

## BIODATA

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Engineering College P.O,  
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### Academic Qualifications

| Degree  | Specialization                 | Institute/University |
|---------|--------------------------------|----------------------|
| Ph. D   | Computer Science & Engineering | University of Kerala |
| M.E.    | Computer Science & Engineering | IISc Bangalore       |
| B.Tech. | Computer Science & Engineering | University of Kerala |

### Experience

#### *A. Teaching*

| Organization   | Post held           | Period                |
|--|---------------------|-----------------------|
| State Project Facilitation Unit, Office of the Directorate of Technical Education Kerala | Director            | June 2023 – May 2024  |
| College of Engineering, Trivandrum   | Professor & PG Dean | July 2022 – May 2023  |
| Govt. Engineering College, Barton Hill   | Professor & UG Dean | Sept 2021 – July 2022 |
| Govt. Engineering College, Thrissur  | Professor           | Mar. 2019 – Sept 2021 |

|   |                            |                        |
|---|----------------------------|------------------------|
| College of Engineering, Trivandrum                | Professor & Head           | Sept. 2017 - Mar. 2019 |
| Govt. Engineering College, Thrissur               | Professor & Head           | July 2017 - Sept. 2017 |
| Govt. Engineering College, Thrissur               | Professor                  | Nov. 2016 - July 2017  |
| College of Engineering, Trivandrum                | Professor & Head           | June 2016 - Nov. 2016  |
| LBS Institute of Technology for Women, Poojappura | Professor & Head           | Aug. 2013 - June 2016  |
| LBS Institute of Technology for Women, Poojappura | Associate Professor & Head | July 2012 - Apr. 2013  |
| LBS Institute of Technology for Women, Poojappura | Associate Professor        | June 2011 – July 2012  |
| College of Engineering, Trivandrum                | Associate Professor        | Aug. 2008 - June 2011  |
| College of Engineering, Trivandrum                | Assistant Professor        | Sept. 2000 – Aug. 2008 |

***B. Industry***

| <b>Organization</b>                     | <b>Post held</b>                    | <b>Period</b>          |
|---|-------------------------------------|------------------------|
| National Thermal Power Corporation Ltd. | Deputy Manager (EDP)                | Apr. 1998 - Sept. 2000 |
| National Thermal Power Corporation Ltd. | Senior Engineer (EDP)               | Apr. 1995 - Mar. 1998  |
| National Thermal Power Corporation Ltd. | Engineer (EDP)                      | Oct. 1991 - Mar. 1995  |
| National Thermal Power Corporation Ltd. | Executive Engineering Trainee (EDP) | Oct. 1990 - Oct. 1991  |

## **Number of Publications**

Refereed journals : 25

International Conferences : 21

National Conferences : 5

**Memberships** : Senior Member IEEE  
Life Member CSI  
Life Member ISTE  
Member Indian Science Congress Association (ISCA)

Number of PhD scholars successfully guided : 2

Number of PhD Scholars (guiding) : 3

Number of M Tech projects (guided) : 7

## **Patents granted : 1**

1. Patent Application No.: 202341012130 Dated February 22, 2023, Title.: METHOD FOR DETERMINING AUTHENTICITY OF VIDEO DATA AND AN ELECTRONIC DEVICE THEREOF  
Patent No. 533557

## **Patents published : 1**

2. India Patent Application No.: 202341024598 Dated : March 31, 2023, Title.: METHOD AND USER TERMINAL FOR DETERMINING AUTHENTICITY OF IMAGE DATA

Award Received : CSI Best PhD thesis award

Areas of Interest : Information Security,  
Image Forensics, Natural Language Processing

Research Projects Completed : A three year research project titled 'Design and Development of Techniques for increasing the reliability of steganography/ steganalysis on Digital images' sanctioned from Kerala State Council for Science Technology and Environment completed in 2015

