

## **BIO – DATA of Dr. D. S. GURU**

### **CURRENTLY :**

**PROFESSOR AND CHAIRMAN, DEPT OF STUDIES IN COMPUTER SCIENCE,**

### **EARLIER :**

**MEMBER, BOARD OF MANAGEMENT, PRAVARA INSTITUTE OF MEDICAL SCIENCES (DEEMED TO BE UNIVERSITY), LONI, MAHARASHTRA (NOMINATED BY MHRD, GOVERNMENT OF INDIA)**

**SENIOR RESEARCH SCIENTIST (ON SABBATICAL) ,NYMO TECH PVT LTD (R AND D), BANGALORE**

**CHAIRMAN, DEPT OF STUDIES IN COMPUTER SCIENCE (2016-2018)**

**CHAIRMAN, ADMISSION REFORMATION AND IMPLEMENTATION COMMITTEE (2017-2019)**

**FOUNDER DIRECTOR, DIRECTORATE OF DISTANCE EDUCATION (FEB. 2018- Nov. 2019)**

**DIRECTOR, INTERNAL QUALITY ASSURANCE CELL (MAY 2018 – OCT. 2019)**

**CHAIRMAN, BOARD OF STUDIES IN COMPUTER SCIENCE (PG & UG) (2014-2017)**

**CHIEF COORDINATOR, PG ENTRANCE EXAMINATION-2016**

**AND**

**NODAL OFFICER, CBCS EDUCATION (2009-2016)**

### **ALSO :**

**FOUNDER TRUSTEE, MAHARAJA EDUCATION TRUST (R), MYSORE**

**FOUNDER PRESIDENT, SRI GURUMALLESHWARASEVA SAMITHI (R), DEVANUR**

**DEPARTMENT OF STUDIES IN COMPUTER SCIENCE,**

**UNIVERSITY OF MYSORE, MANASAGANGOTRI,**

**MYSORE - 570 006, INDIA.**

## 01. Personal details.

Name : Dr. D. S. GURU  
Father's Name : Late. D. M. Shanthabasavaiah  
& Occupation : Rtd. Head Master.  
Permanent address : Devanur 571 119  
Nanjangud Taluk  
Mysore District, INDIA.

Address for Correspondence :

(Off) Professor  
Dept. of Studies in Computer  
Science,  
University of Mysore  
Manasagangotri, 570 006  
MYSORE, INDIA.

(Res)  
# 830, VISHESHAPEKSA,  
Datttagalli 3<sup>rd</sup> Stage,  
Kanakadasa Nagar,  
Mysore 570 022  
MYSORE, INDIA.

Phone : +91-821-2419557

+91-821-2415355

Fax : +91-821-2510789

Mobile: +91-96202 28005

E-mail: [dsg@compsci.uni-mysore.ac.in](mailto:dsg@compsci.uni-mysore.ac.in),  
[dsguruji@yahoo.com](mailto:dsguruji@yahoo.com)

Date of Birth : July 27, 1970.  
Place of Birth : Devanur, Mysore District, INDIA.  
Sex : Male.  
Nationality : Indian.  
Marital Status : Married, blessed with a son and  
a daughter.

## 02. Educational Details.

### 2.1 *Professional.*

**Ph.D. (1997 - 2000)** Doctorate in Computer Science from the University of Mysore under the supervision of Prof. P. Nagabhushan

**Title: Towards accurate recognition of objects employing a partial knowledge base: Some new approaches**

(An extensive exploration of efficient TOPOLOGY and SHAPE based algorithms for 2D-object recognition by creating a partial knowledge base)

**M.Sc. - (1991-1993)** Master of Science in Computer Science from the University of Mysore.

**SECURED FIRST RANK WITH 78.25% OF MARKS.**

**Project : "SYNTHESIZER+"  
A MINIMAL RDB DESIGNER.**

(An automated software tool for the minimal Relational Data Base design with respect to a given set of integrity constraints in general, functional dependencies in particular. The designs produced are shown to be minimal. A novel idea was incorporated)

**\* Based on this project work, two technical papers were presented in student conferences and one of them was awarded a best prize.**

**B.Sc. - (1988-1991)** Bachelor of Science in Physics, Mathematics and Computer Science from the University of Mysore.

**SECURED EIGHTH RANK WITH 80.33% OF MARKS.**

## **2.2 Additional.**

- Awarded BOYSCAST fellowship by the Department of Science and Technology, Govt. of India to visit Michigan State University for advanced research for 6 months from April-2005 to Sept. 2005 as a post doctoral work.
- Awarded National Merit Scholarship during PG. Studies.
- Qualified in National Education Test (1995) accredited by UGC, which is mandatory for any faculty position in Universities.
- Awarded the best student paper presentation prize in CSI convention – 1993.

## **03. Professional Experience**

### **03.01 Regular**

- Feb. 2012- **Professor**, Dept. of Studies in Computer Science, University of Mysore, Mysore.
- Feb. 2009 – Feb. 2012 **Associate Professor**, Dept. of Studies in Computer Science, University of Mysore, Mysore.
- Feb. 2006 - Feb. 2009 **Reader** Dept. of Studies in Computer Science, University of Mysore, Mysore.
- Feb. 2001 to Jan. 2006 - **Senior scale Lecturer**, Dept. of Studies in Computer Science, University of Mysore, Mysore.

- Oct. 1996 to Jan. 2001 - **Lecturer**, Dept. of Studies in Computer Science, University of Mysore, Mysore.

### 03.02 Additional

- **Chairman**, Department of Studies in Computer Science, Manasagangotri, Mysore ( Nov. 2020 - )
- **Chairman**, Governing Council, Maharaja Institute of Technology Mysore, Belavadi, SR Patna Taluk, Mandya District (2020 - )
- **Senior Research Scientist** (on Sabbatical), Nymo Technology Pvt Ltd (R and D), Bangalore
- **Member**, Board of Management, Pravara Institute of Medical Sciences, Lony, Maharashtra (Nominated by MHRD, Govt of India) (2017 – 2020)
- **Chairman**, Department of Studies in Computer Science (April 2016 – April 2018).
- **Chairman**, Admission Reformation and Implementation Committee (2017 – 2019).
- **Founder Director**, Directorate of Distance Education, UoM (Feb. 2018 – Nov. 2019).
- **Director**, Internal Quality Assurance Cell, UoM (May 2018-Oct. 2019).
- **Visiting professor**, Huanghuai University of China, Zhumadian, China, April 2008.
- **Chief Coordinator**, PG Entrance Examination-2016, University of Mysore.
- **Chairman**, Board of Studies in Computer Science (PG and UG), University of Mysore (Oct 2014 – Oct 2017).
- **Nodal Officer**, CBCS Education, University of Mysore, Mysore (Jul. 2009 – June 2016)
- **Adjunct Professor**, International School of Information Management (ISiM), University of Mysore, Mysore (Aug. 2007 – July 2012).
- **Adjunct Assistant Professor**, Vidhyaranya Academy of Computing, Affiliated to University of Mysore, Mysore (Nov. 1995 to Oct. 1996)
- **Lecturer (Temporary)**, Dept. of Studies in Computer Science, University of Mysore, Mysore (Oct. 1993 to Sept. 1996).

## 04. Professional Recognition.

1. **Member**, State level Executive Committee, Unified University and College Management System Design, Nominated by Karnataka Government Dec. 2020.
2. **Member**, Academic Council, JSS College for Women, Saraswathipuram, Mysuru-9 for the period 2016-18, and 2020-
3. **Member**, Governing Council, JSS Institute of Speech and Hearing, Mysore, 2018-
4. **Member**, Governing Council, JSS Teacher Training College, Chamaraja Nagara, 2020-
5. **Sectional Secretary**, Information Communication Science and Technology Section, 103<sup>rd</sup> Indian Science Congress 2016 held at University of Mysore from 3<sup>rd</sup> to 7<sup>th</sup> Jan 2016.
6. **Member**, Post-Graduate Sports Council, University of Mysore (2015-2018)
7. Have been assessed by students as the top **rank 1 (best)** faculty in the department.
8. Worked as a **Subject Expert**, Karnataka Public Service Commission, Karnataka Govt 1997.
9. **Member**, Core Committee, University of Mysore in implementing the choice based credit based system for the entire university.
10. Assisted the Chairman of the Department of Studies in Computer Science in designing and implementing M.Tech in Computer Science and Technology, M.Tech in Computer Cognition Technology and 3 years M.S (integrated) in Computer Science and Technology programs in University of Mysore and also to restructure the same programs towards credit based, choice based continuous assessment patterned programs.
11. The **first permanent faculty** member in the discipline of Computer Science and Technology, University of Mysore, Mysore.
12. **Member**, Board of Appointment of regular employees, Universities outside Karnataka including Jawaharlal Nehru University, JNU Delhi and MG University, Kerala.
13. **Chairman and Member**, Board of Adjudicating Committee, Doctoral Thesis, of many universities including IIT, Mumbai, IIIT Allahabadh, Anna University, Cochin University of Science and Technology, University of Kerala, Kannur University, Mother Theresa Univeristy, PSG Tech Coimbatore, Nanded University, and many other.
14. **Visiting faculty**, Mangalore University, Mangalore (1998- 2002)
15. Worked as the **Treasurer, Vice President, Student Counselor and President** Computer Society of India, Mysore Chapter.
16. **Member**, Board of Examiners (both UG and PG), University of Mysore (many times)
17. **Chairman**, Board of Examiners (PU and UG), University of Mysore, (Many times)
18. **Member**, Board of Studies, University of Calicut, University of Mangalore, Karnataka University, Gulbarga University, Bangalore University, Bangalore Central University, Kuvempu University, JSS college for Arts, Science and

Commerce (Autonomous) (many terms), JSS college for Women (Autonomous), Yuvaraja College (autonomous), Many other autonomous colleges and Universities.

