications and Networking, International Scholarly Research Network Publication, Volume 2012 (2012), Aug. 2012.
- R. Aparna, B.B.Amberker, Key management Scheme for Cumulative Member Removal and Bursty Behavior in Secure Group Communication using m-ary Tree, MIS Review-An International Journal, Volume 18, No. 1, pp.71-91, Sept. 2012.
- R Aparna, B.B.Amberker, Multiuser Message Authentication, Application to Verifiable Secret Sharing and Key Management Schemes, International Journal of Computer Science and Information Technology, Horizon Research Publishing Corporation, Vol.1, No.2, pp. 97-104, Sept. 2013.
- Rudramurthy V C, R Aparna, Security Issues and Challenges in Wireless Sensor Networks: A Survey, International Journal of Innovative and Research in Computer and Communication Engg. Volume 3, Issue 10, October 2015.
- V M Aparanji, Uday V Wali, and R Aparna, R Library For Neural Networks, International Journal of Technology and Science, ISSN (Online) 2350-1111, (Print) 2350-1103 Volume IX, Issue 1, May 2016 pp. 9-12.
- Rudramurthy V C, R Aparna, A Review on Data Aggregation in Wireless Sensor Networks, CiiT International Journal of Wireless Communication, Vol 9, No 8, October 2017.
- Hemavati, R Aparna, A Survey on Intrusion Detection System using Machine Learning and Deep Learning, International Journal of Scientific Research in Computer Science, Engineering and Information Technology, Volume 5, Issue 2, March-April 2019, pp.264-270.
- Aparanji V.M., Wali U.V., Aparna R.. Multi-Layer Auto Resonance Network for Robotic Motion Control, International Journal of Artificial Intelligence, Volume 18, Issue Number 1, March 2020, pp.19-44.
- V.M.Aparanji, Uday V.Wali, R.Aparna, Tunability of auto resonance network, SN APPLIED Sciences, ISSN: 2523-3963, Vol-2, Issue-5, April- 2020. (Springer Nature) Indexing in EBSCO discovery services.

- Aparna R, Nirupama, Shwetha K J, Sushmitha R and Tejeshwini R, Personalized Diabetic Management Using Machine Learning, GRENZE International Journal of Engineering and Technology, Vol.6, Issue 2, July 2020, pp.167-172.
- Rudramurthy V.C.;Aparna R. Reliable and Efficient Routing Model for Unequal Clustering-Based Wireless Sensor Networks, International Journal of Computer Networks and Applications, Volume 9, Issue 1, Jan-Feb. 2022, Pages 1-11.
- Hemavati, Susheela Devi, Aparna R, Multi-label Learning by Extended Multi-tier Stacked Ensemble method with Label Correlated Feature Subset Augmentation, International Journal of Electrical and Computer Engineering (IJECE), Vol. 13, No.3, June 2023.
- Rudramurthy V C, Aparna R, Secure Authentication and Data Aggregation Scheme for Routing Packets in Wireless Sensor Network, International Journal of Electrical and Computer Engineering (IJECE), Vol. 13, No.3, June 2023.
- Sowmya G V, Aparna R, Analysis of Multihop Routing Algorithm For Wireless Sensor Network Based On Baud Rate and Path Loss Models, Journal of Theoretical and Applied Information Technology, Vol.101. No 17, September 2023, pp. 7056-7067.
- Sowmya G V, Aparna R, Energy Efficient Cluster Formation and Multihop Routing Based on Improved Harmony Search Algorithm for Wireless Sensor Networks, International Journal of Computer Networks and Applications (IJCNA), Volume 10, Issue 5, September – October 2023, pp.706-727.

Conference Proceedings

- R.Aparna, B.B.Amberker, Prashant Koulgi, Multi-sender Multi-receiver Message Authentication, and an Application to Verifiable Secret Sharing, National conference on Mathematical Foundations of Coding, Complexity, Computation and Cryptography, IISc., Bangalore.
- R. Aparna, B.B.Amberker, A.S.Poornima and Prashant Koulgi, A Periodic Group Rekeying Approach For Secure Multicast Using One Way Hash Functions, International Conference on Advanced Computing and Communication, Madurai., Tamilnadu, India, Feb.9-10, 2007.
- R. Aparna, B.B.Amberker, A.S.Poornima, Key Management for Cumulative member Removal in Secure Group Communication, International Conference on Embedded Systems, Mobile Communication and Computing, Bangalore, India, August 3-5, 2007.
- R.Aparna, B.B.Amberker, A.S.Poornima, SDS: A New Distributed Key Management Technique, International Conference on Information Processing, Bangalore, Aug.10-12, 2007.

