

BIO-DATA

OF

Dr. H.S.NAGENDRASWAMY

PROFESSOR

DEPARTMENT OF STUDIES IN COMPUTER SCIENCE

UNIVERSITY OF MYSORE

MANASAGANGOTHRI

MYSORE – 570 006

## 1. Personal details.

Name	Dr. H.S.NAGENDRASWAMY
Father's Name & Occupation	Siddappa, Agriculturist.
Permanent address	Handarakally, Madapura Post Chamarajanagar Taluk and District PIN-571313, INDIA.
Address for Correspondence (Off)	Dr. H.S.Nagendraswamy Professor, Department of Studies in Computer Science, University of Mysore, Manasagangothri, MYSORE – 570 006
Address for Correspondence (Res)	#18, Harangi Road, Kaverinagara, Bogadi, Mysuru - 570026.
Date of Birth	June. 01, 1971.
Place of Birth	Handarakally
Sex	Male.
Nationality	Indian.
Marital Status	Married

## 2. Educational Details.

### 2.1 Professional.

**Ph.D:** (2007) obtained the degree in Computer Science and Technology under the supervision of Dr. D.S. Guru, Reader, Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysore.

**TITLE:** *FUZZY-SYMBOLIC APPROACHES FOR REPRESENTATION AND CLASSIFICATION OF TWO-DIMENSIONAL SHAPES*

**M.Sc. :** (1992-1994) Master of Science in Computer Science from the University of Mysore.

**Secured first class with 74% of marks.**

**PROJECT : "AN AUTOMATED TOOL FOR EFFICIENT PARSER GENERATOR: A  
CASE STUDY WRT SQL LANGUAGE"**

**B.Sc. : (1989-1992)** Bachelor of Science in Physics, Mathematics and Computer Science from the University of Mysore.

**Secured first class with 62% of marks.**

## **2.2 Additional.**

- Qualified in National Education Test (1996) accredited by UGC, which is mandatory for any faculty position in Universities.
- Awarded **Teacher fellowship (2005-06)** to carry out Research in the Department of Studies in Computer Science, University of Mysore, Mysuru.

## **3. Professional Experience.**

- August 2014 onwards – Professor, Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysore.
- August 2011 to August 2014 – Associate Professor, Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysore.
- August 2008 to August 2011 – Reader, Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysore.
- April 2007 to August 2008 – Senior Lecturer, Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysore.
- Aug. 2002 to March 2007 - Senior Scale Lecturer, Department of Computer Science, Field Marshall K. M. Cariappa College (A constituent college of Mangalore University), Madikeri.
- Aug. 1997 to Aug. 2002 - Lecturer, Department of Computer Science, Field Marshall K. M. Cariappa College (A constituent college of Mangalore University), Madikeri.

#### **4. Professional Recognition.**

- Was deputed to Huanguhai University, China, in the year 2008 to teach B.Tech. (Computer Science).
- Visited MASCOW State University (MSU), Russia, on an INDO-RUSSIAN project and presented a paper on “A new method of representing and matching 2D-shapes”.
- Chaired a session in International Conference on Futuristic Trends in Engineering and Technologies (FTET-16), May 9-10, 2016, Kaula Lumpur, Malaysia.
- Served as a technical committee member of ICCSP 2018, Guiyang, China, March 16-19, 2018.
- Served as a review committee member for an international conference ICMIP 2019, which will be held from March 19 to 21, 2019, Kaula Lumpur, Malaysia.
- Successfully guided One M.Sc. Technology (by Research) and Four Ph.D. students in Computer Science and Technology, University of Mysore, MGM.
- Currently guiding Seven Ph.D. Students and few M.Tech., MCA and M.Sc. project works.
- Actively participated in various administrative boards such as BOE, BOS, BOAE and various committees like doctoral committee, admission committee, Science and Technology, 10<sup>th</sup> Kannada Science Congress etc.
- Working as coordinator for PG Entrance examination of University of Mysore since 2017-2018 academic year.
- Involved in syllabus making for B.Sc. (Computer Science) Mangalore University, Mangalore.
- Guided several MCA, M.Sc., PGDCA, B.Com (Computer Applications) and BCA project works.
- Involved in teaching UG programmes such as PGDCA (Post Graduate Diploma in Computer Science) B.Sc Computer Science, B.Com. (Computer Applications) and BCA (Bachelor of Computer Application).