19. **Chairman and Member** (many times), Selection committee, admission to M.Sc, MCA, M.Tech and M.S, University of Mysore.
20. Have been actively involved in teaching PG programs such as M.Sc Computer Science, MCA Master of Computer Application, M.Tech in Computer Science and Technology, M.Tech in Computer Cognition and Technology and M.S (integrated).
21. **Resource person** for UGC/AICTE/ISTE orientation, refresher and short term teachers training courses at Academic colleges, Human Resource Development Centers, and engineering colleges in Mysore, Hyderabad, Trivandrum, Calicut, Bangalore, Darawar and many others.

## 05. Research Recognition

01. **Associate Editor, International Journal of Pattern Recognition, Elsevier Science, Nederland. A top journal in the field of pattern recognition.**
02. **Have been identified as a reviewer for**
  - (a) **International Journal of Pattern Recognition Letters, Elsevier.**
  - (b) **Journal of Pattern Recognition, Elsevier.**
  - (c) **Journal of Document Analysis and Recognition,**
  - (d) **Journal of Image and Vision Computing,**
  - (e) **IEEE Transactions on Neural Networks.**
  - (f) **IEEE Transactions on Patter Analysis and Machine Intellegence**
  - (g) **IEEE Transactions on systems, Man, and cybernetics**
  - (h) **IEEE transactions on Image Processing**
  - (i) **Journal of Information systems**

**Etc.,**
03. Delivered several Webinars on Machine Learning, Data Structures, Artificial Intelligence during Covid 2019 pandemic situation.
04. Delivered many talks during AICTE ATAL FDP program conducted by various institutes across India.
05. Served as an **Organizing Chair**, International Conference on Data Analytics and Learning 2018 (DAL'18), Mysore. **DAL'2018**
06. Served as a member of **Program Committee**, International Conference on Document Analysis and Recognition (DAL'18), Kyoto, Japan. **ICADAR2017**
07. Served as a **General Chair**, International Conference on Cognition and Recognition, 2016, MITMysore. **ICCR2016.**
08. Served as a member of **Program Committee**, International Conference Series - Mining Intelligence and Knowledge Exploration (MIKE), **MIKE2013 - MIKE2018.**

09. Served as a **Program Chair**, International Conference on Multimedia data Communication and Computer Applications 2012. **ICMCCA2012**.
10. Served as an **Organizing Secretary**, International Conference on Cognition and Recognition, 2011, Mysore. **ICCR2011**
11. Served as a **program chair**, International Conference on Signal and Image Processing, 2009, Mysore. **ICSIP2009**.
12. Delivered an invited talks at Marshal University, West Verginia state university, USA.
13. Delivered an invited talk at International Conference on Machine Intelligenceand Multimedia Applications (**ICCIMA - 07**), **ICCBIR'08**, **RTIP2R 2016**, **RTI2PR 2018**, **CVIP2020**, **ICCET2020**.
14. Have been working as a referee / reviewer for National and International Conferences including **ACM** and **IEEE** sponsored conferences.
15. Have been chairing sessions in National and International Conferences, **ICDAR**, **NCDAR**, **ICCIMA**, **ICVGIP** etc.
16. Recognized as a research guide to supervise candidates working towards M.Sc (Tech) by Research and Ph.D in Computer Science and Technology, University of Mysore.
17. Delivered sequence of lecturers on Research and its importance and Documentation at National workshop conducted by National Engineering College, Kovilpatti, November 17-18, 2006.
18. Served as a member of the organizing committees, National Conference on Document Image Analysis and Recognition, **NCDAR2001** and **NCDAR2003** and International Conference on Cognition & Recognition, **ICCR2005** and **ICCR2008**.
19. Worked as resource person in several Symposiums, Workshops and Short-term courses.
20. Established and have been the person in charge, Research Lab, Department of Studies in Computer Science, University of Mysore, Mysore.
21. Served as the team leader in conducting a three days workshop on image processing at Lady Doak College, Madurai, Tamil Nadu, Feb 18<sup>th</sup> – 20<sup>th</sup>, 2002.
22. Pixel Show-2004, State-level Technical Seminar on "Document Image Processing, Mainframe, Net and Embedded system", Academy of Muthayammal College of Arts and Science, Rasipuram, Tamil Nadu, 7th Feb. 2004. (Resource person).
23. Pixel Show – 2002, State-level Technical seminar on “Pattern Recognition”, Academy of Muthayammal College of Arts and Science, Rasipuram, Tamilnadu, 16<sup>th</sup> Feb. 2002 (Resource Person).
24. Organized and conducted a week workshop on ‘Hands on experience on Image Processing’ for the benefit of researchers and faculty members in and around Mysore at the Department of Studies in Computer Science, Manasagangothri, Mysore, 25<sup>th</sup> of Feb - 2<sup>nd</sup> of Mar 2002.
25. Guided a number of projects at M.Sc/ M.C.A/ M.Tech level and based on these some papers have been published.

## 06. Abroad Visit

- (a) **Michigan State University, East Lansing, MI, USA, April 2005-Sept. 2005:** Visiting researcher, Biometric group, PRIP lab
- (b) **West Virginia University, USA, Aug. 2005 (One week):** Delivered an invited talk on Eigen values for feature extraction
- (c) **Marshal University, West Verginia, USA, Sept. 2005 (One week):** Delivered an invited talk on advanced issues in Pattern Recognition and Image Processing
- (d) Visiting professor, **Huanghuai University of China, Zhumadian, China**, April 2008.
- (e) Invited speaker of the Workshop on EMERGING APPLICATIONS OF COMPUTER VISION (EACV-2011), **Russia. Moscow**, Russia, 1st–5th November 2011.

## 07. Awards Received

1. Awardee of ARP (Award for Research Publication) by Vision Group of Science and Technology, Karnataka State Government under Engineering Sciences for the year 2009 – 2010 based on research publication.
2. Recognized as “Best ethical teacher” from Rotary north. Mysore.
3. Fellow of BOYSCAST – (2004 - 2005), Dept. of Science and Technology, Ministry of Science and Technology, Govt. of India.
4. Awarded the best student paper presentation prize in CSI convention – 1993

## 08. Member of Professional / Academic bodies.

- Life member of Computer Society of India (CSI). (Membership No: 8675)  
(Served as student counselor, Vice Chairman, Teacher and Chairman of CSI Mysore Chapter)
- Life member of Indian Society for Technical Education (ISTE). (Membership No: 928)
- Life member of the Society of Statistics, Computer and Applications, New Delhi. (Membership No: LM0202, served as advisory board member and also Executive Council)
- Life member of Indian Unit of Pattern Recognition and Artificial Intelligence (IUPRAI) (Membership No: L 007).



- Life member of Indian Science Congress Association (ISCA). (Membership No: L26774)
- Has been a member of Faculty of Science & Technology, University of Mysore.

## **09. Areas of interest.**

### **09.1 Academic interest**

Discrete mathematics and Graph theory, Automata theory and Compiler design, Analysis and Design of Algorithms, Data structures, Data Base Systems, Software Engineering, Pattern Recognition, Image Processing.

### **09.2 Research Interest**

Object recognition, Feature extraction, Cluster analysis, Spatial knowledge representation, Image retrieval, Advanced data structures, Symbolic data analysis, Image segmentation, Character recognition, Document image analysis, Sign language recognition, Shape analysis, Text classification, Image/Video processing, Biometrics, Automation of Relational database design, Data Mining, Fuzzy Symbolic Databases, Precision Algorithm.

## **10. Post-Doctoral Research Activities**

1. Fuzzy-Symbolic Data Analysis for Object Recognition.
2. Design of Intelligent Fuzzy-Symbolic databases for data/image mining.
3. Classification of Symbolic Data through Symbolic Similarity and Dissimilarity Measures.
4. Design of intelligent models for Image archival and retrieval based on spatial relationship.
5. Automation of Sign language recognition and interpretation.
6. Document image analysis and recognition both printed and hand written.
7. Indexing of Biometrics.
8. Signature recognition/verification (both online and offline)
9. Face recognition and indexing
10. Video Archival and Retrieval and case study with respect to flower images and videos.
11. Text classification and text data dimensionality reduction.
12. Precision Agriculture, Tobacco leaf classification, Mango fruit classification.
13. Classification and retrieval of Vachanas in Kannada from a large corpus.
14. Classification and recognition of celebrity faces in cartoon images.

15. Recognition of children faces in real time videos.

## 11. Research Supervision

### 11.1 Ph. D

#### Awarded

1. **Mostafa Ali.** Agriculture Information System: Association Rules mining to Analyze Farmers' Complaints.
2. **Jyothi V K.** Archival and Retrieval of Flower Videos.
3. **Vinay Kumar N.** Dimensionality Reduction of Interval Valued Data.
4. **MahamadSuhil.** Representation and Classification of Text Data (Samsung Electro-Mechanics, Bangalore)
5. **ManjunathaK S.** User dependent Online signature verification system (Maharani's Science College, Mysore).
6. **Ravikumar M.** Estimation of Multiple skews in Trilingual Handwritten Document Images (Kuvempu University, Shivamogga).
7. **Sharath Kumar Y. H.** Classification and Retrieval of Flowers (MIT, Mysore)
8. **Mallikarjuna P. B.** Computer vision based solution for agricultural related problems (JSSATE College, Bengaluru).
9. **Elham D.**CARTV:Classification, Archival and Retrieval of Traffic Videos. (Iran)
10. **Nagasundara K B.**Biometric Indexing. (JSSATE College, Bengaluru).
11. **Manjunath S.** VARS:Video Archival and Retrieval System.(Samsung Electro-Mechanics, Bangalore)
12. **Harish B. S.** Classification of large textual data. (JSS S&T University, Mysore)
13. **Prakash H. N.**Analysis and understanding of handwritten signatures (RIT, Hassan).
14. **Suraj M.G.** Image processing based approaches for sign language interpretation (AIT, Chikkamagalore).
15. **H.S. Nagendraswamy.** Fuzzy symbolic approaches for representation and classification of 2D shapes. (University of Mysore)
16. **B. H. Shekar.** Intelligent algorithmic models for 3D object recognition. (Mangalore University)

17. **Bapu B. Kiranagi.** Classification of Symbolic data through symbolic similarity and dissimilarity measures (HCL Technologies, USA)
18. **Dinesh R.** POOR: Partially Occluded Object Recognition – Some new techniques. (Samsung Electro-Mechanics, Bangalore)
19. **Punitha P.** IARS: Image Archival and Retrieval systems. (IBM, Bangalore)

### **Ongoing**

20. **Sumithra R.** Study of Longitudinal Face Data of Children for Stable Face Recognition Accuracy.
21. **Annapurna H.** Writer Dependent Characteristics for Verification and Updation of Reference Offline Signatures.
22. **Prajna S.** Detection and Recognition of faces of celebrities in cartoon images.
23. Shivaprasad. D L (Completed Course work and waiting for registration).
24. Tayebah Rahmati (Completed Course work and waiting for registration).
25. Basavanna. C (Enrolled to take up course work).