- R.Aparna, B.B.Amberker, A S Poornima and Prashant Koulgi, String Searching in Dispersed Files using MDS Convolutional Codes, Fourth International Conference on Cryptography, Coding and Information Security, Venice, Italy, Nov.23-25, 2007.
- R.Aparna, B.B.Amberker, Dynamic Authenticated Secure Group Communication, Fourth International Conference on Cryptography, Coding and Information Security, Venice, Italy, Nov.23-25, 2007.
- R.Aparna, B.B.Amberker, Authenticated Secure Group Communication using Broadcast Encryption Key Computation, The 5th International Conference on Information Technology – New Generations (ITNG'08), Las Vegas, Nevada, USA, April 7-9, 2008.
- R.Aparna, B.B.Amberker, New Group Key Computation Technique for Secure Group Communication, The 19th IEEE International Symposium on Personal, Indoor and Mobile Radio Communications (PIMRC), Cannes, France, Sept.15-18, 2008.
- R.Aparna, B.B.Amberker, New Method to Compute Auxiliary keys in LKH based Secure Group Key Management Scheme, The Sixteenth International Conference on Advanced Computing and Communication, Anna University, Chennai, India, pp.46-51, Dec.14-17, 2008.
- R.Aparna, B.B.Amberker, Key Management Scheme for Multi-Layer Secure Group Communication, THE First International Conference on COMMunication Systems and NETWORKS (COMSNETS), Jan.5-10, 2009.
- R.Aparna, B.B.Amberker, Key Management Scheme for Multiple Simultaneous Secure Group Communication, IEEE International Conference on Internet Multimedia Systems Architecture and Application (IEEE IMSAA 2009), Bangalore, India, Dec.9-11, 2009.
- R.Aparna, B.B.Amberker, Secure Group Communication Using Binomial Trees, Third IEEE International Conference on Advanced Networking and Telecommunications (IEEE ANTS 2009), New Delhi, India, Dec.14-16, 2009.
- R.Aparna, B B Amberker, Amoolya P, Archana J, Divya K, Divyashree Jagadeesh, Implementation of Key Management Scheme for Multiple Simultaneous Secure Group Communication, International Conference on Communication, Computation, Control and NanoTechnology (ICN-2010), Oct.29-30, 2010.
- R Aparna, Shalini Kumari H A, Secure Dispatch of Mobile Sensors in a Hybrid Wireless Sensor Network, International Conference on Communication, Computation, Control and NanoTechnology (ICN-2011), Sept. 23-25, 2011.
- R Aparna, Navya V.B. Bhaskar G, Mobile Payment Security by Key Shuffle Mechanism in DES, International Conference on Computational Intelligence and Information Technology (CIIT 2011), Nov. 7-8, 2011, pp 281-285, Pune, India.

- R Aparna, M Vyshnavi, Big Data: Technologies and Techniques for Large Scale Data Management, IRNET International Conference on Electrical Engineering and Computer Science (ICEECS), August 19, 2012.
- R Aparna, R Pallavi, Data Integrity Scheme for Hierarchical Attribute Encryption in Cloud Computing, International Conference on Computer Science and Information Technology, InterScience Research Network, INDIA, March 10, 2013.
- Kalakappa pattanashetty, R Aparna, Secure Fault Tolerant Data Aggregation for Wireless Sensor Network, International Conference in Computer Science, Electronics and Communication Engineering - ICCECE, 2014, July 27, 2014, Bangalore, INDIA.
- Praveen Kumar K R, R Aparna, Storage and Access in Product Review System using Hadoop, International Conference on Electrical, Electronics and Computer Science (ICEECS), 24th August 2014, Bangalore, INDIA.
- Ravi V and Aparna R, Security in RFID based Smart Retail System, Third International Conference on “Computing for Sustainable Global Development”, 16th – 18th March, 2016, New Delhi, INDIA.
- V M Aparanji, Uday V Wali, and R Aparna, R Library For Neural Networks, International Conference on Smart Electronic Systems. 20-22 May 2016, Belagavi, INDIA.
- V M Aparanji, Uday V Wali, R Aparna, A Novel Neural Networks Structure for motion control in joints, International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICECCOT-2016, IEEE conference) , 9-10, Dec 2016. ISBN: 978-1-5090-4697-3.
- V M Aparanji, Uday V Wali, R Aparna, Robotic Motion Control using Machine Learning Techniques, Sixth IEEE International Conference on Communication and Signal Processing (ICCSP 2017), 6-8 April 2017 , Tamilnadu, India.
- Shilpa N L, Aparna R, Biometric Template Protection Techniques: A brief Survey, Third International Conference on Applied Science, Engineering and Technology (ICASET)-17), 18th -19th May 2017, Bengaluru, INDIA.
- V M Aparanji, Uday V Wali, R Aparna, Automated Path Search and Optimization of Robotic Motion Using Hybrid ART-SOM Neural Networks, International Conference on Recent Advancement in Computer & Communication (ICRAC-2017), at iMPLab Research & Innovation Foundation, Bhopal, Madhya Pradesh, India, 26-27 May, 2017. The paper is published in Springer Lecture Notes in Networks and Systems book series (LNNS, volume 34), April 2018.
- Anusha C H, Aparna R, Secure Sharing of Group Data in Clouds, International Conference on Wearable Technologies (ICOWT-17), 22nd -23rd June 2017, Bengaluru, INDIA.
- V M Aparanji, Uday V Wali, R Aparna, “Pathnet: A neuronal model for Robotic Motion Planning,” Third International conference on cognitive, computing and