## **5. Research Recognition**

- Have been working as a referee / reviewer for International Journals including Pattern Recognition and Pattern Recognition Letters and conferences.
- Worked as resource person in several National and international level conferences, Seminars, Workshops and Short-term courses, Orientation programmes and Faculty Development Programmes.
- Have been invited to deliver lectures in National and International level conferences, Seminars and Workshops.
- Published papers in International Journals, National and International Conference Proceedings
- Presented papers in National and International Conferences, Symposiums and Workshops.

## **6. Member of Academic bodies.**

- Member of Academic Council for JSS College of Arts, Commerce and Science for Women, Saraswathipuram, Mysuru.
- Member of Governing Council for JSS College of Arts and Commerce, Gundlupete.
- Chairman, Board of Studies in Computer Science (PG & UG), University of Mysore.
- Member of Board of Studies in Electronics (PG), University of Mysore.
- Member of Board of Studies in Mathematics (PG), University of Mysore.
- Member of Board of Studies in Computer Science (PG), Saint Philomena's College, Mysore.
- Member of Board of Studies in Computer Science (B.Sc. Hon's in Data Science and Artificial Intelligence), Sharadavilas College, Mysore.
- Member of Board of Studies in Computer Science (UG), J.S.S College for Women, Saraswathipuram, Mysore.
- Member of Board of Studies in Computer Science (PG Diploma/Diploma/MCA Online courses), KSOU Mysore.
- Member of Board of Examiners in Computer Science (PG), J.S.S College of Arts, Commerce and Science, Mysore.

- Chairman of Board of Examiners in Computer Science (PG), University of Mysore.
- Chairman of Board of Examiners for CIST courses, University of Mysore.
- Member of Faculty of Science & Technology, Since April 2007, University of Mysore.
- Member of Board of Examiners (UG), Mangalore University.
- Member of Board of Studies in Computer Science (UG), Mangalore University.
- Member of Board of Examiners in Computer Science (PG), University of Mysore.
- Member of Board of Examiners in Computer Science (PG), Bangalore University
- Member of Board of Examiners in Computer Science (PG), Mangalore University
- Member of Board of Examiners in Computer Science (PG), Govt. First Grade College, Mandya.
- Chairman of Board of Studies in Diploma in Network and System Administration, University of Mysore.

## **7. Areas of interest.**

### **7.1 Academic interest**

Object oriented modeling and design, Operating Systems, Software Engineering, Computer Architecture, Data structures, Data Base Systems, Data Warehousing and Data Mining, Automata Theory and Formal Languages, Compiler Design, Symbolic Data Analysis, Pattern Recognition, Image Processing and Fuzzy theory.

### **7.2 Research interest**

Pattern recognition, Image processing, Data mining, Fuzzy theory, Symbolic data analysis, Video processing, Shape analysis.

## **8. Courses/ Workshops / Symposiums / Conferences attended/ organized**

- Participated and presented a research paper entitled “Representation and Recognition of 2D shapes: An unconventional approach” in an INDO-RUSSIA symposia on “Spatial modeling of human faces for real time analysis and classification” held at Lomonosov Moscow State University, Moscow, Russia from 27<sup>th</sup> Aug. 2009 to 3<sup>rd</sup> Sept. 2009.
- Cognition 2K5 A National Technical Symposium, March 12-13, 2005 at Mysore, India

