

RAJENDRA HEGADI

(IEEE Senior Member)

Associate Professor, IIIT Dharwad.

Enthusiastic and adaptable with the latest technologies



Rajendra Hegadi has obtained his B.Sc (Physics, Mathematics and Electronics), and Dual Master Degree – MSc in Physics(SSP) and M.Tech in Computer Science (NITK Suratkal). His Ph.D is in Computer Science and Engineering(MGRRRI). He secured GATE Scholarship for M.Tech program.

He is an Associate Professor in the Department of Data Science and Intelligent Systems, Indian Institute of Information Technology Dharwad. Has more than 25 years teaching experience in various capacities. He also worked as a System Analyst in a software organization and has undertaken many project consultancies.

Currently has consultancy project “High level software architecture development to integrate healthcare applications” of Health and Family welfare Department, Government of Karnataka. A R&D Project “Autonomous Navigating Humanoid” under Technology Innovation Hub TiHAN-IIT Hyderabad and CDAC Hyderabad. And “Enhancing the security of SELinux/SEAndroid Policies”, Cyber Security Technology Innovation, C3iHub Solicitation. Team member: Grant for 5G Labs setup at IIIT Dharwad, funded by Govt. of India.

His areas of interest are cryptography & network security, blockchain, computer networks, information centric network, and application of AI and ML in these areas. He has published several research papers in reputed journals, and book chapters.

He is a senior member of IEEE, member EXCOM IEEE-CS Bangalore chapter (2021), member of CRSI, CSI and ISTE. Qualified GATE 97 and GATE 98, has earned GATE-98 Scholarship for his M.Tech Program.

Ongoing Projects/Consultancies

- Co-PI: Consultancy project: High level software architecture development to integrate healthcare applications of Health and Family welfare Department, Government of Karnataka. (2019-2022)
- Co-PI: R&D project “Autonomous Navigating Humanoid” under Technology Innovation Hub TiHAN-IIT Hyderabad and CDAC Hyderabad.
- Co-PI: (Approved) R & D Project: “Enhancing the security of SELinux/SEAndroid Policies, Cyber Security Technology Innovation, C3iHub Solicitation

Completed

- Startup- Live Market Watch, Bangalore- Developed working prototype on PC for the Live BSE Streaming of stock data in mobile using GPRS based on user profile.
- TACO Sasken Automotive Electronics Pvt. Ltd. (Tsae), Bangalore – Cluster Demonstration: The UI on PC which will instantiate media player and send commands to the serial port in synchronizations.
- Startup: Developed a device Bio electrography- corona discharge intensity detector.

Recognition/Achievements

- Qualified GATE 97 and GATE 98
- Earned GATE-98 Scholarship for his M.Tech Program at NITK Suratkal

Research Publications (Few papers)

Journal

- "Pixel Encoding for Unconstrained Face Detection", Dattatray DnyanuSawat, Rajendra S Hegadi, Lalit Garg, Ravindra S Hegadi, Multimedia Tools and Applications, Vol 79, No.47, 2020, pp 35033-35054-SCI Journal, DOI 10.1007/s11042-020-08800-1. Web of Science Sources Citation Index (SCI),
- “Verification of genuine and forged offline signatures using Siamese Neural Network (SNN)”, Amruta B. Jagtap, Dattatray D. Sawat, Rajendra S. Hegadi & Ravindra S. Hegadi, Multimedia Tools and Applications, Vol 79, No.47, 2020, pp 35109-35123. SCI Journal, DOI 10.1007/s11042-020-08857-y. Web of Science Sources Citation Index (SCI),
- “Forecasting the Trends and Probable Impact of COVID-19 on South Asian Region Based on the Publicly Available Data”, Ramesh Athe; Rinshu Dwivedi; Sravan Kumar Yadav Paka; Vishal Ambavade; Spoorthi M;

Rajendra Hegadi, Acta Scientific Medical Sciences, Vol 4, No. 9, 2020, pp 102-110. -
doi.org/10.31080/ASMS.2020.04.0723.

