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Research Publications

- **J.Somasekar**, B.Eswara Reddy, Segmentation of erythrocytes infected with malaria parasites for the diagnosis using microscopy imaging, Computers and Electrical Engineering (CEE), Vol.45, 2015.
(ELSEVIER Journal) (SCI & SCOPUS Indexed) (IF: 3.82)
- **J.Somasekar**, G.Ramesh, Ramu, Madhvai, The Beneficial Preprocessing Technique for SEM Image Analysis of Polymer Nanocomposites to Assist in Accurate Filler Content Estimation, IJEMS,2022. (Accepted)
(CSIR-NISCAIR Journal) (SCI & SCOPUS Indexed) (IF: 0.88)
- G.Ramesh, N. Madhusudhana Reddy, **J.Somasekar**, Big Data Analytics and Security Enhancement Integrated with Internet of Things Application, Microprocessors and Microsystems, 2022. (Submitted minor review comments responses)
(ELSEVIER Journal) (SCI & SCOPUS Indexed) (IF: 1.53)
- **J.Somasekar et.al.**, Blockchain in healthcare : Moving towards a methodological framework for protecting Biomedical Databases, Journal of Discrete Mathematical Sciences and Cryptography (Taylor & Francis), July, 2022. (Taylor & Francis Journal) (SCOPUS Indexed)
- **J.Somasekar**, G.Ramesh, P.Dileep Kumar, Ching-Hao Lai, A dataset for automatic contrast enhancement of microscopic malaria infected blood RGB image, Data in Brief, Vol.27, 2019. (ELSEVIER Journal) (SCOPUS Indexed)
- **J.Somasekar**, P Pavan Kumar, Avinash Sharma, Machine learning and image analysis applications in the fight against COVID-19 pandemic: Datasets, research directions, challenges and opportunities, Materials Today: Proceedings, September, 2020. (ELSEVIER Journal) (SCOPUS Indexed)
- **J.Somasekar**, Y.C.A. Padmanabha Reddy, G.Ramesh, Border Detection of Malaria Infected Cells in Microscopic Images for Diagnosis: A Computer Vision Approach, Journal of Computational and Theoretical Nanoscience, Vol.17, 2020. (SCOPUS)

- **J. Somasekar** , A. Sharma, N. Madhusudhana, Y.C.A. Padmanabha Reddy, Image Analysis for Automatic Enumeration of RBC Infected with Plasmodium Parasites- Implications for Malaria Diagnosis, *Advances in Mathematics: Scientific Journal*, Vol.9, 2020. (**SCOPUS** Indexed).
- **J.Somasekar**, B.Eswara Reddy, A novel LCM2ICM: low contrast malaria microscopic image classification measure, *Journal of Advanced Microscopy Research* , Vol.11, 2016. (**SCOPUS**)
- A. Sharma, **J. Somasekar**, Contrast Image Construction Technique for Medical Imaging, *Advances in Math.: Scientific Journal (AMSJ)*, Vol.9, 2020. (**SCOPUS**)
- G Ramesh, K.Madhavi, **J Somasekar**, Joseph Tan, Improving the accuracy of heart attack risk prediction based on information gain feature selection technique, *Materials Today: Proceedings*, 2021. (**ELSEVIER** Journal) (**SCOPUS**)
- S. Madhu , M.Ranjit , G. Ramu, A. Jayanthi, **J.Somasekar** , G.Ramesh , Dileep Kumar, A Secured Framework to Protect Association Rules in the Big Data Environment Using Fuzzy Logic, *Ingénierie des Systèmes d'Information (ISI)*, Vol.24, 2019. (**SCOPUS**)
- G.Ramu, M Soumya, A. Jayanthi , **J.Somasekar** , K. K. Baseer, Protecting big data mining association rules using fuzzy system, *Telecommunication Computing Electronics and Control*, Vol. 17, 2019. (**SCOPUS**)
- G.Ramesh, **J.Somasekar**, Karanam Madhavi, G. Ramu, Best Keyword Set Recommendations For Building Service-Based Systems, *International Journal of Scientific & Technology Research*, Vol.8, 2019. (**SCOPUS**)
- **J.Somasekar**, Scheduling Algorithm Applications to Solve Simple Problems in Diagnostic Related Health Care Centers, *International Journal of Advanced Research in Computer Science* .Vol. 3, 2012.
- **J.Somasekar**, Computer vision for malaria parasite classification in erythrocytes, *Int. J. Comput. Sci. Eng.*, Vol.3, 2011.
- **J.Somasekar**, B.Eswara Reddy, A Novel Two-Stage Thresholding Method for Segmentation of Malaria Parasites in Microscopic Blood Images, *Journal of Biomedical Engineering and Medical Imaging*, Vol.4, 2017.
- **J.Somasekar**, Ching-Hao Lai, An Image Processing Approach for Accurate Determination of Parasitemia in Peripheral Blood Smear Images, *IJCA Special Issue on Novel Aspects of Digital Imaging Applications (DIA)* , 2011.
- **J.Somasekar** , L. Sreenivasulu Reddy , An Efficient Algorithm for Automatic Malaria Detection in Microscopic Blood Images, *Global Trends in Information Systems and*