- National Conference on Document Analysis and Recognition, Mandya, Karnataka, July 11-12, 2003.
- National Conference on Document Analysis and Recognition, July 13-14, 2001, PES college of Engineering, Mandya, Karnataka.
- National workshop on Document Analysis and Recognition. July 12<sup>th</sup> 2001, PES college of Engineering, Mandya, Karnataka.
- The University Grants Commission (UGC) sponsored orientation program conducted by the Academic Staff College, University of Mysore, Mysore.
- The University Grants Commission (UGC) sponsored Refresher Course in Computer Science organized by the Department of Computer Science, Jawaharlal Nehru Technological University, Hyderabad, India.
- Two weeks workshop on Fourier and Wavelet Transformation and its applications. Organized by the Department of Mathematics, IIT Chennai.
- One week workshop on Automata theory and Formal verification of Software (Update meeting) conducted by IIT Bombay.
- Presented the paper entitled “Clustering of Interval-Valued Symbolic Patterns based on the Mutual Similarity Value and the Concept of  $k$ -Mutual Nearest Neighborhood” at the Seventh Asian Conference on Computer Vision (ACCV-2006), Hyderabad, INDIA, Jan. 13-16.
- Presented the paper entitled “Symbolic Representation and Classification of Two-Dimensional Shapes” at the Workshop on Computer Vision, Graphics and Image Processing (WCVGIP-2006), Hyderabad, INDIA, Jan.12-13
- Involved in organizing an International Conference on Cognition and Recognition (ICCR-2011) and worked as program chair and editor in chief for the conference proceedings (9<sup>th</sup> and 10<sup>th</sup> December 2011).
- Worked as organizing committee member for Two Day National Seminar on Recent Trends in Information Technology and Animation, Visual Effects and Gaming (9<sup>th</sup> and 10<sup>th</sup> November 2012).
- Worked as a session chair in First International Conference on Multimedia Processing, Communication and Computing Applications (ICMCCA) held at PES Institute of Technology, Bangalore, 13<sup>th</sup> to 15<sup>th</sup> December 2012.

- Delivered a technical talk on “Shape-Based Multimedia Information Retrieval” In AICTE sponsored Three Day Symposium on Multimedia Information Archival and Retrieval System (MIRARs), organized by the Department of MCA, PES Institute of Technology, Bangalore, 11<sup>th</sup> to 13<sup>th</sup> November 2013.
- Delivered a Technical talk on “Fuzzy Theory and its Applications” in Two days workshop on Recent Advances in Machine Learning organized by Department of Information science and Engineering, Sri Jayachamarajendra college of Engineering, Mysore, 15<sup>th</sup> and 16<sup>th</sup> May 2013.
- Delivered a lecture on “Dimensionality Reduction in Understanding Medical Data” at One day State level seminar on Recent tools for Dimensionality Reduction in Understanding Medical Data held at JSS College for Women, Chamarajanagara, 22<sup>nd</sup> August 2013.
- Worked as a session chair in Second International Conference on Advances in Computing, Communications and Informatics (ICACCI 2013) held at Sri Jayachamarajendra College of Engineering, Mysore, 22<sup>nd</sup> to 25<sup>th</sup> August 2013.
- Delivered a technical talk on “Object recognition based on symbolic representation of shape features” in the International conference on recent trends in signal processing, Image processing and VLSI. Organized by DONBOSCO Institute of Technology, Bangalore, 21<sup>st</sup> and 22<sup>nd</sup> Feb 2014.
- Delivered a talk on “Image Enhancement” during a Two Days Workshop on Image Enhancement conducted by Department of Computer Science and Engineering, Siddaganga Institute of Technology, Tumkur, 25<sup>th</sup> April 2014.
- Delivered a Technical talk on “Mathematics in Fuzzy Theory” in Three days workshop on Mathematics behind in Machine Learning organized by Department of Information science and Engineering, Sri Jayachamarajendra college of Engineering, Mysore, 21<sup>st</sup> to 23<sup>rd</sup> August 2014.
- Delivered a lecture on “Concepts of Data Mining” in State Level seminar on Data Mining and Knowledge Discovery (DMKD-2014) organized by JSS college of Arts, Commerce & Science, Mysore, 14<sup>th</sup> March 2014.
- Worked as a session chair in *National Conference on Information Technology and Sustainable Future: NCITSF14*. Held at Jain University, Bangalore on 9<sup>th</sup> May 2014.
- Participated in one day programme on *Knowledge Sharing Workshop on Software Project Management* organized by RIIIT, Mysore. 19<sup>th</sup> December 2014.



