



Citations	354
h-index	10
i10-index	11

as on 08.12.2023

Dr. S. Chellammal

Associate Professor of Computer Science

Contact

Address : Centre for Distance and Online Education
Bharathidasan University
Tiruchirappalli – 620024
Tamil Nadu, INDIA

Employee Number : BDU1730932

Date of Birth : 03-06-1973

Contact Phone (Mobile) : +91 9444109147

Contact e-mail(s) : chellammals@bdu.ac.in

Academic Qualifications M.Sc., P.G.D.C.A., M.Tech., Ph.D.,

Experience

12 years of Research & Development experience at
Indira Gandhi Centre for Atomic Research,
Department of Atomic Energy, Government of India,
Kalpakkam, 1996 – 2008

14 years of Academic experience at
Erstwhile Bharathidasan University Constituent College

Additional Responsibilities

In Erstwhile Bharathidasan University Constituent College

- Head, Department of Computer Science, (2016-2022)
 - NSS Programme Officer (2016-2019)
 - Admission Committee (2010-2022)
 - Convener, Departmental Research Committee (2016-2022)
 - Additional Chief Superintendent of Examinations (2016-2017)
 - IQAC related work & Annual report preparation (2017-2018)
 - Editor, College Magazine (for 2019-2020, 2020-2021)
 - Nodal officer for DCE data (2021-22)
 - Coordinator, Cybersecurity Awareness Club (2021-2022)
 - Coordinator for Prize Distribution committee, College Day (2016-17, 2017-2018)
- & Board of Studies (BoS) Member, in*

- Centre for Distance and Online Education, BDU (2023)
- Seshasayee Institute of Technology, Trichy (2021-23)
- Raja Serfoji College, Thanjavur (2017-2018)
- Department of Computer Science, BDU (2011-2013)

Areas of Research

Web Services, Semantic Web Services, and ontology
 Data mining, Machine Learning,
 MicroServices Architecture
 Cloud Computing, Edge Computing
 Big Data & Internet of Things

Research Supervision / Guidance

Program of Study		Completed	Ongoing
Research	Ph.D.,	4	-
	M.Phil	-	-
Project	PG	31	-
	UG	-	-

Scopus/Web of science/Google Scholar IDs

Scopus ID	37017610000
Orcid	https://orcid.org/0000-0001-7411-5597
Web of Science	ABJ-6209-2022
Google scholar	https://scholar.google.com/citations?user=kYZHQrwAAAAJ&hl=en

Publications

Type of publication	International	National	Total
Books Authored	3	1	4
Books Edited	3	0	3
Book Chapters	9	0	9
Indexed journals	12	0	12
Peer reviewed journals	12	0	12
Conference Proceedings	13	1	14
		Total	54

Books Authored

1. Chellammal Surianarayanan, Pethru Raj, "Essentials of Cloud Computing - A Holistic and Native Perspective", Springer, Second Edition, 2023, ISBN: 978-3-031-33225-8
2. Chellammal Surianarayanan, Pethru Raj, "Essentials of Cloud Computing - A Holistic Perspective", Springer, 2019, ISBN: 978-3-030-13133-3
3. Chellammal Surianarayanan, Gopinath Ganapathy, Pethru Raj, "Essentials of Microservices Architecture: Paradigms, Applications, and Techniques", CRC Press, USA, 2020, ISBN13: 978-0-367-24995-3
4. Chellammal Surianarayanan, Gopinath Ganapathy, "Research Techniques on Discovery and Selection on Semantic Services", 2019, Himalaya Publishers, ISBN: 978-93-5367-604-9

Books Edited

1. Pethuru Raj, Kavita Saini, Chellammal Surianarayanan, "Edge/Fog Computing Paradigm: The Concept, Platforms and Applications. (Volume 127) (Advances in Computers, Volume 127)", Elsevier, ISBN-10 : 0128245069, ISBN-13 : 978-0128245064, May 2022
2. Pethuru Raj, Chellammal Surianarayanan, Koteeswaran Seerangan, George Ghinea, "Streaming Analytics: Concepts, architectures, platforms, use cases and applications (Computing and Networks) Hardcover – Import, 1 October 2022", Institute of Engineering and Technology, ISBN-10 : 1839534168, ISBN-13 : 978-1839534164
3. Pethuru Raj, Kavita Saini, Chellammal Surianarayanan, "Blockchain technology and applications", CRC Press USA, 2020, ISBN: 978-0367533403