## **Other Contributions :**

- Instrumental in computerization activities in the National Capital Regional Office, Delhi, NTPC during 1991 to 1995
- Instrumental in design of campus wide fibre optic network at NTPC Kayamkulam power plant during 1999 to 2000
- Instrumental in implementation and maintenance of Online applications for Materials Management, Finance Management, and Operations Management at NTPC Kayamkulam power plant during 1998 to 2000
  
- Member, Syllabus Revision Committee, 2008 scheme, University of Kerala
- Member, Syllabus Revision Committee, 2013 scheme, University of Kerala
- Member, Curriculum Development Committee, 2015 scheme, APJ Abdul Kalam Technological University
  
- Department Co-ordinator TEQIP-I from 2005 to 2011
- Department Co-ordinator for NBA Accreditation in 2007
- Procurement Co-ordinator for TEQIP-II from 2011 to 2016
- Head of Department of Computer Science & Engineering, LBSITW from 2012 to 2016
- Head of Department of Computer Science & Engineering, College of Engineering Trivandrum, from 2017 to 2019
- Member, Technical Committee, Directorate of Technical Education, Kerala since 2019
  
- Member Research Ambience Committee from 2006 to 2011
- Member Organizing Committee for ICCC 2010
- Member Research Guidance Committee at LBSITW, Trivandrum from 2013 to 2016
- Reviewer In International Conference On Control, Communication & Computing, CET Trivandrum, Dec 2013
- Publication co chair in the first International Conference on Computing Systems and Communications held at LBSITW, Trivandrum, Dec 2014
- Member, Technical Review and Publications Committee of First International Conference on Computational Systems and Communications (ICCSC) organized by LBSITW, Trivandrum in 2014

- One of the editors of proceedings of 2<sup>nd</sup> National Conference on Advances in Computational Intelligence and Communication Technologies organized by LBSITW, Trivandrum in 2016
- Member, Technical Review and Publications Committee of National Conference on Advances in Computational Intelligence and Communication Technologies organized by LBSITW, Trivandrum in 2016
- Reviewer for ICTACT Journal on Image and Video Processing
- Technical Programme Committee Chair, International Conference on Control, Communication, and Computing (IC4) organized by College of Engineering Trivandrum in 2018
- Member Research Guidance Committee at LBSITW, Trivandrum since June 2021

## **Publications**

[Google scholar](#)

[DBLP](#)

## **Journals**

1. Linju Lawrence, R. Shreelekshmi, Edwards curve digital signature algorithm for video integrity verification on blockchain framework, *Science & Justice*, vol. 64, no. 4, 2024, pp. 367-376, ISSN 1355-0306, <https://doi.org/10.1016/j.scijus.2024.04.008>.
2. Nishy Reshmi S., Shreelekshmi R., A prototype for sentence classification using statistical methods, *Software Impacts*, vol. 20, 2024, 100651, ISSN 2665-9638, <https://doi.org/10.1016/j.simpa.2024.100651>.
3. A. J. and S. R., "A Secure Image Outsourcing Using Privacy-Preserved Local Color Layout Descriptor in Cloud Environment," in *IEEE Transactions on Services Computing*, vol. 17, no. 2, pp. 378-391, March-April 2024, doi: 10.1109/TSC.2024.3357358.
4. Sychandran, C.S., Shreelekshmi, R. SCCRNNet: a framework for source camera identification on digital images. *Neural Comput & Applic* vol. 36, pp. 1167–1179, 2024, DOI: <https://doi.org/10.1007/s00521-023-09088-6>.
5. J. Anju, R. Shreelekshmi, PCBIR-CV: A privacy-preserved content-based image retrieval using combined visual descriptors for cloud. *Softw. Impacts*, *Software Impacts*, vol. 17, 2023, DOI: <https://doi.org/10.1016/j.simpa.2023.100529>.