- “Handwritten Kannada Numerals Recognition by Using Zone Features and CNN Classifier”, Vishweshwarayya C. Hallur, Rajendra S. Hegadi, R.S. Hegadi, International Journal of Technology and Human Interaction (IJTHI), Volume 15, Issue 4, Article 6, 2019. Special Issue Submission: Role of Technology and Human Interaction in Digital Transformation. (In Press), Web of Science Emerging Sources Citation Index (ESCI), SCOPUS, Compendex (Elsevier Engineering Index)
- “Facial Expression Synthesis Images Using Hybrid Neural Network with Particle Swarm Optimization Techniques”, Deepti Chandra, Rajendra Hegadi, Sanjeev Karmaka, International Journal of Biomedical Engineering and Technology (IJBT), Vol. 31, No. 1, 2019. Web of Science Emerging Sources Citation Index (ESCI).
- “Techniques of Facial Synthesis: A Comprehensive Literature Review”, Deepti Chandra, Sanjeev Karmakar, Rajendra Hegadi, International Journal of Computer Applications, Vol. 61– No.10, January 2013 pp 34-41.
- “Design and Development of 8-bits fast multiplier for low power applications”, Vasudev G, Rajendra Hegadi, International Journal of Engineering and Technology (IJETCH), Vol 4, No.6, Dec 2012. PP 774-780, Indexed in Engineering Village and IET Inspec.
- “Lightweight Encryption of Hierarchical Access Control Mechanism Key Using Tribes of Farey Fractions and its Analysis”, Rajendra Hegadi, Ramesh Shahabdkar, Shamshekar Patil, International Journal of Computer Applications. Volume 6, No.3, September 2010, pp 23-28.
- “Encryption and Decryption Process using Composite Numbers”, Rajendra Hegadi, Muppinaia Nagaraj, Shamshekar S Patil, International Journal of Computer Science and Network Security (IJCSNS), Vol. 7 No. 1 pp. 371-377. Web of Science Emerging Sources Citation Index (ESCI).

Conference:

- Accepted: “Analyzing and Mitigating Common Vulnerabilities in Smart Contracts in Web3 Ecosystem: A Comprehensive Study”, IEEE 2nd International Conference on Data, Decision and Systems (ICDDS), to be held at NITK, Surathkal, India from December 1-2, 2023.
- Accepted for presentation: “Tokenization of Customer Loyalty on Blockchain”, 7th International Conference on Information System and Data Mining (ICISDM2023), Atlanta, GA, USA during May 10-12, 2023.
- “Anti-Money Laundering Analytics on the Bitcoin Transactions”, Rajendra Hegadi, Bhavya Tripathi, Namratha S, Aqtar Parveez, Animesh Chaturvedi, Hariprasad M and Priyanga P, International Conference on Security, Privacy and Digital Forensics (ICISPD2022), Goa, Dec 2022.
- “Investigation and Analysis of Forwarding Strategies in NDN”, Rajendra Hegadi, Soumya Patil, Sofiya Kondi, International Conference on Global Entrepreneurship Trends & Empowerment through Innovation, ICGETEI 2021.
- "A Statistical Analysis on In-Built Pseudo Random Number Generators Using NIST Test Suite," R. Hegadi and A. P. Patil, 2020 5th International Conference on Computing, Communication and Security (ICCCS), Patna, 2020, pp. 1-6, doi: 10.1109/ICCCS49678.2020.9276849.
- “Performance Evaluation of In-network Caching-A Core Functionality of Information Centric Networking”, Rajendra Hegadi, Amulya Kammar, Suneeta Budihal, Presented in IEEE International conference on Data Science and Communication 2019, Bangalore (IconDSc2019)
- “Siamese Network for Learning Genuine and Forged Offline Signature Verification”, Amruta Jagtap, Ravindra Hegadi, Dattatray Sawat and Rajendra Hegadi, International Conference on Recent Trends in Image Processing & Pattern Recognition (RTIP2R), December 21-22, 2018, Solapur University, Solapur, Maharashtra state, INDIA.
- “Distance based Edge Linking (DEL) for character recognition”, Parshuram Kamble, Ravindra Hegadi and Rajendra S. Hegadi, International Conference on Recent Trends in Image Processing & Pattern Recognition (RTIP2R), December 21-22, 2018, Solapur University, Solapur, Maharashtra state, INDIA.
- “Development of an Effective System for Remote Monitoring of Banana Ripening Process”, Amit Verma, Rajendra Hegadi, Kamini Sahu, IEEE International WIE Conference on Electrical and Computer Engineering Wieceonece-2015, 19-20 Dec 2015, Dhaka Bangladesh.
- “Graph Mining Approach for Feedback Analysis”, chitradhawale, shaligramprajapat, rajendra hegadi, shaifaliagrawal, IEEE International WIE Conference on Electrical and Computer Engineering Wieceonece-2015, 19-20 Dec 2015, Dhaka Bangladesh.
- “Performance Analysis of Digital Image Steganographic Algorithm”, N.D. Jambhekar, C.A. Dhawle, Rajendra Hegadi, International Conference on Information and Communication Technology for Competitive Strategies (ICTCS-2014), ACM-ICPS Proceedings.