- Delivered a lecture on the topic “Shape Retrieval System: An Unconventional Approach” in TEQIP Sponsored Five Day National Level Seminar on “Multimedia Data Analysis” held during April 26<sup>th</sup> to April 30<sup>th</sup> 2016 at SJCE, Mysuru.
- Attended International Conference on Futuristic Trends in Engineering and Technologies (FTET-16), May 9-10, 2016, Kaula Lumpur, Malaysia.
- Delivered a lecture on the topic “Research Opportunities and the Future of Biometrics” in the FDP program organized by the Department of MCA on 26<sup>th</sup> June 2016 at SJCE, Mysuru.
- Delivered a lecture on the topic “Research Methodology and Literature Survey” in the Workshop on Research Methodology and Research Motivational Aspects organized by the Department of Computer Science and Engineering, GSSS Institute of Engineering and Technology for Women on 27<sup>th</sup> June 2016, Mysuru.
- Delivered a lecture on “Selection of projects and its implementation” at the Department of Computer Science, SDM College for Women, Mysuru on 18<sup>th</sup> August 2016.
- Delivered a lecture on “Software Engineering: Verification and Validation” at St. Joseph’s First Grade College, Jayalakshimpuram, Mysuru on 15<sup>th</sup> September 2016.
- Attended 5<sup>th</sup> International Conference on Advances in Computing, Communications and Informatics 21-24 September 2016, Jaipur, India.
- Organized Three days national level seminar on “Soft Computing Techniques to Pattern Recognition” held on 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> November 2016 at the Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysuru.
- Attended and chaired a session in the International Conference on Cognition and Recognition (ICCR-2016) organized by Maharaja Institute of Technology, Mysuru on 30th December 2016.
- Attended and chaired a session in the International Symposium on Cloud Computing and Data Analytics (ISCCDA17) organized by the Department of Computer Science and Engineering, NIE college of Engineering, Mysuru in association with CSI-Bangalore and Mysore Chapter, which was on held on 17<sup>th</sup> and 18<sup>th</sup> of March 2017.
- Delivered a lecture on “Research Design” at Academic Staff College, UoM, MGM On 22<sup>nd</sup> March 2017.
- Organized a one day workshop on “Theoretical aspects of Fuzzy C-means Clustering” held on 11<sup>th</sup> March 2017 at the Department of Studies in Computer Science, University of Mysore, Manasagangothri, Mysuru.