## **11.2 M.Sc (Technology) by Research**

### **Awarded**

1. **Girish R.** Pattern Recognition methodologies for recognition and interpretation of a sign language.
2. **Naveen.** Representation of document images: Spatial Relationship based approaches.
3. **Siddesha S.** Image Processing and Pattern Recognition approaches for classification of pollen grains

## **12. Workshops/ Symposiums / Conferences attended.**

1. One-day seminar on Information Science and Technology, Karnataka State Higher Education Council, Bangalore on 6<sup>th</sup> Sept 2011.
2. Invited as a resource person to School on Graph algorithms and delivered a talk on “Minimum Spanning Tree” held at Karnataka University, Dharwad, March 26 – 31, 2011.
3. Delivered an invited talk in an international conference on “International Conference on Content Based Image Retrieval”, held at PES Institute of Technology, Bangalore, during July 17th-19th 2008.
4. Delivered an invited talk in a national seminar on “Recent Trends in Video Processing” held at National Engineering College, Kovilpatti, 10<sup>th</sup> June 2007
5. Delivered an invited talk in a international conference on “International Conference on Computational Intelligence and Multimedia Applications

- (ICCIMA-07)” held at MepcoShlenk Engineering College, Sivakasi, Tamilnadu, December 13-15, 2007.
6. Delivered an invited talk in a national symposium on “Intelligent Data Analytics and Pattern discovery” held at the Department of Information Technology, Bannariamman Institute of technology, Sathayamangalam, Erode DT. Tamilnadu 15-16 March 2007.
  7. Third National Conference on Advanced Image Processing and Networking. National Engineering College, Kovilpatti, March 2 – 3, 2007. (Chaired a session).
  8. National conference on Knowledge based Computing Systems and Frontier technologies. Manipal Institute of Technology, Manipal, Feb 19 – 20, 2007. (Chaired a person).
  9. International Conference on Signal & Image Processing. Hubli, India, Dec 8 – 9, 2006 (Chaired a session, also a panelist).
  10. Two days workshop on research motivation. National Engineering College, Kovilpatti, Oct 30 – 31, 2006. (Only resource person)
  11. Chaired a session in a national event PG Sangama 2006, JNNC, Shimoga, March 17 – 18, 2006.
  12. Chaired a session in a national event in innovative talent search, GSSS, Institute of Engineers and Technology for women. April 21 – 22, 2006.
  13. Delivered a lecture at the Institution of Engineers (India, Mysore Centre in collaboration with Mysore Chapter).
  14. International Conference on Cognition and Recognition, Dec 22- 23, 2005, Mysore. (Chaired a session).
  15. Cognition 2K5 A National Technical Symposium, March 12-13, 2005 at Mysore, India.
  16. Annual conference of Society of Statistics, Computer and Applications, Dec. 22-24, 2004 at Delhi (Chaired a session).
  17. Fourth Indian Conference on Computer Vision, Graphics and Image Processing ICVGIP-2004, Dec 16-18 2004 at Kolkata (Chaired a session)
  18. National Conference on Document Analysis and Recognition, Mandya, Karnataka, July 11-12, 2003. (Chaired a session)
  19. National Conference on Computers and Information Technology, Kilakarai, Tamil Nadu, - Sep. 24 - 25, 2001. (Delivered a Talk)
  20. National Conference on Document Analysis and Recognition, July 13-14, 2001, PES college of Engg, Mandya, Karnataka. (Chaired a session)
  21. National workshop on Document Analysis and Recognition. July 12<sup>th</sup> 2001, PES college of Engg, Mandya, Karnataka. (Delivered a Talk)
  22. Workshop on parameterized complexity. Conducted by the Institute of Mathematical Sciences, Chennai, 7-9 Dec. 2000.
  23. School on algorithmic techniques for hard problems. Conducted by the Institute of Mathematical Sciences, Chennai, 4-6 Dec. 2000.

24. The University Grants Commission (UGC) sponsored orientation program conducted by the Academic Staff College, University of Mysore, Mysore. 30<sup>th</sup> Oct. 2000 to 25<sup>th</sup> Nov. 2000.
25. The short term training program on advances in neural computing sponsored by AICTE and ISTE, organized by the Dept. of Computer Science, S J College of Engg, Mysore, July 2000.
26. The National Conference on Recent Trends in Advanced Computing NCRATAC-2000, Thirunelveli, India, Feb. 11-12, 2000 (presented a research paper).
27. The University Grants Commission (UGC) sponsored Refresher Course in Computer Science organised by the Department of Computer Science, Sardar Patel University, Gujarat, India, 22<sup>nd</sup> Feb 1999 to 13<sup>th</sup> Mar. 1999.
28. The International Conference on Combinatorics, Statistics, Pattern Recognition and Related areas, Mysore, India, Dec-1998 (presented a research paper).
29. The 18th International Conference on Foundations of Software Technology and Theoretical Computer Science at the Institute of Mathematical Sciences, Chennai, 17<sup>th</sup> - 19<sup>th</sup> Dec. 1998.
30. The School on Finite Model Theory at the Institute of Mathematical Sciences, Chennai, 15<sup>th</sup>-16<sup>th</sup> Dec. 1998.
31. The workshop on Molecular Computing at the Institute of Mathematical Sciences, Chennai, 14<sup>th</sup> Dec. 1998.
32. Two days workshop on Software Engineering at Regional Engineering College, Surathkal, 13<sup>th</sup> - 14<sup>th</sup> March 1998.
33. International Conference on Cognitive Systems (ICCS) at New Delhi, 12<sup>th</sup> - 15<sup>th</sup> Dec. 1997. (presented a research paper).
34. One week workshop on Symbolic and Fuzzy approaches for Data Analysis at SJCE, Mysore, 21<sup>st</sup> - 26<sup>th</sup> April 1997.
35. One week National Seminar on Complexity and Information, Frontier areas in Theoretical Computer Science at Dwanyaloka, Mysore, 1<sup>st</sup> -7<sup>th</sup> Feb. 1997.
36. Two days National Symposium on Information Technology: Impact on Education conducted by National Institute of Engineering, Mysore, 12<sup>th</sup>& 13<sup>th</sup> Dec. 1996.
37. VII Karnataka Student Convention conducted by CSI (Bangalore Chapter) in the year 1993.
38. VI Karnataka Student Convention conducted by CSI (Bangalore Chapter) in the year 1992.

### **13. Social Responsibility and Services**

01. Founder Trustee cum Treasurer, Maharaja Education Trust (R), Mysore, responsible for establishing,

- A. Maharaja Institute of Technology Mysore (MITM), Belavadi, SR Patna Taluke.
  - B. Maharaja Institute of Technology Thandavapura (MITT), Nanjangud Taluke
  - C. Agriculture Food Management Institute, Mysore.
  - D. Gopaldaswamy Independent PU college, Mysore.
  - E. Gopaldaswamy High School, Mysore.
  - F. MIT First Grade College, Mysore.
  - G. Maharaja Education Trust Academy, Mysore.
02. Founder President, Gurumalleshwara Seva Samithi (R), Devanur, responsible for organizing health camps, special programs for school children at native village.
03. Member, Heritage City Lions Club, Mysore, responsible for organizing various camps for the benefits of needy people.

## 14. Research Publications

### In International Journals

1. V. N. Manjunath Aradhya, H. T. Basavaraju, **D. S. Guru.**, Decade research on text detection in images/videos: a review. *Evol. Intell.* 14(2): 405-431 (2021)
2. H. T. Basavaraju, V. N. Manjunath Aradhya, M. S. Pavithra, **D. S. Guru**, Vikrant Bhateja, Arbitrary oriented multilingual text detection and segmentation using level set and Gaussian mixture model. *Evol. Intell.* 14(2): 881-894 (2021)
3. B. H. Lohithashva, V. N. Manjunath Aradhya, **D. S. Guru.**, Violent Video Event Detection Based on Integrated LBP and GLCM Texture Features. *Rev.d'IntelligenceArtif.* 34(2): 179-187 (2020)
4. **D. S. Guru**, K. Swarnalatha, N. Vinay Kumar, Basavaraj S. Anami: Effective Technique to Reduce the Dimension of Text Data. *Int. J. Comput. Vis. Image Process.* 10(1): 67-85 (2020)
5. V.N. Manjunath Aradhya, H.T. Basavaraju, **D.S. Guru**, A Decade Research on Text Detection in Images/Videos: A Review, *Evolutionary Intelligence (Springer)*, 2019 (Accepted, In Press). <https://doi.org/10.1007/s12065-019-00248-z>.
6. P. Shivakumara, V. Basavaraja, **D. S. Guru**, U. Pal, T. Lu, and M. Blumenstein. Discrete-Fourier Phase Statistics for Forged IMEI Number and Air Ticket Detection, *IEEE Transactions on Image Processing (Communicated)*.