Software Applications: ObCom 2011, CCIS, Vol. 270, Springer-Verlag Berlin Heidelberg 2012. (Springer) (SCOPUS)

- **J.Somasekar**, B.Eswara Reddy , Contrast-enhanced microscopic imaging of Malaria parasites, IEEE International Conference on Computational Intelligence and Computing Research (IEEE ICCIC), 2014. (SCOPUS)
- **J.Somasekar**, Ching-Hao Lai, J.Somasekar, Protozoan parasite detection and classification techniques of microscope images for computer aided diagnosis, Parasites: Ecology, Diseases and Management book, Chapter.6, Nova Science Publishers, USA, 2012. (SCOPUS)

Areas of Interest

- Machine Learning/Data Science
- Digital Image Processing
- ML for Cyber Security
- Probability & Statistics for ML/DS

GATE (Graduate Aptitude Test in Engineering)

- GATE All India Rank: **43**
- GATE Percentile: **98.44**

Citations & Index for Research Publications

- Citations: **173**
- h-index: **07**
- i10-index: 05
- SCOPUS h-index: 05

Google Scholar Link: https://scholar.google.com/citations?user=yP_6CqoAAAAJ&hl=en

Awards & Recognitions

- “Innovative Collaborative Researcher” award for research collaboration with **Dr.Ching-Hao Lai, Director, ITRI, Taiwan** by WRC in association with United Medical Council.
- Best Paper Presentation Awards in **Two** Conferences.
- Best Outstanding Speaker award in International Conference, RES,2021.
- Appreciation Certificate from **IIT Bombay-ST** for the successfully conducted Two Weeks FDP on LaTeX in April, 2020 organized by GCEM, Bangalore as a **Convenor** with 1,150 registrations across the country.

Reviewer & Session Chair

- Reviewer for Number of Journals: **06 (Springer, Taylor & Francis, IGI,...)**
- Reviewer for No. of international conferences: 04
- Session Chair for no. of International Conferences: 02
- Session Chair for no. of National Conferences: 02

Guest Editor

- No. of **SCOPUS** Indexed Journals Special Issues guest editor: 02
- Journal IJARPHM, IGI Global.

FDPs /Conferences / Workshops Organized as a Convenor/Coordinator

- No. of National Conferences: 03
- No. of AICTE STTPs: 03
- No. of Workshops: 07
- No. of FDPs: 05
- No. of webinars: 10
- No. of Quizzes: 06

FDPs / Conferences / Workshops / Webinars Attended

- No. of Conferences: 06
- No. of AICTE ATAL FDPs: 03
- No. of FDPs: 10
- No. of quizzes: 06
- No. of Webinars: 05
- AICTE STTPs: 03
- No. of Workshops: 05

Scholarship

GATE Scholarship 1,75,000/- for Master Degree @ NITK, Surathkal by MHRD, Government of India.