- Attended and chaired a session in the annual fest NICEFEST'17 on 10<sup>th</sup> April 2017 organized by the Department of Electronics and Communication Engineering, NIE college of Engineering, Mysuru.
- Served as a program committee member for an international conference ICMIP 2017, which was held from March 17 to 19, 2017, Wuhan, China.
- Involved in organizing an International Conference on Data Analytics and Learning (DAL-2018) and worked as program chair.
- Coordinated Foreign Faculty Exchange Programme of University of Mysore.
- Delivered a lecture on “Research Design” at Academic Staff College, UoM, MGM on 26<sup>nd</sup> February 2018.
- Delivered a lecture on “Role of ICT in Education” at Academic Staff College, UoM, MGM on 6<sup>th</sup> March 2018.
- Delivered a lecture on the topic “Data Learning Methods” at Sri. Jayachamarajendra College of Engineering, Musuru on 5<sup>th</sup> July 2018.
- Delivered a lecture on the topic “Fuzzy Logic and its Applications” at Academic Staff College, University of Mysore on 19<sup>th</sup> November 2018.
- Delivered a lecture on the topic “E-Learning” on 6<sup>th</sup> March 2019 at Academic Staff College, University of Mysore, MGM.
- Attended One Day National Level Seminar on Applications of Machine Learning and Pattern Recognition in Biometrics (AMLPRB-2019), organized by the Department of Studies in Computer Science, UoM, MGM held on 30<sup>th</sup> September 2019.
- Attended a DST Sponsored Three Days National Level Workshop on Data Analytics and Learning (NWDAL-2019), organized by the Department of Studies in Computer Science, UoM, MGM held on 18<sup>th</sup> to 20<sup>th</sup> November 2019.
- Coordinated 8<sup>th</sup> Refresher Course in Mathematical Science from 24-12-2019 to 06-01-2020 at Human Resource Management Centre, UoM, MGM.
- Delivered an invited lecture on “Online and E-learning” on 03<sup>rd</sup> March 2020 at UGC Human Resource Development Centre, UoM, MGM.
- Delivered a lecture on the topic “Bio-Statistics” at JSS College of Arts, Commerce and Science for Women, Saraswathipuram, Mysuru on 6<sup>th</sup> March 2020.
- Delivered an online lecture on the topic “Fuzzy Techniques in Computer Vision” on 21<sup>st</sup> September 2020 in the Faculty Development Programme organized by SJCE, Mysuru.

- Delivered an invited online lecture on the topic “Best Practices for Effective Online Teaching” on 23<sup>rd</sup> June 2020 organized by JSS College of Arts and Commerce, Gundlupete.
- Delivered an invited online lecture on the topic “Classification Techniques” on 26<sup>th</sup> August 2020 as a part of AICTE sponsored Online Short Term Training Program on MACHINE LEARNING FOR SOCIETAL APPLICATIONS from 24<sup>th</sup> August to 29<sup>th</sup> August 2020 Organized by the Department of Computer Science & Engineering, NA College of Engineering, Nadupadav, Mangalore.
- Delivered an invited online lecture on “Machine Learning Techniques for Classification of Medicinal Plants” on 13<sup>th</sup> October 2020 as a part of AICTE sponsored six days online Short-Term Training Program (STTP) on “*Design of Knowledge-based Systems using Artificial Intelligence and Machine Learning models: In the context of Agricultural and Food products*” scheduled from 12<sup>th</sup> to 17<sup>th</sup> October 2020 organized by Manipal Academy of Higher Education, Manipal.
- Delivered an invited online lecture on the topic “Online and E-learning” on 26<sup>th</sup> February 2021 at UGC Human Resource Development Centre, UoM, MGM.
- Delivered an invited online lecture on the topic “An Overview of E-Learning Delivery Methods and Process” on 20<sup>th</sup> March 2021 at UGC Human Resource Development Centre, UoM, MGM.

## 9. Research Publications.

### In Journals

1. D.S.Guru and H.S.Nagendraswamy, 2007. Symbolic Representation of Two-Dimensional Shapes. Pattern Recognition Letters, Vol. 28, No.1, pp.144-155.
2. H.S.Nagendraswamy and D.S.Guru, 2007. A New Method of Representing and Matching Two dimensional Shapes. International Journal of Image and Graphics Vol. 7, No. 2, pp. 377-405.
3. H.S.Nagendraswamy and D.S.Guru, 2007. *k*-Mutual Nearest Neighbour Approach for Clustering Two-Dimensional Shapes Described by Fuzzy-Symbolic Features. Special Issue on Soft Computing in Artificial Intelligence, Web and Data Mining and Machine Learning. EL\_14\_1\_24 12<sup>th</sup> Feb 2007.
4. H. P.Mohankumar and H.S.Nagendraswamy, 2011. Gait recognition based on symbolic representation. International Journal of Machine Intelligence, Volume 3, Issue 4, ISSN: 0975-2927 E-ISSN: 0975-9166, pp. 295-301. Impact value: 4.45