Book Chapters

1. Chellammal Surianarayanan, "Microservices Architecture for edge computing environments", Chapter 6 "Edge/Fog Computing Paradigm: The Concept, Platforms and Applications. (Volume 127) (Advances in Computers, Volume 127)", Elsevier, ISBN-10 : 0128245069, ISBN-13 : 978-0128245064, May 2022 edited by Pethuru Raj, Kavita Saini, Chellammal Surianarayanan
2. Chellammal Surianarayanan, "Streaming data processing – an introduction", Chapter 1 in "Streaming Analytics: Concepts, architectures, platforms, use cases and applications (Computing and Networks) Hardcover – Import, 1 October 2022", Institute of Engineering and Technology, ISBN-10 : 1839534168, ISBN-13 : 978-1839534164, edited by Pethuru Raj, Chellammal Surianarayanan, Koteeswaran Seerangan, George Ghinea
3. Chellammal Surianarayanan and Saranya Kunasekaran, "Detection of anomaly over streams using isolation forest", Chapter 11 in Streaming Analytics: Concepts, architectures, platforms, use cases and applications (Computing and Networks) Hardcover – Import, 1 October 2022", Institute of Engineering and Technology, ISBN-10 : 1839534168, ISBN-13 : 978-1839534164, edited by Pethuru Raj, Chellammal Surianarayanan, Koteeswaran Seerangan, George Ghinea
4. Chellammal Surianarayanan and Saranya Kunasekaran, "Detection of anomaly over streams using big data technologies" Chapter 12 in Streaming Analytics: Concepts, architectures, platforms, use cases and applications (Computing and Networks) Hardcover – Import, 1 October 2022", Institute of Engineering and Technology, ISBN-10 : 1839534168, ISBN-13 : 978-1839534164, edited by Pethuru Raj, Chellammal Surianarayanan, Koteeswaran Seerangan, George Ghinea
5. Pethuru Raj and Chellammal Surianarayanan, "Digital twin: The industry use cases", The Digital Twin Paradigm for Smarter Systems and Environments: The Industry Use Cases, Volume 117, Advances in Computers, Volume 117, Issue 1, 2020, Pages 285-320 edited by Pethuru Raj & Preetha Evangeline
6. K. Saranya, S. Chellammal, Pethuru Raj Chelliah, "Tools and Techniques for Streaming Data – An overview" published as chapter 15 in the book Ontology-based information retrieval for healthcare systems edited by Vishal Jain, Ritika Wason, Jyotir Moy Chatterjee, Dac-Nhuong Le, Online ISBN:9781119641391 |DOI:10.1002/9781119641391, 10 July 2020, Scrivener Publishing LLC
7. Chellammal Surianarayanan, Deepa Vijay, and Gopinath Ganapathy, "Ontology-Based Approach for Representation of Software Requirements", in the book Computing Predictive Analytics, Business Intelligence, and Economics Modeling Techniques with Start-ups and Incubators, edited by Cyrus F Nourani, ISBN: 978-1-77463-419-6, Apple Academic Press
8. Chellammal Surianarayanan, Gopinath Ganapathy and Manikandan Sethunarayanan Ramasamy. "A Practical Approach to Enhancement of Accuracy of Similarity Model Using WordNet towards Semantic Service Discovery." Handbook of Research on Demand-Driven Web Services: Theory, Technologies, and Applications. IGI Global, 2014. 245-265. Web. 30 Nov. 2014.

9. Chellammal Surianarayanan and Gopinath Ganapathy. "Implementation of Mining Techniques to Enhance Discovery in Service-Oriented Computing." *Data Mining and Analysis in the Engineering Field*. IGI Global, 2014. 249-271

Indexed Journals

1. Chellammal Surianarayanan., Kunasekaran, S. & Chelliah, P.R. A high-throughput architecture for anomaly detection in streaming data using machine learning algorithms. *Int. j. inf. technol.* (2023). <https://doi.org/10.1007/s41870-023-01585-0>

2. Chellammal Surianarayanan, Pethuru Raj Chelliah, "Integration of Internet of Things and Cloud: Security Challenges and Solutions – A Review", *International Journal of Cloud Applications and Computing*, Vol.13, Issue 1, 2023: pp.1-30. <http://doi.org/10.4018/IJCAC.325624>