6. Reshmi, S. & Shreelekshmi, R.. Textual entailment classification using syntactic structures and semantic relations. *Journal of Intelligent & Fuzzy Systems*. vol. 45, no. 1, pp. 929-939, 2023, DOI: <https://doi.org/10.3233/JIFS-223275>.
7. Jeena P., Shreelekshmi R., High capacity reversible data hiding in encrypted images using block labeling, *Multimed. Tools. Appl.*, vol. 82, pp. 25883–25898, 2023, DOI: <https://doi.org/10.1007/s11042-023-14455-5>
8. Linju Lawrence, Shreelekshmi R., VECDSigL: Video integrity verification using elliptic curve digital signature links, *Software Impacts*, Volume 15, 2023, 100474, ISSN 2665-9638, DOI: <https://doi.org/10.1016/j.simpa.2023.100474>
9. N R, Neena & Shreelekshmi, R.. (2022). A secure pixel level self-recovery scheme for digital images. *Journal of Intelligent & Fuzzy Systems*. Vol. 44. No.3, pp. 4481-4493, 2023, DOI: 10.3233/JIFS-221245.
10. N. R. Neena Raj and R. Shreelekshmi, “Fragile watermarking scheme for tamper localization in images using logistic map and singular value decomposition”, *J. Vis. Commun. Image Represent.*, vol. 85, 2022, article 103500, DOI: <https://doi.org/10.1016/j.jvcir.2022.103500>
11. J. Anju and R. Shreelekshmi, “Fsecbir: A faster secure content-based image retrieval for cloud,” *Software Impacts*, vol. 11, 2022, article 100224, DOI: <https://doi.org/10.1016/j.simpa.2022.100224>
12. J. Anju and R. Shreelekshmi,., “A faster secure content-based image retrieval using clustering for cloud,” *Expert Systems with Applications*, vol. 189, 2022, article 116070, DOI: <https://doi.org/10.1016/j.eswa.2021.116070>
13. N. R. Neena Raj and R. Shreelekshmi, “A survey on fragile watermarking based image authentication schemes,” *Multimed. Tools. Appl.*, vol. 80, no. 13, pp. 19307-19333, May 2021.
14. R. Shreelekshmi, M. Wilsy, and C. E. Madhavan, ”Undetectable least significant bit replacement steganography,” *Multimed. Tools. Appl.*, vol. 78, no. 8, pp. 10565–10582, Apr. 2019.
15. Sajana V S, Shreelekshmi R, “Role of Verbs and Nouns in Text Clustering Using WordNet based Lexical Chains,” *J. Adv. Res. in Dynamical Control Syst.*, no. 11-Special Issue, pp. 506-510, 2017.
16. S A Arya, Kavya Vinod, A V Lekshmi, Lydia Rose Thomas, R Shreelekshmi, “A Hybrid Approach on Uncompressed Images Using LSB Steganography: S-Tool,” *Int. J. Eng. Future Technol.*, vol. 5, no. 5, 2016, pp 27-35.