7. H.T. Basavaraju, V.N. Manjunath Aradhya, **D.S. Guru**, and B.S. Harish. LoG and Structured based Arbitrary Oriented Multilingual Text Detection, International Journal of Natural Computing Research (IJNCR), **2018**.
8. **Guru D S**, MahamadSuhil, Lavanya Naryana Raju, and N Vinay Kumar. An alternative framework for univariate filter based feature selection for text categorization, Pattern Recognition Letters, Vol. 103, **2018**, pp. 23-31.
9. **Guru D S**, N Vinay Kumar and MahamadSuhil. Feature Selection of Interval Valued Data through Interval K-Means Clustering, International Journal of Computer Vision and Image Processing (IJCVIP), Vol. 7(2), **2017**, pp. 64-80.
10. **D.S. Guru**, K.S. Manjunatha, S. Manjunath, and M.T. Somashekara, Interval valued symbolic representation of writer dependent features for online signature verification, Expert Systems with Applications, Vol. 80, **2017**, pp. 232-243.
11. K.S. Manjunatha, S. Manjunath, **D.S. Guru**, and M.T. Somashekara, Online signature verification based on writer dependent features and classifiers, Pattern Recognition Letters, Vol. 80, **2016**, pp. 129-136.
12. N Vinay Kumar, Pratheek, V Vijaya Kantha, K N Govindaraju, and **Guru D S**. Features Fusion for Classification of Logos, Elsevier Procedia Computer Science, Vol. 85C, **2016**, pp.370-379.
13. Harish B S, Aruna Kumar S V, **Guru D S** and Minh Ngoc Ngo: A novel iris segmentation algorithm based on small eigenvalue analysis. SPIE 9817, pp. 1-5.
14. Nagendraswamy H S, Chethana Kumara B M, **Guru D S**, Naresh Y G: Symbolic Representation of Sign Language at Sentence Level. IJ. Image, Graphics and Signal Processing. Vol. 9, **2015**, pp. 49-60.
15. YH Sharath Kumar, **Guru D S**. Retrieval of Flower Based on Sketches. Procedia Computer Science, Vol. 46, **2015**, pp. 1577–1584
16. Y. H. Sharath Kumar, N. Vinay Kumar, and **Guru D S**: Delaunay Triangulation on Skeleton of Flowers for Classification. Procedia Computer Science, Vol. 45, **2015**, pp. 226-235.
17. R. Sumithra, MahamadSuhil, and **Guru D S**. Segmentation and Classification of Skin Lesions for Disease Diagnosis. Procedia Computer Science, Vol. 45, **2015**, pp. 76-85.
18. **Guru D S**, MahamadSuhil. A Novel Term\_Class Relevance Measure for Text Categorization. Procedia Computer Science, Vol. 45, **2015**, pp. 13-22.
19. **Guru D S**, M. Ravikumar and S. Manjunath. Multiple skew estimation in multilingual handwritten documents. International Journal of Computer Science Issues, Vol. 10, Issue 5, No 2, **2013**, pp. 1694-0784.

20. S. Manjunath, **Guru D S**, K. B. Nagasundara and M. G. Suraj. 2D2 LPI: Two directional two dimensional locality preserving indexing. *International Journal of Computer Vision and Image Processing*, Vol.3, No.2, **2013**, pp. 17 – 31.
21. Elham Dallalzadeh and **Guru D S**. Shape features of overlapping boundary for classification of moving vehicles. *International Journal of Computer Vision and Image Processing*, Vol. 3, No 1, **2013**, pp. 42-54.
22. **Guru D S**, P B Mallikarjuna, S Manjunath and M MShenoi. Machine Vision Based Classification of Tobacco Leaves for Automatic Harvesting. *Journal of Intelligent Automation and Soft Computing*, AutoSoft Publisher, **2012**, pp 577-586.
23. B S Harish, S Manjunath and **Guru D S**. Text Document Classification: An Approach based on Indexing, *International Journal of Data Mining & Knowledge Management Process (IJDKP)*, vol. 2, No. 1, **2012**, pp. 43 – 62.
24. K B Nagasundara, **Guru D S**. "Multi-algorithm based Palmprint Indexing", *International Journal on Computer Applications*, **2012**, pp. 52 – 57. (Also appeared in the proceedings of the International Conference and Workshop on Emerging Trends in Technology, Mumbai, Maharashtra, India, 2012)
25. Manjunath S and **Guru D S**. Eigen conjugation for shot boundary detection. *International Journal of Machine Intelligence*, Bioinfo Publications, Vol. 3, No. 4, **2011**, pp. 241-244.
26. **Guru D S**, Bharath Bhushan, Manjunath S and Harish B S. A novel approach for text classification based on LZW compression technique. *International Journal of Machine Intelligence*, Bioinfo Publications, Vol. 3, No. 4, **2011**, pp. 364-370.
27. Nagasundara K B, Manjunath S and **Guru D S**. Indexing of online signatures. *International Journal of Machine Intelligence*, Bioinfo Publications, Vol. 3, No. 4, **2011**, pp. 289-294.
28. Elham Dallalzadeh and **Guru D S**. Moving vehicles extraction in traffic videos. *International Journal of Machine Intelligence*, Bioinfo Publications, Vol. 3, No. 4, **2011**, pp. 236-240.
29. Mallikarjuna P B and **Guru D S**. Performance evaluation of segmentation and classification of tobacco seedling diseases. *International Journal of Machine Intelligence*, Bioinfo Publications, Vol. 3, No. 4, **2011**, pp. 204-211.
30. **Guru D S**. and Sharath Kumar Y H. Skeleton based flower classification. *International Journal of Machine Intelligence*, Bioinfo Publications, Vol. 3, No. 4, **2011**, pp. 191-198.
31. **Guru D S**, Suraj M G and Manjunath S. Fusion of covariance matrices of PCA and FLD. *Journal of Pattern Recognition Letters*, Elsevier Publishers, Vol. 32, **2011**, pp 432-440.



32. Harish B S, **Guru D S** and Manjunath S. Cluster based Text Classification: A Symbolic Approach”, *International Journal of Computer Applications*, vol. 9, no. 1, **2011**, pp. 38 – 44.
33. **Guru D S**, Nagasundara K B, Manjunath S and DineshR. An Approach for Hand Vein Representation and Indexing. *International Journal of Digital Crime and Forensics*, IGI Global Publishers, Vol.3, No. 2,**2011**, pp 1-15,
34. **Guru D S**, Sharath Y H and Manjunath S. Textural Features in Flower Classification. *Journal of Mathematical and Computer Modeling*, Vol, 34, No3-4, **2011**, pp 1030-1036.
35. Dinesh R and **Guru D S**. Concept of Triangular Spatial Relationship and BTree for Partially Occluded Object Recognition: An efficient and robust approach.*International Journal of Image and Graphics*, Vol. 10, No, 3, **2010**, pp 423 – 448.
36. Harish B S, **Guru D S** and Manjunath S. Representation and Classification of Text Documents: A Brief Review. *International Journal of Computer Applications, Special Issue on Recent Trends in Image Processing and Pattern Recognition*, **2010**, pp 110 – 119.
37. Prakash H N and **Guru D S**, Retrieval of Offline Handwritten Signatures. *International Journal of Futuristic Computer Applications*, Vol. 1, No, 18, **2010**, pp 62- 68.
38. Kiranagi B B and**Guru D S**.A New Symbolic Dissimilarity Measure for MultivaluedData Type and Novel Dissimilarity ApproximationTechniques. *International Journal of Futuristic Computer Applications*, Vol. 1, No, 26, **2010**, pp 38- 43.
39. Prakash H. N. and **Guru D S**. Offline Signature Verification an Approach Based on Score Level Fusion. *International Journal of Futuristic Computer Application*. Vol. 1, No. 18, **2010**, pp. 55-61.
40. Dinesh R and **Guru D S**. Non-parametric adaptive approach for the detection of dominant points on boundary curves based on non-symmetric region of support. *International Journal of Image and Graphics*, Vol. 9, No. 4, **2009**, pp 541 – 557.
41. Kiranagi B B, **Guru D S**. Manjunath Sand B S Harish.,MNV for Clustering based on Non Symmetric Symbolic Proximity. *International Journal of Recent Trends in Engineering*, Vol. 2, No. 1, **2009**, pp. 121-124.
42. **Guru D S** and Prakash H N. Online signature verification and recognition: An approach based on symbolic representation. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 31, No. 6, **2009**, pp 1059 - 1073.
43. Punitha P and **Guru D S**. Symbolic image indexing and retrieval by spatial similarity: An approach based on B-tree. *Journal of Pattern Recognition*, Elsevier Publishers, Vol. 41, **2008**, pp. 2068 - 2085.