3. Koteeswaran, S., Suganya, R., Chellammal Surianarayanan. et al. A supervised learning approach for the influence of comorbidities in the analysis of COVID-19 mortality in Tamil Nadu. *Soft Comput* (2023). <https://doi.org/10.1007/s00500-023-08590-2>

4. Chellammal Surianarayanan, Sharmila Rengasamy, M. Baby Nirmala, Pethuru Raj Chelliah, "Illustrating a Scalable Architecture-Powered Disease Prediction using Machine Learning Techniques", *ICTACT journal on soft computing*, Vo. 13, Issue 3, 2023, pp. 2298-3006

5. Surianarayanan, Chellammal, John Jeyasekaran Lawrence, Pethuru Raj Chelliah, Edmond Prakash, and Chaminda Hewage. 2023. "Convergence of Artificial Intelligence and Neuroscience towards the Diagnosis of Neurological Disorders—A Scoping Review" *Sensors* 23, no. 6: 3062. <https://doi.org/10.3390/s23063062>

6. Chellammal Surianarayanan, John Jeyasekaran Lawrence, Pethuru Raj Chelliah, Edmond Prakash, and Chaminda Hewage. 2023. "A Survey on Optimization Techniques for Edge Artificial Intelligence (AI)" *Sensors* 23, no. 3: 1279. <https://doi.org/10.3390/s23031279>

7. Chellammal Surianarayanan, Pethuru Raj Chelliah, Leveraging Artificial Intelligence (AI) Capabilities for COVID-19 Containment. *New Gener. Comput.* 39, 717–741 (2021). <https://doi.org/10.1007/s00354-021-00128-0>

8. Pethuru Raj Chelliah , Chellammal Surianarayanan Multi-Cloud Adoption Challenges for the Cloud-Native Era: Best Practices and Solution Approaches, *International Journal of Cloud Applications and Computing (IJCAC)*, 2021, vol. 11, issue 2, 67-96

9. Chellammal Surianarayanan, Gopinath Ganapathy, "An Approach to Computation of Similarity, Inter-Cluster Distance and Selection of Threshold for Service Discovery using Clusters", *IEEE Transactions on Services Computing*, Vol. 9, Issue 4, July-Aug. 1, pp. 524-536, 2016.

10. Chellammal Surianarayanan, Gopinath Ganapathy, Manikandan Sethunarayanan Ramasamy, "An approach for selecting best available services through a new method of decomposing QoS constraints", *Service Oriented Computing and Applications (SOCA)*, Springer, vol. 9, Issue 2, pp. 107-138, June 2015.

11. Chellammal Surianarayanan, Gopinath Ganapathy, "Towards Quicker Discovery and Selection of Web Services considering Required Degree of Match through Indexing and Decomposition of Non-functional Constraints", *International Journal of Computational Science and Engineering*, Vol. 10 Nos. 1/2, January 2015, Pages 45- 69, Inderscience

12. Chellammal Surianarayanan, Gopinath Ganapathy, "A Survey of Optimization Approaches to Semantic Service Discovery towards an Integrated Solution", *ICTACT Journal on Soft Computing*, Vol. 2, Issue 4, July 2012, pp. 377-383

13. Chellammal Surianarayanan, Gopinath Ganapathy, "A Survey of Optimization Approaches to Semantic Service Discovery towards an Integrated Solution", ICTACT Journal on Soft Computing, Vol. 2, Issue 4, July 2012, pp. 377-383