- “A New Stream Cipher Using Natural Numbers Based on Conventional Encryption Techniques: MINNSC”, Rajendra Hegadi, Second International Conference on Software Engineering and Computer Systems, ICSECS2011, Malaysia. Proceedings CCIS series of Springer, pp 427 -436.
- “Encoding Hierarchical Access Control Mechanism Key Using Tribes of Farey Fractions”, Rajendra Hegadi, Presented at International Symposium on Data, Information and Knowledge Spectrum (ISDIKS 07), Amrita University, Kochin Campus, Kerala., India. Held on December 13th -15th, 2007.

Selected book chapter

- Book Chapter: “Connected Healthcare – Common Data Interface for Sustainable Healthcare System”, Abhilash C B, Deepak K T, Rajendra Hegadi and Kavi Mahesh.
Title of the book: Machine Learning and Deep Learning in Efficacy Improvement of Healthcare Systems. Publisher: CRC Press, Taylor & Francis Publisher.

Professional activities (listed few)

- Main coordinator, CyberShikshaa – Microsoft and DSCI’s initiation to skill the women graduates in Cyber Security. 2021 and 2022 batch at IIIT Dharwad.
- CISO, IIIT Dharwad
- Member of IEEE SA P2145 Standards Development Working Group- Standard for Framework and Definitions for Blockchain Governance.
- Co-chair for the 5G Security & Privacy Topical Conference track -IEEE 5G World Forum 2018 (<http://ieeewf-5g.org/>)
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
- Member, Computer Society of India (CSI)
- Life Member, Cryptology Research Society of India
- Life member, Indian Society for Technical Education

Mentored following student projects and Hackathons(listed few)

- Mr.VikasChaurasiya, Mr.Neil Dutta, Mr.Samanjit Pal, Mr.Sagar Kulkarni, Mr.Kumar Shubham Team won Blockchain Hackathon-2019 organized by TheNextLink and Sandbox Startups.
- Ms.Praneetha Bose Kollipara and Mr.LokeshRegalla, Paper presented at Student Research Convention, IIT Kanpur. Title: “Patient Centric Healthcare System” -An affordable, faster and secured healthcare system using Blockchain technology.
- Team Asynchronous Siddhartn Bhandari, Neeraj Choubisa, Aditya K Pandya, Gourab Chakraborty- EthIndia Hackathon 2022. Bangalore. Winner of Best Defi Project on Polygon, 3rd Position on NFT- Push Protocol.

Courses taught(recent)

- Cryptography and Network Security
- Blockchain Technology
- Computer Networking
- C++ Programming
- Project Management
- Object Oriented Analysis and Design
- Software Engineering
- Database Systems
- C Programming
- Engineering Management