Book Chapters

- Ching-Hao Lai, **J.Somasekar**, Protozoan parasite detection and classification techniques of microscope images for computer aided diagnosis (Chapter 6). Book Title: Parasites: Ecology, Diseases and Management by Nova Science Publishers, USA, 2012, ISBN: 9781622576920.
- G. Ramesh, P. Dileep Kumar, **J. Somasekar**, S. Anusha, Recommendation System for Risk Assessment in Requirements Engineering of Software with Tropos Goal-Risk Mode (chapter 6), Book Recommender Systems: Algorithms and Applications by CRC Press, **Taylor & Francis** Group, 2021, ISBN: 9780367631888.

Text Book

- Text Book Title: **EDA for Data Science**

Publishers: Shineeks, Las Vegas, USA.

- Text Book Title: **Machine Learning for Cyber Security** (In progress)

Patents

No. of patents: **02 + 01 (In progress)**

Visiting Professor/faculty

Worked as a Visiting Professor for the program **Post-Graduate Diploma in “Data Science and Analytics”** at Kannur University, Kerala.

Results

- Number of times 100 % Results produced: **07**
- Average % of results: **94%**

Supervisor/Co-supervisor

- Recognized PhD(CSE) supervisor/Guide under VTU, Belagavi, Karnataka.
- Recognized PhD(CSE) Co-supervisor/Co-Guide under JJTU, Rajasthan.

Current Ph.D. Research Scholars (2 scholars)

Sl.No.	Research Scholar Name	Candidate Department	Reg. No.	Research Center Name	University	Research Area
1	ARVIND R	CSE	1GD20PCS01	GCEM	VTU, Belagavi	Machine Learning
2	GIRISH M	CSE	1GD20PCS02	GCEM	VTU, Belagavi	Data Science/ML

Resource Person/Speaker for International Events

- Speaker for the ‘**World Congress on Pharmacology-2022**’ on the topic "Artificial Intelligence (AI) for Drug Recommendation with case studies" organized by Biogenesis Health Cluster on 30th January, 2022.

- Resource Person for **International FDP** on “Future Trends in Artificial Intelligence and Data Science” organized by Centre of AI and Data Science, RIT, Chennai held from 31/12/21 to 8/1/22.
- Resource Person for the Research & Development **International Lecture Series** on the topic “Machine Learning (ML) Models for Movie and Product Recommendation System with case studies and research directions” on 8th February, 2022, organized by A2Z EduLearningHub, India in Association with JFP Publishers, South Africa.
- Speaker for the **International Seminar** on ‘Interdisciplinary Trends in Artificial Intelligence (ISITAI)’ on 23rd February, 22 organized by Loyola Academy, Hyderabad.

Technical Talks Delivered (As a Resource Person/Keynote Speaker)

Total Invited Talks: 113

(AICTE FDPs: 27 , ISTE FDPs: 11 , Webinars: 18 , Guest Lectures: 27, FDPs/Workshops: 30)

Event Type	Topic Name & Organized College Name	Sponsor	No. of sessions	State
FDP	In-depth Intuition of Bayes Classifier in ML and Its applications @ CS Department, Central University of Kerala, Kasaragod, 2022.	AICTE	1	Kerala
FDP	Applications of AI in different sectors @ CSE, GITAM University, Hyderabad, 2021.	AICTE	1	Telangana
FDP	Digital Image processing using MATLAB, @ A2Z EduLearningHub, India , 2022.	A2Z	4	Kerala
Webinar	Machine Learning for Cyber Security @ Cybersecurity Centre of Excellence (CCoE), CMRIT, Bangalore.	-	1	Karnataka
FDP	Machine Learning for Cyber Security @ CSE, College of Engineering Kalloopara, Thiruvalla, 2022.	ISTE	1	Kerala
FDP	Analysing Bitcoin Blockchain Data via Machine Learning, GTU, Ahmedabad, Gujarat.	AICTE	1	Gujarat
FDP	Case studies of Data Science @ CS Department, Central University of Kerala, Kasaragod, 2022.	AICTE	1	Kerala
International webinar	Artificial Intelligence in Recommender system, Loyola Academy, Hyderabad, 2022.	-	1	Telangana
FDP	Essential Mathematics for Data Science, @ CSE, J.C.Bose university of science & Technology, YMCA, Faridabad.	AICTE	1	Delhi
FDP	Recommender System with case studies @ Center for AI & Data Science, RIT, Chennai, 2022.	-	1	Tamil Nadu
Workshop	Data Science with R Programming @ Jain University, School of Computer Science and IT, Bangalore, 2022.	-	1	Karnataa
Webinar	Applications and Case studies of Naïve Bayes Classifier @ CSE Department, Kuppam Engineering College, Kuppam, Chittoor.	-	1	Andhra Pradesh
FDP	Artificial Intelligence (AI) in Mass/Public Transportation, Department of Civil Engineering, GCEM, Bangalore.	-	1	Karnataka
FDP	In-depth intuition of linear regression model and its applications with research directions @ CS Department, Central University of Kerala, Kasaragod, 2022.	AICTE	1	Kerala
FDP	AI in movie recommendation with research directions @ ISE Department, JSSATE, Bangalore, 2022.	-	1	Karnataka