Peer reviewed journals

1. S.Chellammal, R. Sharmila, "Recommendation of attributes for heart disease prediction using correlation measure, International Journal of Recent Technology and Engineering (IJRTE), ISSN: 2277-3878, Volume-8, Issue-2S3, July 2019.
2. Chellammal Surianarayanan, Sharmila Rengasamy, "A conceptual approach to enhance prediction of diabetes using alternate feature selection and big data-based architecture", International Journal of Advanced Research in Engineering and Technology, Vol. 10, Issue 2, March-April 2019, pp. 776-782, ISSN online: 0976-6499
3. Chellammal Surianarayanan, Kodimalar Palanivel, " Feature selection for crop yield prediction using optimization techniques", Webology, vol. 16, No. 2, 2019, pp. 292-307
4. Chellammal Surianarayanan, Vijayabharathi Durairaj, "Integrated approach using efficient segmentation and feature extraction techniques for improved disease detection in plant leaves", International Journal of Advanced Science and Technology, Vol. 28, No, 18, 2019, pp. 881-887
5. Chellammal Surianarayanan, "An introduction to digital transformation technologies", International Journal of Advanced Research in Engineering and Technology, Vol. 11, issue 2, Feb 2020, pp. 419-425
6. Sharmila Rengasamy, Chellammal Surianarayanan, Pethuru Raj Chelliah, Machine Learning Based Method for Prediction of Heart Disease in Big Data Environment, International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075, Volume-9, Issue-6, April 2020, pp. 1917-1921
7. R. Sharmila, S. Chellammal, "A conceptual method to enhance the prediction of heart diseases using big data Techniques", International Journal of Computer Sciences and Engineering, Vol-6(4), May 2018, pp. 21-25
8. Kodimalar Palanivel, Chellammal Surianarayanan, "An Approach for Prediction of Crop Yield Using Machine Learning and Big Data Techniques", International Journal of Computer Engineering and Technology 10(3), 2019, pp. 110-118
9. R. Sharmila, S. Chellammal, "Application of Big Data Tools and Techniques in Prediction of Heart Diseases," International Journal of Computer Sciences and Engineering, Vol.06, Issue.11, 2018, pp.14-16.
10. Chellammal Surianarayanan, Kodimalar Palanivel, K. Mani, Enhanced crop yield prediction using Monte Carlo method and binary cuckoo search , January 2020, 8(4):1771-1776
11. Vijayabharathi Durairaj, Chellammal Surianarayanan, Enhanced disease detection in plant leaves using segmentation and feature extraction techniques , Malaya Journal of Matematik: Vol. 8 No. 04 (2020)
12. Chellammal Suriyanarayanan, and Saranya Kunasekaran. "Anomaly Detection Using Machine Learning Techniques". *Malaya Journal of Matematik*, vol. 8, no. 04, Oct. 2020, pp. 2144-8,

Conference proceedings

1. Chellammal Surianarayanan, Pethuru Raj and S. K. Niranjan, "The Significance of Edge AI towards Real-time and Intelligent Enterprises," 2023 International Conference on Intelligent and Innovative Technologies in Computing, Electrical and Electronics (IITCEE), Bengaluru, India, 2023, pp. 1-6,
2. Steve Jefferson, Pethuru Chelliah, Chellammal Surianarayanan, "A Resource-optimized and Accelerated Sentiment Analysis Method using Serverless Computing", 4th International Conference on Innovative Data Communication Technology and Application, In Procedia Computer Science (Scopus indexed), Edited by Valentina Emilia Balas, Paval Lafta, Zubair Baig, Jennifer S. Raj, Volume 215, Pages 1-982 (2022)
3. Chellammal Surianarayanan, Gopinath Ganapathy, Pethuru Raj Chelliah, (2022). A Novel Approach for Semantic Microservices Description and Discovery Toward Smarter Applications. In: Agrawal, S., Gupta, K.K.,

Chan, J.H., Agrawal, J., Gupta, M. (eds) Machine Intelligence and Smart Systems. Algorithms for Intelligent Systems. Springer, Singapore.

4. Chellammal Surianarayanan, Pethuru Raj Chelliah, "Covid-19 Containment: Demystifying the Research Challenges and Contributions leveraging Digital Intelligence Technologies", in the proceedings of MISS-2020: International Conference on Machine Intelligence and Smart Systems, 2020

5. Gopinath Ganapathy, Chellammal Surianarayanan, "Architecture for QoS based Service Selection Using Local Approach", Proceedings of the WASET World Academy of Science, Engineering and Technology, International Science Index, Computer and Information Engineering, (2014), 1(3), 1216, , Spain, March 2015

6. Chellammal Surianarayanan, "An Integrated Approach from Improving the Performance of Semantic Service Discovery, In the Proceeding of IEEE International Conference on Computational Intelligence and Computing Research, IEEE-ICCIC 2014

7. Chellammal Surianarayanan, Gopinath Ganapathy, "A Method for Constructing Knowledgebase from Data in Emails using Clustering" , International Conference on Computers and Information Technology, Organized by Alagappa University, Sep 23-24 2013

8. Chellammal Surianarayanan, Gopinath Ganapathy, "Semantic Similarity based Clustering Approach as on Optimization to Service Discovery" in Proceedings of First International Conferences on Innovations in contemporary IT Research" , during 17-18 Feb 2012, pp. 12-15.