5. H.S.Nagendraswamy and Pavan Kumar, 2013, Line Drawing for Conveying Shapes in HDR Images, International Journal of Innovations in Engineering and Technology (IJET), ISSN: 2319-1058, Vol. 2 Issue 2, April 2013, pp 353-362
6. H.P.Mohankumar and H.S.Nagendraswamy, 2014. Change Energy Image for Gait Recognition: An Approach Based on Symbolic Representation. International Journal of Image, Graphics and Signal Processing. IJIGSP, vol.6, no.4, ISSN: 2074-9074 ISSN Online: 2074-9082, pp.1-8, 2014.
7. H.P.Mohankumar and H.S.Nagendraswamy, 2014. Fusion of Silhouette based Gait features for Gait Recognition. International Journal of Engineering and Technical Research (IJETR). Vol. 02, Issue 08, August 2014, pp 101-107.
8. B. M. Chethana Kumara, H. S. Nagendraswamy, Symbolic Representation of Sign Language at Sentence Level. Intel. Journal of Image Graphics and Signal Processing, vol.7, no.9, pp.49-60, 2015
9. Naresh, Y. G., and H. S. Nagendraswamy. Classification of medicinal plants: An approach using modified LBP with symbolic representation. Neurocomputing 173 (2016): 1789-1797.
10. B. M. Chethana Kumara, H. S. Nagendraswamy, LBPV for Recognition of Sign Language at Sentence Level: An approach based on Symbolic Representation. Journal of Intelligent Systems. ISSN (Online) 2191-026X, DOI: 10.1515/jisys-2015-0003, April 2016.
11. B. M. Chethana Kumara, H. S. Nagendraswamy, Sign Energy Images for Recognition of Sign Language at Sentence Level. International Journal of Computer Applications (0975–8887), Vol-139, No.2, April 2016.
12. Naresh, Y. G., and H. S. Nagendraswamy. Fusion of Shape and Texture Features of Leaves for Classification of Medicinal Plants: An Approach Based on Symbolic Representation. Communicated to Journal of Computers and Electronics in Agriculture (Elsevier).
13. Rashmi, B. S., and Nagendraswamy, H. S. (2018). Effective Video Shot Boundary Detection and Keyframe Selection using Soft Computing Techniques. International Journal of Computer Vision and Image Processing (IJCVIP), 8(2), 27-48.
14. Rashmi, B. S., and Nagendraswamy, H. S. (2019). Content Based Video Shot Retrieval System using Fuzzy Logic Based Approach. International Journal of Fuzzy Systems and Applications (IJFSA).
15. Pavan Kumar M P, Poornima B, Nagendraswamy H S and Manjunath C (2019). A comprehensive survey on non-photorealistic rendering and benchmark developments for

image abstraction and stylization, Iran Journal of Computer Science, Volume 2, Pages 131–165.

16. Pavan Kumar M P, Poornima B, Nagendraswamy H S, Manjunath C and Rangaswamy B E (2020). Structure Preserving Image Abstraction and Artistic Stylization from Complex Background and Low Illuminated Images, ICTACT Journal on Image and Video Processing, August 2020, Volume: 11, Issue: 01.
17. Rashmi, B. S., and Nagendraswamy, H. S. (2021). Video shot boundary detection using block based cumulative approach. International Journal of Multimedia Tools and Applications, Volume 80, Pages 641–664.
18. Pavan Kumar M P, Poornima B, Nagendraswamy H S and Manjunath C (2021). Structure-Preserving NPR framework for image abstraction and stylization, Journal of Super Computing, Springer SCI indexed Journal with IF 2.5, Pages 1-69.
19. M. P. Pavan Kumar, B. Poornima, H.S.Nagendraswamy, C.Manjunath, "Structure Preserving Non-Photorealistic Rendering Framework for Image Abstraction and Stylization of Low-Illuminated and Underexposed Images." IJCVIP 11.2 (2021): 22-45. Web. 7 Apr. 2021.
20. M. P. Pavan Kumar, B. Poornima, H. S. Nagendraswamy , C. Manjunath and B. E. Rangaswamy, "Image-Abstraction Framework as a Preprocessing Technique for Extraction of Text From Underexposed Complex Background and Graphical Embossing Images." IJDAI 13.1 (2021): 1-35. Web. 7 Apr. 2021.
21. M. P. Pavan Kumar, B. Poornima, H. S. Nagendraswamy, C. Manjunath and B. E. Rangaswamy, "A Refined Structure Preserving Image Abstraction Framework as a Pre-Processing Technique for Desire Focusing on Prominent Structure and Artistic Stylization", WSPC-Vietnam Journal of Computer Science,