International webinar	ML Models for Movie and Product recommendation with case studies @ A2Z EduLearningHub, India & JFPP, South Africa, 2022.	-	1	Kerala
FDP	Artificial Intelligence in Mass Transportation @ Civil Eng., KIT's College of Engineering, Kolhapur, 2022.	ISTE	1	Maharashtra
International FDP	Probability and statistics for DATA SCIENCE organized by A2Z EduLearningHub, Kerala, 2022.	A2Z edulearninghub	4	Kerala
World Congress	Artificial Intelligence in pharma industry and research directions @ 2 nd world congress on pharmacology, 2022.	-	1	Karnataka
Expert Talk	Machine Learning for Movie and Product Recommendation Engine @ CSE, GIET University, Odisha, 2022.	-	1	Odisha
Webinar	Unsupervised Learning in ML: Association Analysis @ CSE Department, Kuppam Engineering College, Kuppam, Chittoor	-	1	AP
Webinar	Machine Learning for Movie and Product Recommendation System @ Scholl of CS & IT, Jain University, Bangalore, 2022.	-	1	Karnataka
International webinar	Digital Image Processing Techniques, Applications and Research Directions @ A2Z EduLearningHub, India , 2022.	Edulearning Hub	1	Kerala
Webinar	Collaborative filtering algorithm for RS, PESITM, Shivamoga, 2022.	-	1	Karnataka
Webinar	Innovation in Cyber Security using Image Steganography and its Online Tools @ CSE, MM University, MMEC, Mullana, 2022.	-	1	Haryana
Webinar	Movie and Product Recommendation System with case studies using ML @ CSE department, Vardhaman Engineering College, Hyderabad.	-	1	Telangana
FDP	Data analytics in smart healthcare @ ECE, KIOT, Salem, 2021,	AICTE	2	Tamil Nadu
FDP	AI for fashion Brand RS @ SONA College, Salem, 2021.	AICTE	1	Tamil Nadu
FDP	Applications of AI in different sectors @ CSE, GITAM University, Hyderabad, 2021.	AICTE	1	Telangana
FDP	Real Time Problems and Solutions with ML using R-Programming @ CSE, Galgotias University, Greater Noida, 2021.	AICTE	2	Uttar Pradesh
FDP	AI & Cyber security for Smart Cities @ GRGPC, Coimbatore.	ISTE	1	Tamil Nadu
FDP	ML and Image Processing for Cyber Security @ Acharya Bangalore B-School (ABBS), Bangalore, 2021.	AICTE	1	Karnataka
FDP	Machine Learning case studies @ ECE, Ahalia Scholle of Engineering & Technology (ASET), Palakkad, 2021.	ISTE	1	Kerala
FDP	ML & DIP for Cyber Security @ CSE, SRIT, Anantapuramu, 2021.	AICTE	2	AP
Guest Lecture	Mathematics for Data Science, Geethanjali College of Engineering and Technology, Hyderabad.	GCET	1	Telangana
FDP	Next-Generation Computing and its applications @ ECE, Kamaraj College of Eng. & Tech., K.Vellakulam, 2021.	ISTE	1	Tamil Nadu
FDP	Regression Analysis in data analytics with research directions @ CSE, SVCE, Tirupati, 2021.	ISTE	1	AP
FDP	In-depth intuition of linear regression with case studies @ IT Department, ANITS, Vizaq, 2021.	ISTE	1	AP
Webinar	Movie & Product RS using Machine Learning @ CSE, SVCE, Tirupati, 2021.	-	1	AP
Bridge Course	Object Oriented Programming using C++ @ CSE Department, GCEM, Bangalore.	-	5	Karnataka
FDP	Machine Learning for E-commerce and Streaming Services and E-commerce @ ECE, ASET, Palakkad, 2021.	KTU	2	Kerala
FDP	Machine Learning Techniques for Cyber Security @ CSE, SRIT, Anantapuramu, 2021.	AICTE	2	AP
FDP	Image Steganography and Tools @ CSE, SRIT, Anantapuramu, 2021.	AICTE	1	AP
Webinar	The Math behind online recommender system @ CSE, G. Pulla Reddy Engineering College, Kurnool, 2021.	-	1	AP