44. **Guru D S** and Nagendraswamy H S., Symbolic representation of two dimensional shapes. *Journal of Pattern Recognition Letters*, Elsevier Publishers, Vol. 28, **2007**, pp 144-155.
45. Nagendraswamy H.S and **Guru D S**. A new method of representing and matching two dimensional shapes. *Journal of Image and Graphics*, World Scientific Publishing Co., Vol. 7, No. 1, **2007**, pp 377 – 405.
46. Nagendraswamy H. S and **Guru D S**. K-Mutual nearest neighbour approach for clustering two-dimensional shapes described by fuzzy-symbolic features. *International Journal of Engineering Letters: Special Issue on Soft Computing in Artificial Intelligence*, International Association of Engineers Publishers, Web and Data Mining and Machine Learning. Electronic Letters, Vol. 14, No.1, **2007**.
47. Punitha P and **Guru D S**. An effective and efficient exact match retrieval scheme for image database systems based on spatial reasoning: A logarithmic search time approach. *IEEE Transactions on Knowledge and Data Engineering*, Published by IEEE Computer Society, Vol. 18, No. 10, **2006**, pp 1368-1381.
48. Gudivada V.N, Nandigam J and **Guru D S**. A learning - centered approach to designing computer science courses. *The Journal of Computing Science in College*, Consortium for Computing Sciences in College Newsletter, Vol. 21, No. 4, **2006**, pp 96-103.
49. Nagabhushan P, **Guru D S** and Shekar B H.,  $(2D)^2$  FLD: An efficient approach for appearance based object recognition. *Journal of Neurocomputing*, Elsevier Publishers, Vol. 69. No.7-9, **2006**, pp 934-940.
50. Nagabhushan P, **Guru D S** and Shekar B H., Visual Learning and Recognition of 3D Objects Using Two Dimensional Principal Component Analysis: A Robust and an Efficient Approach, *Journal of Pattern Recognition*, Elsevier Publishers, Vol. 39. No.4, **2006**, pp 721-725.
51. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Sliding window based approach for document image mosaicing. *Journal of Image and Vision Computing*, Elsevier Publishers, Vol. 24. No.1, **2006**, pp 94-100.
52. Dinesh R and **Guru D S**, POOR: Partially Occluded Object Recognizer. *GESTS International Transaction Journal on Computer Science and Engineering*, Published by Global Engineering, Science, and Technology Society, Vol. 17. No. 1, 2005, pp 2214-2223.
53. Punitha P and **Guru D S**. An invariant scheme for exact match retrieval of symbolic images: Triangular spatial relationship based approach. *Pattern Recognition Letters*, Elsevier Publishers, Vol.26, No. 7, **2005**, pp 893-907.
54. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., A novel technique for estimation of skew in binary text document images based on linear regression

- analysis. *Journal of Sadhana*, Published by the Indian Academic Science, Vol. 30, Part 1, **2005**, pp 69-85.
55. **Guru D S** and Kiranagi B B., Multivalued type dissimilarity measure and concept of mutual dissimilarity value for clustering symbolic patterns. *Journal of Pattern Recognition*, Elsevier Publishers, Vol. 38, No. 1, **2005**, pp 151-156.
  56. **Guru D S**, Kiranagi B B and Nagabhushan P., Multivalued type proximity measure and concept of mutual similarity value useful for clustering symbolic patterns. *Journal of Pattern recognition Letters*, Elsevier Publishers, Vol. 25, No. 10, **2004**, pp 1203-1213.
  57. **Guru D S** and Punitha P., An invariant scheme for exact match retrieval of symbolic images based upon principal component analysis. *Journal of Pattern recognition Letters*, Elsevier Publishers, Vol. 25, No. 1, **2004**, pp 73-86.
  58. **Guru D S**, Shekar B H and Nagabhushan P., A simple and robust line detection algorithm based on small eigen value analysis. *Journal of Pattern Recognition Letters*, Elsevier Publishers, Vol. 25, No. 1, **2004**, pp 1-13.
  59. **Guru D S** and Dinesh R., Non-parametric adaptive region of support useful for corner detection: a novel approach. *Journal of Pattern Recognition*, Elsevier Publishers, Vol. 37, **2004**, pp 165-168.
  60. Hemantha Kumar G, Shivakumara P, **Guru D S** and Nagabhushan P., Document image mosaicing: a novel approach. *Journal of Sadhana*, Published by the Indian Academic Science, Vol. 29(3), **2004**, pp 329-341.
  61. **Guru D S**, Punitha P and Nagabhushan P., Archival and retrieval of symbolic images: an invariant scheme based on triangular spatial relationship. *Journal of Pattern Recognition Letters*, Elsevier Publishers, Vol. 24, No. 14, **2003**, pp 2397-2408.
  62. **Guru D S** and Nagabhushan P., Triangular spatial relationship: a new approach for spatial knowledge representation. *Journal of Pattern Recognition Letters*, Elsevier Publishers, Vol. 22, **2001**, pp 999-1006.
  63. Nagabhushan P and **Guru D S**. Incremental circle transform and eigen value analysis for object recognition: an integrated approach. *Journal of Pattern Recognition Letters*, Elsevier Publishers, Vol. 21, **2000**, pp 989-998.

### **In National Journals**

64. **Guru D S**, Nagabhushan P and Shekar B H., Dominant lines perceptual organization and eigenvalue analysis: An integrated approach for 3D object recognition. *Indian Journal of Systems, Cybernetics and Informatics*, Published by International Institute of Informatics and Cybernetics, **2005**.

65. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Ring project based approach for document image mosaicing. *Journal of CSI*. Published by Computer Society of India, Vol. 35, No. 3, Sept-**2005**, pp 8-17.
66. Punitha P and **Guru D S**. A dissimilarity measure based spatial similarity retrieval of symbolic images: A novel approach to handle multiple instances of iconic objects. *Journal of Society of Statistics, Computer and Applications*, Published by Wiley Interscience, Vol.3, Nos. 1 & 2, (New series) **2005**, pp 117-132.
67. Shivakumara P, Hemantha Kumar G, **Guru D S**, and Nagabhushan P., Skew detection in binary document images based on boundary growing approach. *Journal of CSI*. Published by Computer Society of India, Vol. 34, No. 2, **2004**, pp 50-56.
68. **Guru D S** and Dinesh R., Eigen value based polygon approximation useful for area estimation. *Journal of the Society of Statistics, Computer and Applications*, Published by Wiley Interscience, Vol.2, Nos. 1, (New series), **2004**, pp 91-100.
69. Kiranagi B B and **Guru D S**, A novel similarity measure and the concept of mutual similarity value for clustering interval valued featured objects. *Journal of Society of Statistics, Computer and Applications*, Published by Wiley Interscience, Vol.2, No.2, (New series), Jan 17-19, **2004**, pp 19 -31.
70. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Statistical methodology for skew detection in binary text document images for document image mosaicing. *Journal of the Society of Statistics, Computer and Applications*, Published by Wiley Interscience, Vol.1, No. 1 and 2 (New series), **2003**, pp 81-90.
71. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Skew detection in binary text document images based on statistical analysis useful for document image mosaicing. *Journal of Society of Statistics, Computer and Applications*, Published by Wiley Interscience Vol.1, No. 1 (New series), **2003**, pp 12.
72. **Guru D S**, Raghavendra H.J and Suraj M.G., An adaptive binary search based sorting by insertion: an efficient and simple algorithm. *Journal of statistics, computer and application*, Published by Wiley Interscience, Vol. 2, No. 1 and 2, **2000**, pp 85-96.

### **In International Proceedings**

73. B.H. Lohithashva, V.N. Manjunath Aradhya, **D.S. Guru**, Violent Event Detection: An approach using GHOG-GIST descriptor, Proceedings of Advances in Automation, Signal Processing, Instrumentation, and Control (Springer), 27-28 Feb, 2020, VIT, Vellore, India.
74. R. Sumithra, **D. S. Guru**, V. N. Manjunath Aradhya, Anitha Raghavendra: Face Verification Using Single Sample in Adolescence. CVIP (2) 2020: 354-366

75. H. Annapurna, K. S. Manjunatha, **D. S. Guru**: Clustering of Writers and Cluster Dependent Classifier Selection for Offline Signature Verification. CVIP (1) 2020: 407-419
76. R. Sumithra, N. Vinay Kumar, **D. S. Guru**: Detection of A Stable Age in Children for Face Recognition Application. FICTA (1) 2020: 619-631
77. Anitha Raghavendra, **D. S. Guru**, Mahesh K. Rao: An Automatic Predictive Model for Sorting of Artificially and Naturally Ripened Mangoes. FICTA (1) 2020: 633-646
78. N. Vinay Kumar, K. Swarnalatha, **D. S. Guru**, Basavaraj S. Anami: Interval-Valued Feature Selection for Classification of Text Documents. ISDA 2020: 1028-1038.
79. P. Shivakumara, U. Pal, M. Blumenstein, T. Lu, **D. S. Guru**, and G. Hemantha Kumar. Forged Handwritten Document and IMEI Number Images Detection, International Conference on Recent Trends in Advance Computing, 2018.
80. V. Basavaraja, Palaiahnakote Shivakumara, **D. S. Guru**, Umapada Pal, Tong Lu, Michael Blumenstein, Age Estimation using Disconnectedness Features in Handwriting. ICDAR 2019: pp 1131-1136.
81. Chandra Sekhar Vorugunti, Prerana Mukherjee, **Devanur S. Guru**, Viswanath Pulabaigari. Online Signature Verification Based on Writer Specific Feature Selection and Fuzzy Similarity Measure. CVPR Workshops, 2019, pp 88-95.
82. Chandra Sekhar Vorugunti, **Devanur S. Guru**, Viswanath Pulabaigari., 2019. An Efficient Online Signature Verification Based on Feature Fusion and Interval Valued Representation of Writer Specific Features. ISBA, 2019, pp 1-9.
83. Chandra Sekhar Vorugunti, Prerana Mukherjee, **Devanur S. Guru**, Viswanath Pulabaigari, 2019. OSVNet: Convolutional Siamese Network for Writer Independent Online Signature Verification. CoRR abs., 2019, pp 1904.00240.
84. Chandra Sekhar Vorugunti, Prerana Mukherjee, **Devanur S. Guru**, Viswanath Pulabaigari. Online Signature Verification Based on Writer Specific Feature Selection and Fuzzy Similarity Measure. CoRR abs, 2019, pp 1905.08574.
85. H.T. Basavaraju, V.N. Manjunath Aradhya, **D.S. Guru**, Neighborhood Pixel Based Approach for Arbitrary Oriented Multilingual Text Localization, ISTAWorkshop on Computational Intelligence Systems and Applications, (CISA 2019), 18-21 December 2019, Trivandrum, India.
86. K S Manjunatha, H Annapurna and **D S Guru**. Offline Signature Verification: An approach based on user-dependant features and classifiers. Lecture Notes in Networks and Systmes, Springer LNNS 43, 2019, pp 235-244.
87. **D. S. Guru**, V. K. Jyothi, Y. H. Sharath Kumar, 2018, Features Fusion for Retrieval of Flower Videos, Proceedings of DAL18, LNNS 43, 2019, pp.221-234.