## **In Conferences**

1. D.S.Guru and H.S.Nagendraswamy, 2005. Matching and Retrieval of Distorted and Occluded Two-Dimensional Shapes: An Unconventional Approach. Proceedings of the Indian International Conference on Artificial Intelligence (IICAI-2005), Pune, INDIA, Dec. 20-22, pp. 3161-3173.
2. D.S.Guru and H.S.Nagendraswamy, 2005. Landmark Based Shape Representation Scheme for Recognition of Two-Dimensional Shapes. Proceedings of the conference on Image and Vision Computing (IVCNZ-2005), University of Otago, Dunedin, New Zealand, Nov. 28-29, pp. 299-304.

3. D.S.Guru and H.S.Nagendraswamy, 2005. A New Method of Representing and Matching Two-Dimensional Shapes. Proceedings of the International Conference on Cognition and Recognition, Mysore, INDIA, Dec. 22-23, pp. 52-59.
4. D.S.Guru and H.S.Nagendraswamy, 2006. Clustering of Interval-Valued Symbolic Patterns based on the Mutual Similarity Value and the Concept of  $k$ -Mutual Nearest Neighborhood. Proceedings of the Seventh Asian Conference on Computer Vision (ACCV-2006), Hyderabad, INDIA, Jan. 13-16, LNCS 3852, pp. 234-243.
5. D.S.Guru and H.S.Nagendraswamy, 2006. Two-Dimensional Shape Representation and Matching: An Unconventional Approach. Proceedings of the International Conference on Systemics, Cybernetics and Informatics (ICSCI-2006). Hyderabad, INDIA, Jan. 4-8, pp. 488-492.
6. D.S.Guru and H.S.Nagendraswamy, 2006. Symbolic Representation and Classification of Two-Dimensional Shapes. Proceedings of the Workshop on Computer Vision, Graphics and Image Processing (WCVGIP-2006), Hyderabad, INDIA, Jan.12-13, pp. 19-24.
7. H.S.Nagendraswamy and D.S.Guru, 2006. Symbolic Representation Scheme for Matching and Retrieval of Two Dimensional Shapes. Proceedings of the IEEE International Conference on Engineering of Intelligent Systems (ICEIS-2006), Islamabad, Pakistan, April 22-23, pp. 283-288.
8. H.S.Nagendraswamy and D.S.Guru, 2006. Clustering of Shapes Described by Fuzzy-Symbolic Features using a Similarity Measure and the Concept of  $k$ -Mutual Nearest Neighborhood. Published in the Proceedings of the Internal Conference on Intelligent Systems and Control (ISCO-2006), Madurai, Coimbatore, August 9-12.
9. H.P.Mohankumar and H.S.Nagendraswamy, 2013. Gait recognition: An approach based on interval valued features. International Conference on Computer Communication and Informatics (ICCCI), 978-1-4673-2906-4/13 IEEE.
10. H.P.Mohankumar and H.S.Nagendraswamy, 2014. LBP for Gait Recognition: A Symbolic Approach Based on GEI plus RBL of GEI. Published in International Conference on Electronics and Communication Systems (ICECS 2014).
11. H.S.Nagendraswamy and Naresh, 2012. Representation and Classification of Medicinal Plants Leaves: A Symbolic Approach. ICMCCA 2012, Springer India, 91-102.
12. H.S.Nagendraswamy and Pavan Kumar, 2012. Integrated Filter Based Approach for Image Abstraction and Stylization. Published in the proceedings of ICMCCA 2012.
13. H.S.Nagendraswamy, Naresh Y.G., and Srinivas M., 2012, Classification of Medicinal Plants using LBP: A Numerical Approximation Approach, Seventh International Conference on Image and Signal Processing (ICISP-2013), ISSN-9789351071020, pp 162-169.