17. Nandana V, Jithendran A, Shreelekshmi R, "Survey on RTOS: Evolution, types & current Research," *Int. J. Comput. Appl.*, vol. 121, no.21, 2015, pp. 28-31.
18. Nandana V, Jithendran A, Shreelekshmi R, "Analysis of porting Free RTOS on MSP430 architecture and study of performance parameters on small factor Embedded Systems," *Int. J. Advance Res. Eng. Technol.*, vol 3, no. 9, 2015, pp. 95-99.
19. Sruthi S and Shreelekshmi R, "Video compression from fundamentals to H.264 and H.265 standards," *Int. J. Eng. Comput. Sci.*, vol. 4, no. 1, 2015, pp. 13468-13473.
20. Sruthi S and Shreelekshmi R, "An adaptive video compression technique for resource constraint Syst.," *Int. J. Eng. Adv. Technol.*, vol. 4, no. 6, 2015, pp. 292-298.
21. Shreelekshmi R, M Wilscy and C E Veni Madhavan. "Improved LSB steganalysis based on analysis of adjacent pixel pairs," *Signal, Image and Video Process.* vol. 7, issue 5, pp. 811-816, Sept. 2013, doi:10.1007/s11760-011-0270-4.
22. Shreelekshmi R, M Wilscy, C E Veni Madhavan, "Improving the reliability of detection of LSB replacement steganography," *Int. J. Netw. Secur. its Appl.*, vol. 2, no. 4, Oct. 2010, pp. 247-254.
23. Shreelekshmi R, M Wilscy, C E Veni Madhavan, "Pre-processing Cover images for more secure LSB steganography," *Int. J. Comput. Theory Eng.*, vol. 2, no. 4, Aug. 2010, pp. 546-551.
24. Shreelekshmi R, M Wilscy, C E Veni Madhavan, "An image classification scheme for increasing reliability of least square method and sample pair method," *Int. J. Comput. Netw. Secur.*, vol. 2, no. 1, Jan. 2010, pp. 86-90.
25. M Agrawal, N Gupta, R Shreelekshmi, M N Murthy, "Efficient Pattern Synthesis for nearest neighbour classifier," *Pattern recognit.*, vol. 38, issue 11, Nov. 2005, pp. 2200–2203, doi: 10.1016/j.patcog.2005.03.029.

### **Conferences (International)**

1. Nishy Reshmi, S. & Shreelekshmi, R.. Sentence Similarity Using Modified Latent Semantic Analysis and Semantic Relations, Machine Learning and Artificial Intelligence: Proceedings of MLIS 2023 374, 2023, pp.43.
2. S. C. S and S. R, "Performance Comparison of Deep Learning Models for Computer Generated Image Detection," *2023 International Conference on Control, Communication and Computing (ICCC)*, Thiruvananthapuram, India, 2023, pp. 1-5, doi: 10.1109/ICCC57789.2023.10164874.

3. J. Anju and R. Shreelekshmi, "An Enhanced Copy-deterrence scheme for Secure Image Outsourcing in Cloud," *2022 International Conference on Computing, Communication, and Intelligent Systems (ICCCIS)*, Greater Noida, India, 2022, pp. 97-102, doi: 10.1109/ICCCIS56430.2022.10037682.
4. Sychandran, C & Shreelekshmi, R. (2022). A hybrid Xception-Ensemble model for the detection of Computer Generated images. 1-6. 10.1109/IICAIET55139.2022.9936738.
5. Linju Lawrence and R. Shreelekshmi, "Chained digital signature for the improved video integrity verification," in *Proceedings of International Conference on Machine Learning and Intelligent Systems (MLIS)*, IOS Press, 2021, pp 520–526, doi:10.3233/FAIA210284.
6. N. R. Neena Raj and R. Shreelekshmi, "A Secure Image Authentication Scheme with Tamper Localization and Recovery," in *Proceedings of International Conference on Fuzzy Systems and Data Mining (FSDM)*, IOS Press, 2021, pp 277–284, doi:10.3233/FAIA210199.
7. Anju J, Shreelekshmi R, "Secure Content-based Image Retrieval using Combined Features in Cloud," in *Proc. Int. Conf. Distrib. Comput. and Internet Technol.*, in *Lecture Notes in Comput. Sci.*, Springer, vol.11969, Jan. 2020, pp 179-197, doi:10.1007/978-3-030-36987-3\_11.
8. Nishy Reshmi S and Shreelekshmi R, "Textual Entailment based Semantic Similarity Using WordNet," in *Proc. IEEE Int. Conf. Intell. Comput., Instrum. and Control Technologies*, July 2019, pp. 1188-1192, doi: 10.1109/ICICICT46008.2019.8993180.
9. Anju J. and Shreelekshmi R, "Modified feature descriptors to enhance secure content-based image retrieval in cloud," in *Proc. IEEE Int. Conf. Intell. Comput., Instrum. Control Technologies*, July 2019, pp. 674-680, doi: 10.1109/ICICICT46008.2019.8993195.
10. N. R. Neena Raj and R. Shreelekshmi, "Security analysis of Hash Based Fragile Watermarking Scheme for Image Integrity," in *Proc. IEEE Int. Conf. Intell. Comput., Instrum. Control Technologies*, July 2019, pp. 651-654, doi: 10.1109/ICICICT46008.2019.8993317.
11. Neena Raj N R and R Shreelekshmi, "Blockwise Fragile Watermarking Schemes for Tamper Localization in Digital Images," *Int. Conf. Control, Communication, Comput. (IC4)*, July 2018, pp. 441-446.
12. Sajana V S and Shreelekshmi R, "WordNet based Word Similarity Measures," in *Proc. IETE Int. Conf. Robot. Automat.*, 2016, pp. 24-27.