9. Chellammal Surianarayanan, Gopinath Ganapathy, "A new method for quick discovery and selection of services for composition using clustering, indexing and multithreading", Proceedings of third National conferences on computing concepts in current trends, pp.33-38, 2012.

10. Chellammal Surianarayanan, Gopinath Ganapathy, "Elimination of Irrelevancy during semantic service discovery using clustering approach", in the proceeding of First International Conference on Computer Science, Engineering and Information Technology, in book series "Trends in Computer Science, Engineering and Information Technology", Springer, Edited by Dhinakaran Nagamalai et al. 2011, pp. 307-315.

11. Chellammal Surianarayanan, Gopinath Ganapathy "An Approach to Efficient Web Service Discovery" in the International Conference of Advanced Engineering and Technology, 2011 (ICAET-11) organized by E.G.S Pillay Engineering College, Nagapattinam, during May 27-7- 2011

12. Gopinath Ganapathy, Chellammal Surianarayanan, "An Approach to Identify Candidate Services for Semantic Web Service Discovery", Proceedings of the IEEE International Conference on Service Oriented Computing and Applications, 2010 pp. 321-324, (Held at Perth, Australia, December 2010),

13. Gopinath Ganapathy, Chellammal Surianarayanan, "Link based approach to Web Service Discovery", Proceedings of the World Congress on Engineering, 2010, Vol I. pp. 454-459.

14. Gopinath Ganapathy, Chellammal Surianarayanan, "Identification of Candidate Services for Optimization of Web Service Composition", Proceedings of World Congress on Engineering, 2010, Vol I., pp. 448-45

Student projects

TNSCST – Student Project Scheme – year 2022-2023

Student name: J. Suba Helena & Guide Dr. Chellammal, TNSCST Ref No. 465

Project title: Optimization techniques for sustainable AI models to run on edge devices – a study – Rs. 7,500/-

TANSCHE - Students Mini Project – year 2021-2022

Student name: K. Chandraleka (Reg. No. P20277004); Guide: Dr. S. Chellammal

Project Title: Validation of artificial intelligence based model for diabetes with field data & – Rs. 15,000/-

Events organized

- No. of seminars/workshop in Erstwhile Bharathidasan University College – 10
- Co-convenor, in TANSCHÉ sponsored one day seminar on Artificial Intelligence and ChatGPT, 28.7.2023

List of projects implemented at IGCAR

- Project -1 - Development of Lead Shielding Integrity Assessment Equipment
Duration: 3 years
- Project – 2 – Development of Portable Lymphatic Flow Assessment medical equipment
Duration: 2 years 6 months
- Project – 3 - Development of Emergency Siren Control Unit
Duration: 1 year
- Project – 4 - Development of real time Meteorological Data Acquisition Network
Duration 2 years
- Project – 5 - Development programmable automatic air sampler
Duration: 2 years
- Project – 6 – Development of environment gamma dose logger
Duration 2 years

Journal publications related to industrial experience at IGCAR

1. S.Chellammal, K.M.Somayaji, Radiological Safety Division, Dr. T.M.R. Panicker, Dr. M. Paul Karoath, Dr. K. Jagadeesan, K. J. Hospital, "Development Of Portable Lymph Flow Assessment System For Lymphatic Filariasis", , Journal of Instrumentation Science and Technology, Vol 32, No.6, pp 589-600,2004.
2. S. Chellammal, G. Surya Prakash, R. Mathiyarasu and K. M. Somayaji, "Development Of Automatic Air Sampler", published in Journal of Instrument society of India, Vol 33, No.4, pp 282, 2003

Membership in Professional bodies

1. Life member of Computer Society of India (CSI), LM 00175220
2. Member of International Association of Computer Science and Information Technology (IACSIT), 0344868
3. Life time member in International Association of Engineers (IAENG), No. 106383

Awards

- Best NSS Programme Officer Award, Bharathidasan University – 2017-2018
- Outstanding Scientist Award, Venus International Foundation - 2018
- Conference Best paper awards – 4

Number of invited talks - 40

Number of conferences presentations - 14