14. H.S.Nagendraswamy and Naresh, 2012. Representation and Classification of Medicinal Plants: A Symbolic Approach Based on Fuzzy Inference Technique. Proceedings of the Second International Conference on Soft Computing for Problem Solving (SocProS 2012), December 28-30, Springer India, 2014.
15. Naresh, Y. G., and H. S. Nagendraswamy. "A novel Fuzzy LBP based Symbolic Representation technique for Classification of Medicinal Plants." Accepted for Publication in the 3rd IAPR Asian Conference on Pattern Recognition (**ACPR2015**).
16. B. M. Chethana Kumara, H. S. Nagendraswamy, "GIST Descriptors for Sign Language Recognition: An Approach Based on Symbolic Representation". Mining Intelligence and Knowledge Exploration. Springer International Publishing, pp-103-114, 2015.
17. B. M. Chethana Kumara, H. S. Nagendraswamy, Lekha Chinmayi, "Spatial relationship based features for Indian sign language recognition", International Conference on Futuristic Trends in Engineering and Technologies (FTET-16), May 9-10, 2016, Kaula Lumpur, Malaysia, Pages 33-39.
18. Mahdi Rabbani, Reza Khoshkangini, H. S. Nagendraswamy, Mauro Conti, "Hand drawn optical circuit recognition", Proceeding of the Seventh International Conference on Intelligent Human Computer Interaction (IHCI 2015), Vol. 84, December 2016, Pages 41-48.
19. H. S. Nagendraswamy, B. M. Chethana Kumara, R Lekha Chinmayi, "Indian Sign Language Recognition: An Approach Based on Fuzzy Symbolic Data", International Conference on Advances in Computing, Communications and Informatics 21-24 September 2016, Jaipur, India
20. Rashmi B.S. and H. S. Nagendraswamy, "Video Shot Boundary Detection using Midrange Local Binary Patterns", International Conference on Advances in Computing, Communications and Informatics, 21-24 September 2016, Jaipur, India
21. Rashmi B.S. and H. S. Nagendraswamy, "Abrupt Shot Detection in Video using Weighted Edge Information", International Conference on Information and Analytics (ICIA-16), 25<sup>th</sup> – 26<sup>th</sup> August 2016, Pondichery Engineering College, Pondichery.
22. Rashmi B.S. and H. S. Nagendraswamy, "Shot Based Keyframe Extraction using Bitwise-XOR Dissimilarity Approach", International Conference on Recent Trends in Image Processing and Pattern Recognition (RTIP2R-2016), 16<sup>th</sup> – 17<sup>th</sup> December 2016, Karnataka Arts, Science and Commerce College, Bidar, Karnataka.
23. H. S. Nagendraswamy and Syroos Zaboli, "Sign Language Recognition Using Cluster and Chunk-Based Feature Extraction and Symbolic Representation", Springer Nature Singapore Pte Ltd. 2021, CVIP 2020, CCIS 1377, pp. 13–28, 2021.

24. Syroos Zaboli<sup>1</sup>, Sergey Serov, Leonid Mestetskiy and H. S. Nagendraswamy, “Gesture Recognition in Sign Language Videos by Tracking the Position and Medial Representation of the Hand Shapes”, Springer Nature Singapore Pte Ltd. 2021, CVIP 2020, CCIS 1377, pp. 407–420, 2021.