88. **D. S. Guru**, Mostafa Ali, MahamadSuhil. A Study of Applying different Term Weighting schemes on Arabic Text Classification. Lecture Notes in Networks and Systems, Springer LNNS 43, 2019, pp 293-305.
89. V. K. Jyothi, **D. S. Guru**, Y. H. Sharath Kumar, 2018, Deep Learning for Retrieval of Natural Flower Videos, Elsevier Procedia Computer Science:132, pp.1533-1542.
90. **D. S. Guru**, Mostafa Ali, MahamadSuhil. A Novel Feature Selection Technique for Text Classification. Advances in Intelligent Systems and Computing, Springer 813, 2018, pp 721-733.
91. **D. S. Guru**, Mostafa Ali, MahamadSuhil. A Novel Term Weighting Scheme and an Approach for Classification of Agricultural Arabic Text Complaints. ASAR, 2018, pp 24-28.
92. VijetaKhare, PalaiahnakoteShivakumara, B. J. Navya, G. C. Swetha, **D. S. Guru**, Umapada Pal, Tong Lu. Weighted-Gradient Features for Handwritten Line Segmentation. ICPR, 2018, pp 3651-3656.
93. **D. S. Guru**, N. Vinay Kumar. Interval Chi-Square Score (ICSS): Feature Selection of Interval Valued Data. ISDA (2), 2018, pp 686-698.
94. V. K. Jyothi, **D. S. Guru**, Y. H. Sharath Kumar. Classification of Natural Flower Videos Through Sequential Keyframe Selection Using SIFT and DCNN. RTIP2R (1), 2018, pp 305-318.
95. H.T. Basavaraju, V.N. Manjunath Aradhya, **D.S. Guru**, Text Detection Through Hidden Markov Random Field and EM - algorithm, 5th International Conference on Information System Design and Intelligent Applications, 19-21 July, 2018, Mauritius, pp. 19-29.
96. Maryam AsadzadehKaljahi, P. V. Vidya Varshini, PalaiahnakoteShivakumara, Umapada Pal, Tong Lu, **Devanur S. Guru**. Word-Wise Handwriting Based Gender Identification Using Multi-Gabor Response Fusion. DAR@ICVGIP, 2018, pp 119-132.
97. Chandra Sekhar Vorugunti, **Devanur S. Guru**, Viswanath Pulabaigari. A Secure and Light Weight User Authentication System Based on Online Signature Verification for Resource Constrained Mobile Networks. DAR@ICVGIP, 2018, pp 133-140
98. B. J. Navya, G. C. Swetha, P. Shivakumara, S. Roy, **D. S. Guru**, U. Pal, and T. Lu. Multi-Gradient Directional Features for Gender Identification, IAPR International Conference on Pattern Recognition, 2018, pp. 3657-3562.
99. P. Shivakumara, V. Basavaraja, Harsha S. Gowda, **D. S. Guru**, U. Pal, and T. Lu. A New RGB based Fusion for Forged IMEI Number Detection in Mobile Images, IAPR International Conference on Frontiers in Handwriting Recognition, 2018, pp. 386-391.

100. B. J. Navya, P. Shivakumara, G. C. Swetha, S. Roy, **D. S. Guru**, U. Pal, and T. Lu. Adaptive Multi-Gradient Kernels for Handwriting based Gender Identification, IAPR International Conference on Frontiers in Handwriting Recognition, 2018, pp. 392-397.
101. **D S Guru**, Jyothi V K and Y H Sharath Kumar, Cluster based approaches for keyframe selection in natural flower videos, 17th International Conference on Intelligent Systems Design and Applications, ISDA 2017, 14th – 16th, Dec. 2017, Springer AISC , Vol. 736, pp. 474-484.
102. **D S Guru**, MahamadSuhil, Pavithra S K, and Priya G R, Ensemble of feature selection methods for text classification: An analytical study, 17th International Conference on Intelligent Systems Design and Applications, ISDA 2017, 14th – 16th, Dec. 2017, Springer AISC , Vol. 736, pp. 337-349.
103. **D S Guru**, N Vinay Kumar, K N Mahalakshmi Gupta, S D Nandini, H N Rajini and G Namratha Urs. An Hierarchical Framework for Classroom Events Classification. 17th International Conference on Intelligent Systems Design and Applications, ISDA 2017, 14th – 16th, Dec. 2017, Springer AISC , Vol. 736, pp. 166-179.
104. **D S Guru** and N Vinay Kumar. Interval valued feature selection for classification of logo images. 17th International Conference on Intelligent Systems Design and Applications, ISDA 2017, 14th – 16th, Dec. 2017, Springer AISC, Vol. 736, pp. 154-165.
105. K S Manjunatha, **D S Guru** and H Annapurna, Interval-valued Writer-Dependent Global Features for Off-line Signature Verification, Proceedings of 5th International Conference on Mining Intelligence and Knowledge Exploration, 13th – 15th, Dec. 2017, Springer LNAI, Vol. 10682, pp. 133-143.
106. N Vinay Kumar and **D S Guru**. A novel feature ranking criterion for supervised interval valued feature selection for classification. Proceedings of 14th IAPR International Conference on Document Analysis and Recognition, ICDAR WML-2017, IEEE CPS, pp 71-76.
107. MahamadSuhil, L Manju Sharma, Lavanya Narayana Raju, and **D S Guru**. Ensembling of feature selection methods and their parallel implementation for text classification, Proceedings of International Conference on Signal and Image Processing 2017.
108. Mostafa Ali, MahamadSuhil and **D S Guru**. Classifying Farmers' Complaints Based on Crops and Diseases using Machine Learning Approaches, Proceedings of International Conference on Signal and Image Processing 2017.
109. V K Jyothi, Y H Sharath Kumar and **D S Guru**, Sequential approach for keyframe selection in natural flower videos, Proceedings of International Conference on Signal and Image Processing 2017.
110. H.T. Basavaraju, V.N. Manjunath Aradhya, and **D.S. Guru**, A Novel Arbitrary Oriented Multilingual Text Detection in Images/Video, 6th International Conference on Frontiers

- of Intelligent Computing: Theory and Applications (FICTA), 2017, Springer AISC, pp. 519-529.
111. K S Manjunatha, S Manjunath, **D S Guru**, Writer Specific Parameters for Online Signature Verification, Proceedings of the 5th International Conference on Frontiers in Intelligent Computing: Theory and Applications, 2017, Springer AISC, pp. 407-416.
  112. **Guru D S** and N Vinay Kumar. Class Specific Feature Selection for Interval Valued Data through Interval K-Means Clustering, RTIP2R 2016, Springer CCIS 709, pp. 228–239, 2017.
  113. Harsha S Gowda, MahamadSuhil, **D S Guru** and Lavanya Narayana Raju. Semi-Supervised Text Categorization using Recursive K-means clustering. RTIP2R 2016, Springer CCIS 709, pp. 217–227, 2017.
  114. Lavanya Narayana Raju, MahamadSuhil, **D S Guru** and Harsha S Gowda (2016). Cluster Based Symbolic Representation for Skewed Text Categorization, RTIP2R 2016, Springer CCIS 709, pp. 202–216, 2017.
  115. MahamadSuhil, **Guru D S**, Lavanya Narayana Raju, and Harsha S Gowda. Simple yet Effective Classification Model for Skewed Text Categorization. International Conference on Advances in Computing, Communications and Informatics, pp. 909-915, 2016.
  116. **D S Guru**, MahamadSuhil, Harsha S Gowda and Lavanya Narayana Raju. Detection of a New Class in a Huge Corpus of Text Documents through Semi-Supervised Learning. International Conference on Advances in Computing, Communications and Informatics, pp. 508-513, 2016.
  117. **Guru D S** and MahamadSuhil. Term-Class-Max-Support (TCMS): A Simple Text Document Categorization Approach Using Term-Class Relevance Measure. International Conference on Advances in Computing, Communications and Informatics, pp. 1058-1061, 2016.
  118. **Guru D S** and N Vinay Kumar. Novel Feature Ranking Criteria for Interval Valued Feature Selection. Proc. of International Conference on Advances in Computing, Communications and Informatics, pp. 149-155, 2016.
  119. **Guru D S** and N Vinay Kumar. Symbolic Representation and Classification of Logos. International Conference on Computer Vision and Image Processing (CVIP), Springer AISC, Vol. 459, Chap. 50, 2016.
  120. M. Ravikumar, **Guru D S**, S. Manjunath, V.N. Manjunath Aradhya, Script based trilingual handwritten word level multiple skew estimation, Third international conference on Information System design and Intelligent Applications (INDIA 2016), Springer AISC
  121. S. Manjunath, K. S. Manjunatha, **Guru D S** and M.T. Somashekara, Cluster dependent classifiers for online signature verification, Third International conference on Mining