13. S A Arya, Kavya Vinod, A.V Lekshmi, Lydia Rose Thomas, R. Shreelekshmi, "A Hybrid Approach on Uncompressed Images Using LSB Steganography: S-Tool," in Proc. Int. Conf. Emerg. Trends Sci., Eng., Bus. Disaster Manage., 2015.
14. Harisha R, Gresshma Jayan, Anusa M, Agnes Alos, Shreelekshmi R, "A minutae based fingerprint recognition system," in Proc. Int. Conf. Emerg. Trends Eng.. & Technol., 2015.
15. Shreelekshmi R and Baby Vijilin, "Color Image Compression using Bit Plain Reduction," in Proc. Int. Conf. Advances in Comput., Communication Inf. Sci., 2014
16. Shreelekshmi R and Baby Vijilin, "Quality enhancement of adaptively compressed images using bit plane removal", in Proc. IEEE Int. Conf. Comput. Syst. Commun., 2014, pp. 260-265.
17. Shreelekshmi R, M. Wilscy, C E Veni Madhavan, "Image classification for more reliable steganalysis," in Proc. Int. Conf. Netw. Secur. Appl., 2010, Springer CCIS, pp. 66-74.
18. Shreelekshmi R., M. Wilscy, C. E. Veni Madhavan, "Image analysis for more reliable steganalysis," in Proc. Int. Conf. Control, Communication Comput., 2010, pp. 223-225.
19. Shreelekshmi R, M Wilscy, C E Veni Madhavan, "Cover image pre-processing for more reliable LSB replacement steganography," in Proc. IEEE Int. Conf. Signal Acquisition Process., 2010, pp. 153-156.
20. Shreelekshmi R, M Wilscy, C E Veni Madhavan, "Modeling Cover Images for more reliable LSB steganography," in Proc. Int. Conf. Model. Simul., 2009, pp. 402-405.
21. Shreelekshmi R, Sophia S, Suresh V, Veni Madhavan C E, "Statistical and Image Analysis Techniques for Steganography," in Proc. Int. Workshop Recent Advances Biometric Syst., IIT Kanpur, Apr. 2005, pp. 283-288.

### **Conferences (National)**

1. Sakila K S and Shreelekshmi R, "Survey on document level sentiment analysis," Nat. Conf. Advances Comput. Intell. Communication Technologies, 2016, pp. 33-36.
2. Reshma V K and Shreelekshmi R, "Sentence Level Sentiment Analysis: A Survey," Nat. Conf. Advances Comput. Intell. Communication Technologies," 2016, pp. 29-32.
3. Athira R, Gopika Unnikrishnan, Hitha G S, Shreelekshmi R "Image Quality Assessment Using Objective Matrix," Nat. Conf. Recent Trend Eng. and Technol., 2015.

4. Shreelekshmi R and Baby Vijilin, "Color Image Compression using Bit Plain Reduction," Nat. Conf. Advances Comput. Intell. Communication Technologies, 2013, pp. 16-19.
5. Shreelekshmi R, M Wilsy, "Transforming Cover Images for more reliable LSB steganography, in Proc. Indian Sci. Congr., 2010, p. 79.