information processing (CCIP 2017), JSS Academy of Tech Ed., Bangalore, Springer CCIS, 15th and 16th Dec 2017. ISBN 978-981-10-9059-2, Communications in Computer and Information Science book series (CCIS, volume 801).

- V M Aparanji, Uday V Wali, R Aparna, “Tunability of Auto Resonance Network”, International Conference On IoT, Social, Mobile, Analytics And Cloud in Computational Vision And Bio-Engineering (ISMAC - CVB 2019), Vivekanandha College of Technology for Women, Elayampalayam, Tiruchengode - TK, Tamilnadu,India, March 13-14, 2019.
- Rudramurthy V C, R Aparna, “Location Based Cluster Head Selection for Wireless Sensor Networks”, 4th International Conference on Communication and Electronics Systems (ICCES 2019), PPG Institute of Technology, Coimbatore, India, 17-19 July 2019.
- R Aparna, Abhinav Kumar Mallick, Utkarsh Sahay, “Securing Sensor Data on IoT (Internet of Things) devices”, 4th International Conference on Electrical, Electronics, Communication, Computer Technologies and Optimization Techniques (ICEECCOT-2019), GSSS Institute of Engineering and Technology for Women, Mysuru in association with IEEE Bangalore Section, 13-14, Dec. 2019.
- Ramyashree B R, R Aparna, “Enhancing Security for Communication in Wireless Sensor Network”, 2nd International Conference on Computational Intelligence in Pattern Recognition (CIPR), Institute of Engineering and Managemnt, Kolkata, WB. 5-6, Jan. 2020.
- Hemavati, V Susheeladevi, Seba Ann Kuruvilla, R Aparna, Prototype Selection and Dimensionality Reduction on Multi-Label Data, Proceedings of the ACM India Joint International Conference on Data Science and Management of Data (CoDS-COMAD) 2020 (7th ACM iKDD CoDS and 25th COMAD), Hyderabad, India, January 5-7, 2020, pp. 195-199.
- Ramyashree B R, Dr. R Aparna, Promod Rathod, Mahammad Nihaz, Navneeth Bhat, Experimental Analysis of Node Localization Techniques in WSN, Proceedings of the International Conference on Emerging Research in Computing, Information, Communication and Applications (ERCICA 2020), Bengaluru, India, September 2020. (published Dec .2021)
- Aparna R.;Nirupama ;Shwetha K.J.;Sushmitha R.;Tejeshwini R. Personalized diabetic management using machine learning, 11th International Conference on Advances in Computing, Control, and Telecommunication Technologies, ACT 2020, Year 2020, Pages 167-172.
- Aparna R, Chandana C L, Jayashree H N, Suchetha G Hegde, Vijetha N, Emotion and Collaborative Based Music Recommendation System, Fifth International Conference on Intelligent Data Communication Technologies and Internet of Things (ICICI 2021), Coimbatore, India, August 27-28, 2021.