- Intelligence and Knowledge exploration (MIKE 2015), Springer LNAI 9468, pp. 58-69,2015.
122. **Guru D S**, MahamadSuhil, M. Ravikumar and S. Manjunath. Small Eigenvalue based Skew Estimation of Handwritten Devanagari Words. Third International conference on Mining Intelligence and Knowledge exploration (MIKE 2015), Springer LNAI 9468, pp. 216-225, 2015.
  123. M Ravikumar, S Manjunath, **Guru D S**. Analysis and Automation of Handwritten Word Level Script Recognition, International Joint Conference CISIS'15 and ICEUTE'15, Advances in Intelligent Systems and Computing, Springer. Vol. 369, 2015, pp. 213-225.
  124. S V Aruna Kumar, B S Harish, **Guru D S**. Segmenting MRI brain images using evolutionary computation technique. CCIP – 2015, IEEE, 2015, pp. 1 – 6.
  125. P. Shivakumara, N. VinayKumar, **Guru D S**, C.L.Tan: Separation of Graphics (Superimposed) and Scene Text in Video Frames. Document Analysis Systems, IEEE, 2014, pp. 344-348.
  126. P. Shivakumara, MahamadSuhil, **Guru D S**, Chew Lim Tan: A New Laplacian Method for Arbitrarily-Oriented Word Segmentation in Video. Document Analysis Systems, IEEE, 2014, pp. 339-343.
  127. Elham Dallalzadeh, **Guru D S**. Content\_based classification of traffic videos using symbolic features. ICACCI 2014, IEEE, 2014, pp. 288-294.
  128. Elham Dallalzadehand **Guru D S**. Archival and Retrieval of Traffic Video Shots: an Approach Using TTSR. Proceedings of the First National Conference on Computer, Information Technology and Communications (CCITC-2014), 2014, pp. 494-502.
  129. Y H Sharath Kumar, **Guru D S**. Whorl based Approach for Flower Segmentation, International Conference on Advance Computing, Communications, and Information Science, 2014, June 26-28.
  130. **D.S. Guru** and V.N. Manjunath Aradhya, Indexing Large Class Handwritten Character Database, 2nd International Symposium on Intelligent Informatics (ISI), Springer, 2013, pp. 227-234.
  131. Y. H. Sharath Kumar, **Guru D S**. Classification of Flowers: A Symbolic Approach. Proc. of Int. Conf. on Multimedia Processing, Communication and Info. Tech., MPCIT, 2013, pp. 216:222.
  132. S. Manjunath, **Guru D S**, M. Ravikumar: Handwritten Script Identification: Fusion based Approaches. Proc. of Int. Conf. on Multimedia Processing, Communication and Info. Tech., MPCIT, 2013, pp. 228:235.

133. **Guru D S** and MahamadSuhil.: Histogram based split and merge framework for shot boundary detection. In: Proc. First International Conference, MIKE 2013, Springer - LNAI Vol. 8284, 2013, pp. 180-191.
134. **Guru D S** and H. G. Shivamurthy.: Segmentation of mango region from mango tree image. In: Proc. First International Conference, MIKE 2013, Springer - LNAI Vol. 8284, 2013, pp. 201-211.
135. **Guru D S**, Manjunatha K. S and Manjunath S.: Online signature verification based on recursive subset training. In: Proc. First International Conference, MIKE 2013, Springer - LNAI Vol. 8284, 2013, pp. 350-361.
136. Elham Dallalzadeh, **Guru D S** and B.S. Harish.: Symbolic classification of traffic video shots. In: Proc. Third International Conference on Computational Science, Engineering and Information Technology, Springer, Vol. 225, 2013, pp. 11 – 22.
137. P. Shivakumara, H. T. Basavaraju, **Guru D S** and C. L. Tan.: Detection of curved text in video: quad tree based method. 12th International Conference on Document Analysis and Recognition, ICDAR 2013, 2013, pp. 25-28.
138. **Guru D S**, Y H Sharath Kumar, M. T. Krishnaveni. Sketch Based Flower Detection and Tracking, Multimedia Processing, Communication and Computing Applications, Lecture Notes in Electrical Engineering Volume 213, LNEE-213, 2013, pp. 309-320.
139. **Guru D S**, K S Manjunatha, S Manjunath. User Dependent Features in Online Signature Verification, Multimedia Processing, Communication and Computing Applications, Lecture Notes in Electrical Engineering Volume 213, LNEE-213, 2013, pp. 229-240.
140. **Guru D S**, MahamadSuhil, P Lolika. A Novel Approach for Shot boundary Detection in Videos, Multimedia Processing, Communication and Computing Applications, Lecture Notes in Electrical Engineering Volume 213, LNEE-213, 2013, pp. 209-220, 2013
141. **Guru D S**, S Siddesha, S Manjunath. Texture in Classification of Pollen Grain Images, Multimedia Processing, Communication and Computing Applications, Lecture Notes in Electrical Engineering Volume 213, LNEE-213, 2013, pp. 77-89.
142. P Shivakumara, **Guru D S**, H T Basavaraju. Color and Gradient Features for Text segmentation from Video frames, Multimedia Processing, Communication and Computing Applications, Lecture Notes in Electrical Engineering Volume 213, LNEE-213, 2013, pp. 267-278.
143. Nagasundara K B, **Guru D S** and Manjunath S. Feature selection and Indexing of Online Signatures. Proceedings of 12th International Conference on Hybrid Intelligent Systems. 2012, pp. 408-414.

144. Nagasundara K B, Manjunath S, **Guru D S**, “Multimodal Biometric System Based on Hand geometry, Palmprint and Signature”, ACM Compute 2012, Pune, Maharashtra, India, 2012.
145. **Guru D S**, Dallalzadeh Elham, and Manjunath S. A Symbolic Approach for Classification of Moving Vehicles in Traffic Videos, 2012. Proceedings of the First International Conference on Pattern Recognition Applications and Methods (ICPRAM2012), February 6th--8th, Vilamoura, Algarve, Portugal, 2012, pp. 351-356.
146. Dallalzadeh Elham, **Guru D S**, Manjunath S and Suraj M G. Classification of Moving Vehicles in Traffic Videos, 2012. Proceedings of the Second International Conference on Computer Science and Information Technology (CCSIT 2012), LNICST, Vol. 85, No. 2, January 2nd--4th, Bangalore, India, 2012, pp. 211-221.
147. B.S. Harish, **Guru D S** and Manjunath S. Classification of Text Documents Using B-Tree, 2012. Proceedings of the Second International Conference on Computer Science and Information Technology (CCSIT 2012), LNICST, Vol. 85, No. 2, January 2nd--4th, Bangalore, India, 2012, pp. 627-636.
148. Mallikarjuna P B and **Guru D S** Performance Evaluation of Segmentation of Frog-eye Spot Lesions on Tobacco Seedling Leaves. The Second International Conference on Computer Science and Information Technology (CCSIT- 2012), Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering series, Bangalore, India, January 2-4, vol. 85, 2012, pp. 444- 453.
149. K. B. Nagasundara, S. Manjunath, **Guru D S**. Multi-algorithmic Approach for Palmprint Identification. International workshop on Emerging Applications on Computer Vision, 2011, pp. 21 – 28, Moscow (Russia).
150. **Guru D S**, P. B. Mallikarjuna. Classification of Tobacco Leaves for Automatic Harvesting: An Approach Based on Feature Level Fusion and SBS Method. International workshop on Emerging Applications on Computer Vision, 2011. pp. 102 –109, Moscow (Russia).
151. **Guru D S**, Y. H. Sharath Kumar. Fusion Based Flower Classification System. International workshop on Emerging Applications on Computer Vision, 2011. pp. 110 – 122, Moscow (Russia).
152. **Guru D S**, S. Manjunatha, P. Punitha. Spatial Data Structures for Image Databases. International workshop on Emerging Applications on Computer Vision, 2011. pp. 130 – 140, Moscow (Russia).
153. B. S. Harish, **Guru D S**, S. Manjunath, Bapu B. Kiranagi, Symbolic Similarity and Symbolic Feature Selection for Text Classification. International workshop on Emerging Applications on Computer Vision, 2011. pp. 141 –146, Moscow (Russia).

154. **Guru D S**, Elham Dallalzadeh. Detection and Classification of Moving Vehicles in Traffic Videos. International workshop on Emerging Applications on Computer Vision, 2011. pp. 184 –200, Moscow (Russia).
155. **Guru D S**, K B Nagasundara, S Manjunath, “Indexing of Offline Signatures”, Fifth Indian International Conference on Artificial Intelligence, IICAI 2011, pp. 47 – 57, Tumkur, Karnataka, India.
156. Dallalzadeh Elham, **Guru D S**, Manjunath S and Suraj M G. Corner-Based Tracking of Moving Vehicles in Traffic Videos. Fifth Indian International Conference on Artificial Intelligence, 2011, IICAI 2011, pp. 956-969.
157. **Guru D S**, Y H Sharath Kumar, S Manjunath. Classification of flowers based on whorl region. 5th Indian International Conference on Artificial Intelligence (IICAI-11), Springer publication, Tumukur, India, Dec 14-16, 2011, pp 1070-1088.
158. **Guru D S**, P B Mallikarjuna and S Manjunath, Grading of Cured Tobacco Leaves: An Approach Based on Inter-valued data. 5th Indian International Conference on Artificial Intelligence (IICAI-11), Springer publication, Tumukur, India, Dec 14-16, 2011, pp 167-177.
159. Nagasundara K B, **Guru D S**, S Manjunath. Kd-tree based Palmprint Indexing, Second International Conference on Computational Vision and Robotics (ICCV-2011), Aug. 14-15, 2011 pp. 51 – 55, Bhubaneswar, Orissa, India.
160. **Guru D S** and Mallikarjuna P B. Fusion of Texture Features and Sequential Forward selection method for Classification of Tobacco Leaves for Automatic Harvesting. In proceedings of second International conference on Computational Vision and Robotics, (ICCV-2011) Bhubaneshwar, India, August 14-15, 2011, pp. 168-172.
161. Manjunath S, **Guru D S**, Suraj M G and Harish B S., A Non Parametric shot boundary detection: An eigen gap approach. Proceedings of Fourth Annual ACM Compute, 2011, March 25 – 26, Bangalore, India, 2011.
162. **Guru D S**, Mallikarjuna P B and Manjunath S., Segmentation and Classification of Tobacco Seedling Diseases. Proceedings of Fourth Annual ACM Bangalore Conference (ACM Compute 2011), Bangalore, India, Mar 25-26, 2011.
163. Harish B S, **Guru D S** and Manjunath S., Dissimilarity Based Feature Selection for Text Classification: A Cluster Based Approach. proceedings of ACM International Conference and Workshop on Emerging Trends and Technology, Feb 25 -26, Mumbai, India, 2011.
164. **Guru D S**, Mallikarjuna P B, Manjunath S and Sheno M M., Grading of Cured Tobacco Leaves: An Approach Based on Symbolic Representation. Proceedings of 13th Annual Conference of Society of Statistics, Computer and Applications, NAARM, Hyderabad, India, February 24-26, 2011.