Webinar	AI for Recommendation system in E-commerce industry @ AI Research Group, Kannur University, 2021.	Kannur University	1	Kerala
FDP	Case studies of Machine Learning & Image Analysis in Healthcare @ I & C, COEP, Pune, 2021.	AICTE	1	Maharashtra
FDP	Machine Learning for Cyber Security @ CSE, COEP, Pune, 2021.	AICTE	1	Maharashtra
Webinar	Data Science for Cyber Security & Healthcare @ CSE, Maharishi Markandeshwar University, Mullana, 2021.	-	1	Haryana
Induction	GATE Career Prospects for Eng. graduates, @ GCEM, Bangalore, 2021.	-	1	Karnataka
Guest Lecture	Supervised Machine Learning and Case Studies @ CSE, ABES Engineering College, Ghaziabad, 2021.	-	1	Uttar Pradesh
Guest Lectures/ expert talks	Machine learning, Data Science, Algorithms Design Techniques, Probability & Statistics applications in ML, 2021.	Kannur University	22	Kerala
FDP	Introduction to Data Science @ CSE, IFETCE, Villupuram, 2021.	ISTE	1	Tamil Naidu
FDP	Probabilistic Models for Healthcare & RS, @ CSE, ABES Engineering College, Ghaziabad, 2021	-	1	Uttar Pradesh
FDP	Regression Analysis essentials for ML and Its Applications, @ CSE, Sri Indu Eng. College, Hyderabad, 2021.	ISTE	1	Telangana
STTP	Cyber Data Analytics @ School of CS, VETIAS, Erode.	VET	1	Tamil Nadu
FDP	Intuition of Naïve Bayes Classifier and Case Studies, @ CSE, Sri Indu Eng. College, Hyderabad, 2020.	ISTE	1	Telangana
FDP	A Geometric and Mathematical Perspective of linear regression @ CSE, Sri Indu Eng. College, Hyderabad, 2020.	ISTE	1	Telangana
Induction Program	Career Prospects for Engineering students after clearing GATE exam @ GCEM, Bangalore, 2020.	-	1	Karnataka
Webinar	ML for Movie Recommendation system @ CSE, Bharat Institute of Engineering and Technology, Hyderabad, 2021.	-	1	Telangana
Webinar	Machine Learning Techniques for online Product Recommendation system @ CSE, SRITW, Warangal, 2021.	-	1	Telangana
Guest Lecture	Fundamentals of Cyber Security and Image Steganography tools @ ECE, GRIET, Hyderabad, 2021.	GRIET	1	Telangana
Webinar	ML Models for RS @ ECE, MCE, Salem. 2021	-	1	Tamil Nadu
Webinar	Machine learning in cyber security @ CSE, Bharat Institute of Engineering and Technology, Hyderabad, 2021.	-	1	Telangana
Workshop	Object oriented programming using C++ @ GCEM, Bangalore, 2017.	-	1	Karnataka
Guest Lecture	Math behind online product recommender engine @ AICTE activity points program, GCEM, Bangalore, 2021.	-	1	Karnataka
Webinar	Bayes theorem applications in ML and Cyber security with case studies @ GCEM. Bangalore, 2021.	-	1	Karnataka
STTP	Data Science and Statistical Applications @ Department of Statistics, Bharathiar University, Coimbatore, 2021.	DBT, GOI	2	Tamil Nadu
STTP (3 phases)	Essential Math and Statistics for Data Science @ CSE, Paavai Engineering College, Namakkal, 2020.	AICTE	3	Tamil Nadu
FDP	CO-PO mapping in Implementation of outcome-based education (OBE) @ GCEM, Bangalore, 2020.	-	1	Karnataka
STTP (3 phases)	Applications and Research directions of Data Science @ CSE, Paavai Engineering College, Namakkal, 2020.	AICTE	3	Tamil Nadu
FDP	Naïve Bayes classifiers & Association Rules @ CSE, IFETCE, Villupuram, 2020.	AICTE	2	Tamil Naidu