- Hemavati, Devi V.S., Aparna R. Multi layered Stacked Ensemble Method with Feature Reduction Technique for Multi-Label Classification, Conference Paper - Journal of Physics: Conference Series, Volume 2161, Year 2022.
- Hemavati Dhole H.;Susheela Devi V.;Aparna R.;Raj R. Multilabel Image classification using optimized ensemble deep learning, Proceedings - 2022 IEEE World Conference on Applied Intelligence and Computing, June 17-19, 2022. AIC 2022, Year 2022, Pages 732-738.
- Aparna R, Abhinav Mallick, Utkarsh Sahay, "Securing sensor data on Internet of Things devices", Proceedings of the International Conference on Cognitive and Intelligent Computing. Cognitive Science and Technology, ICCIC 2021, Springer, Singapore.
- Aparna R, Gowtham P, Sai Suhas, Vaishnav Puram, VATSAG: An application for scouting authorised professionals, Thirteenth International Conference on Advances in Communication, Network, and Computing, CNC 2022, Jul 29-30 2022, Bengaluru, India. Published in Grenze International Journal of Engineering and Technology, Vol.9 Issue 1, Jan. 2023, pp. 693-697.
- Akshatha D S, Aparna R, Face Recognition and Skin Classification Using SVM and CNN, Twelfth International Conference on Recent Trends in communication and Computer Networks (COMNET 2022), Aug 29-30, 2022, Chennai, India. (Published in Grenze International Journal of Engineering and Technology, Vol.9 Issue 1, Jan. 2023, pp. 437-443.)
- R. Aparna, K. S. Aravinda Kashyap, Shreyas K R, Sowmya R B, Jashwanth E Rao, Suman M, "MediSync: An IoT and ML-Powered Medication Adherence Solution," 2023 7th International Conference on Computation System and Information Technology for Sustainable Solutions (CSITSS), Bangalore, India, 2023, pp. 1-6, doi: 10.1109/CSITSS60515.2023.10334070.
- Hemavati, Aparna, R. (2024). Optimal Stacking Method with GA-Based Feature Selection for Multi-Label Classification. In: Jha, P.K., Jamwal, P., Tripathi, B., Garg, D., Sharma, H. (eds) Proceedings of the Second Congress on Control, Robotics, and Mechatronics. CRM 2024 2024. Smart Innovation, Systems and Technologies, vol 409. Springer, Singapore. Pp. 91-102.
- R Aparna, Indushree Manjunatha Hegde, Meghana V S , Khushi Vardiya and Komal, Data Security System using Blockchain Technology, Grenze International Journal of Engineering and Technology (GIJET) as Volume 10, Issue 2, June 2024.
- Presented in Fifteenth International Conference on Recent Trends in Information, Telecommunication and Computing – ITC 2024, Jan 26-27, pp. 173-177, 2024.
- R Aparna, Abhishek S S, Manjunath G, Vinayaka S and Yashwanth N, Voice-based Virtual Assistant for Windows, Hinweis Second International Conference on AITC-2024, April 27-28, 2024.

- Hemavati, Aparna R, Optimal Stacking Method with GA-Based Feature Selection for Multi-Label Classification, International Conference on Smart Innovation, Systems and Technologies, Volume 409 SIST, Year 2024, Pages 91-102.
- R Aparna, Pradeep L Ashtkar, Rajath R, Nishanth Kumar K S and Sharath K M, Sea Shell Classification, International Conference on Recent Trends in Information Processing & Computing (IPC2024), Sept. 27-28, 2024, Bhopal.
- R Aparna, Atharva Shukla, Dawood Shabir Dar, Ishan Verma, Alok Kumar, Blockchain Integrated Crowdfunding Platform, International Conference on Recent Trends in Information Processing & Computing (IPC2024), Sept. 27-28, 2024, Bhopal.

Book Chapters

- Aparanji V.M., Wali U.V., Aparna R. Pathnet: A Neuronal Model for Robotic Motion Planning. Cognitive Computing and Information Processing. CCIP 2017. Communications in Computer and Information Science, vol 801. Springer, Singapore.
- Aparna R, B B Amberker, Recent Development of Multiuser Message Authentication, Application to Verifiable Secret Sharing and Key Management Schemes
- Aparna, R., Chandana, C.L., Jayashree, H.N., Hegde, S.G., Vijetha, N. (2022). Emotion and Collaborative-Based Music Recommendation System. Intelligent Data Communication Technologies and Internet of Things. Lecture Notes on Data Engineering and Communications Technologies, vol 101. Springer, Singapore.

Books

- NIL

Editorial

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Reviewer of Journals

- EURASIP journal Wireless Communications and Networking

(Please give details in IEEE format)

Editor/ Reviewer of Journal

Patents

NIL

Invited Lectures, talks and workshops

- NIL