Total Number of Technical talks delivered 113

Sl.No.	State	No. of Invited Talks
1	Andhra Pradesh	12
2	Karnataka	19
3	Kerala	40
4	Tamil Nadu	19
5	Telangana	11
6	Maharashtra	03
7	Odisha	01
8	Haryana	02
9	Uttar Pradesh	04
10	Gujarat	01
11	Delhi	01

International Collaborative Research

Actively involved in international collaborative research work and published research articles with the following researchers.

- Ching-Hao Lai, Computational Intelligence Technology Center, Industrial Technology Research Institute, Hsinchu, Taiwan.
- Joseph Tan, Professor, eHealth Information & eBusiness Innovation, McMaster University, Canada.
- Dr. Asadi Srinivas, Head - Research & Professor of Information Technology at BlueCrest University, Monrovia, Liberia.

Conference Paper Presentations (National/International)

1. J.Somasekar, A Systematic survey on COVID-19 facial mask detection, AICTE Sponsored international conference on emerging techniques in electronics, communications and computational intelligence, 2022 (ICETECCI-2022).
2. J.Somasekar, An empirical study on discovering software bugs using machine learning techniques, International conference on computational intelligence and information technology (ICCIDA-2022), 2022. (**Springer** Conference)
3. J. Somasekar; B. Eswara Reddy, Contrast-enhanced microscopic imaging of Malaria parasites, 2014 IEEE International Conference on Computational Intelligence and Computing Research, 2014. (**SCOPUS** Indexed)
4. J. Somasekar, A.R.M. Reddy, L.S. Reddy, An efficient algorithm for automatic malaria detection in microscopic blood images, International Conference on Global trends in information systems and software applications, Springer, 2012, (**SCOPUS** Indexed)
5. J.Somasekar, EDGE-PRESERVING SALIENT OBJECT DETECTION, National Conference on new advances in computing and communication technology, CIT, 2021.

6. J.Somasekar, Machine Learning for product and movie recommendation system, AICTE Sponsored international conference on emerging techniques in electronics, communications and computational intelligence, 2022.
7. J.Somasekar, Automatic segmentation of damages in digital images of composite materials based on max entropy thresholding, International conference on advanced materials science and applications, 2020.
8. J.Somasekar, Dhirendra Kumar, The Role of IoT based device to minimize the spread of COVID-19 pandemic, National conference on new advances in computer science and information technology, bangalore, 2021.
9. J.Somasekar, Girish M, role of machine learning in recommendation system, NCETCSEIOT-2021, August, 2021.
10. J.Somasekar, Machine Learning and image analysis applications in the fight against COVID-19 pandemic, International conference on emerging trends in materials science, technology and engineering, 2021.
11. J.Somasekar, Dhirendra Kumar Sah, The role of emerging computational technologies in the agricultural industry, National conference on emerging trends in computer science & engineering and information technology, 2021.
12. J.Somasekar, A Comprehensive study of supervised and unsupervised classification techniques in machine learning, International conference on Emerging trends & Challenges in applied science, engineering & Technology, 2021.

Miscellaneous

- Number of years worked as department Head (HoD): 05 Years
- Received M.Tech., admission offer IIT Madras in 2008.
- Received intern offer from Nanyang Technological University (NTU), Singapore under the guidance of Dr. Justin.
- SPOC for NPTEL local chapter.
- Coordinator for NAAC, IIT Bombay-ST, IIC Convenor, and Coordinator for other events.

Date: 15/09/2022

Place: Bangalore



Signature
(Dr.J.Somasekar)