165. Harish B S, **Guru D S** and Manjunath S. A Symbolic Approach for Text Classification Based on Dissimilarity Measure. Proceedings of First ACM Intelligent Interactive Technologies and Multimedia, Allahabad, Uttar Pradesh, India, pp 106 - 109, 2010.
166. **Guru D S**, Nagasundara K B and Manjunath S. Feature Level Fusion of Multi-instance Finger Knuckle Print for Person Identification. Proceedings of First ACM Intelligent Interactive Technologies and Multimedia, Allahabad, Uttar Pradesh, India, 2010, pp 183–186.
167. Elham D and **Guru D S**, Feature-Based Tracking Approach for Detection of Moving Vehicles in Traffic Videos. Proceedings of First ACM Intelligent Interactive Technologies and Multimedia, Allahabad, Uttar Pradesh, India, 2010, pp 256 - 262.
168. **Guru D S** and Mallikarjuna P B., Spots and Color Based Ripeness Evaluation of Tobacco Leaves for Automatic Harvesting. Proceedings of First ACM Intelligent Interactive Technologies and Multimedia, Allahabad, Uttar Pradesh, India, 2010, pp 193-196.
169. **Guru D S**, Sharath Y H and Manjunath S., Whorl Identification in Flower: A Gabor based Approach. Proceedings of First ACM Intelligent Interactive Technologies and Multimedia, Allahabad, Uttar Pradesh, India, 2010, pp 170-176.
170. **Guru D S**, Mallikarjuna P B, Manjunath S and Shenoi M M., Machine Vision Based Classification of Tobacco Leaves for Automatic Harvesting. Proceedings of Fourth International conference on Computer and Computing Technologies in Agriculture, Nanchang, China, October, 2010 22-25.
171. Harish B S, **Guru D S**, Manjunath S, Dinesh R., Cluster Based Symbolic Representation and Feature Selection for Text Classification. Proceedings of Advanced Data Mining and Applications, Vol. 2, 2010, pp. 158-166.
172. **Guru D S**, B. Vijaya Kumari and S. K. Lathamba., Automatic Incorporation of Corrections into Reviewed Documents, Information Processing and Management. Proceedings of the International Conference on Recent Trends in Business Administration and Information Processing, BAIP, Trivandrum, Kerala, India, March 26-27, 2010, pp 446-451.
173. **Guru D S**, Manjunath S and Kiranagi B B., SVARS: Symbolic Video Archival and Retrieval System. ACM Compute 2010, Bangalore, January 21-22, 2010.
174. **Guru D S**, B S Harish and S Manjunath., Symbolic Representation for Text Documents. ACM Compute 2010, Bangalore, January 21-22, 2010.
175. Elham D and **Guru D S**, Identification of Moving Vehicles in Traffic Videos. Proceedings of First International Multi-disciplinary Conference on Current Research Trends- Mysore, India, 2009, pp. 224 – 229.

176. Manjunath S, **Guru D. S**, Suraj M. G, and Dinesh R, 2D-LPI: Two Dimensional Locality Preserving Indexing. Proceedings of 3rd International Conference on Pattern Analysis and Machine Intelligence, Delhi, India, 19-24, December 16-20, 2009, pp 19 – 24.
177. Dinesh R, Harish B S, **Guru D S** and Manjunath S., Concept of status matrix in classification of text documents. Proceedings of Indian International Conference on Artificial Intelligence, December 16-18, Tumkur, 2009, pp 2071 – 2079.
178. **Guru D S**, Manjunath S and Punitha P, Topological triangular spatial relationship. Proceedings of Indian International Conference on Artificial Intelligence, December 16-18, Tumkur, 2009, pp 1873 – 1886.
179. Prakash H. N, and **Guru D S**, Bi-Interval valued symbolic feature vector for offline signature verification: A fusion based approach. Proceedings of Indian International Conference on Artificial Intelligence, December 16-18, Tumkur, pp 1887 – 1990, 2009.
180. Kiranagi B B, and **Guru D S**, Symbolic similarity and dissimilarity for clustering: A hybrid measure. Proceedings of Indian International Conference on Artificial Intelligence, December 16-18, Tumkur, 2009, pp 433 – 441.
181. Kiranagi B B, Harish B S, Manjunath S and **Guru D S**, New symbolic proximity approximation techniques and clustering algorithms. Proceedings of International Conference on Signal and Image Processing (ICSIP), Mysore, pp 363-366, August 12 - 14, 2009.
182. **Guru D S**, Harish B S and Manjunath S., Clustering textual data: A brief survey. Proceedings of International Conference on Signal and Image Processing (ICSIP), Mysore, pp 409 – 413, August 12 -14, 2009.
183. **Guru D S**, Nagasundara K B, Manjunath S, Nagendraswamy H.S, An Eigen Value based Approach for Hand Vein Representation & Retrieval. Proceedings of International Conference on Signal and Image Processing (ICSIP), Mysore, pp 562 - 565, August 12 - 14, 2009.
184. Prakash H N and **Guru D S**, Handwritten signature verification: A brief survey. Proceedings of International Conference on Signal and Image Processing (ICSIP), Mysore, pp 549 - 556, August 12 -14, 2009.
185. Prakash H N and **Guru D S**, Geometric Centroids and their Relative Distances for Off-line Signature Verification. Proceedings of Tenth International Conference on Document Analysis and Recognition (ICDAR-09), Spain, July 2009, pp. 121 – 125.
186. Prakash H N and **Guru D S**, Relative orientations of geometric centroids for offline signature verification. Proceedings of International conference of Advanced Pattern Recognition, ISI Kolkatta, February 2009, pp 201 – 204.

187. **Guru D S**, Prakash H N and Manjunath S., Online signature verification: An approach based on cluster representation of global features. Proceedings of International conference of Advanced Pattern Recognition, ISI Kolkatta, February 2009, pp 209 – 212.
188. Mirkamali S S, **Guru D S** and Dinesh R., A rule based offline system for Persian/Arabic multifold word recognition. Proceedings of International Conference on Information Processing (ICIP), Bangalore, 8 – 10, August, 2008, pp 71 – 77.
189. Vikram T. N., Chidananda G K., **Guru D S**, and Shalini R. U., Face Indexing and Retrieval by Spatial Similarity," Proceedings of Congress on Image and Signal Processing, Vol. 1, 2008, pp.543-547.
190. **Guru D S** and Suraj M G., Recognition of postal codes for fingerspelling video sequence. Proceedings of the International Conference on Intelligence and Multimedia Applications (ICCIMA 2007), Sivakasi, India, December 13-15, Vol 2, 2007, pp. 271-275.
191. Jyothi B K, Kiranagi B B and **Guru D S**. Automation of document editing: A vision based approach. Proceedings of the International Conference on Intelligence and Multimedia Applications (ICCIMA 2007), Sivakasi, India, December 13-15, 2007, Vol 3, pp. 453-457.
192. **Guru D S** and Prakash H N., Symbolic representation of online signatures. Proceedings of the International Conference on Intelligence and Multimedia Applications (ICCIMA 2007), Sivakasi, India, December 13-15, 2007, Vol 2, pp. 313-317.
193. Renju J, Raju G and **Guru D S**, 1D Wavelet Transform of Projection Profiles for Isolated Handwritten Malayalam Character Recognition. Proceedings of the International Conference on Intelligence and Multimedia Applications (ICCIMA 2007), Sivakasi, India, December 13-15, 2007, Vol 2, pp. 481-485.
194. **Guru D S**, Prakash H N and Vikram T N., The spatial topology of equitemporal points on signatures for retrieval. Proceedings of the Second International Conference on Pattern Recognition and Machine Intelligence (PReMI 2007), Kolkata, India, December 18-22, 2007, pp. 128-135.
195. Naveen O and **Guru D S**, Modified 9DLT Matrix for similarity retrieval of line drawing images. Proceedings of the Second International Conference on Pattern Recognition and Machine Intelligence (PReMI 2007), Kolkata, India, December 18-22, 2007, pp 136-144.
196. **Guru D S** and Suraj M G., Fusion of PCA and FLD at feature extraction level for finger spelling recognition. Proceedings of the Third Indian International Conference on Artificial Intelligence (IICAI 2007), Pune, India, December 17-19, 2007, pp 2113-2123.
197. Kiranagi B B, Dinesh R and **Guru D S**, A symbolic approach for classification of numerals. Proceedings of the Third Indian International Conference on Artificial Intelligence (IICAI 2007), Pune, India, December 17-19, 2007, pp 474-485.

198. Kiranagi B B and **Guru D S**, Pulling leader oriented clustering approach for non-symmetric proximity matrices. Proceedings of the Third Indian International Conference on Artificial Intelligence (IICAI 2007), Pune, India, December 17-19, 2007, pp 630-643.
199. Shekar B H, Thippeswamy G, Nagabhushan P and **Guru D S**, Ploar eigen space: A linear transformation invariant model for appearance based object/face recognition. Proceedings of the Third Indian International Conference on Artificial Intelligence (IICAI 2007), Pune, India, December 17-19, 2007, pp 575-585.
200. Vikram T N and **Guru D S**, Appearance based models in document script identification. Proceedings of Ninth International Conference on Document Analysis and Recognition (ICDAR, 07), Vol. 2, September 2007, pp. 709 – 713.
201. **Guru D S** and Vikram T N., 2D pairwise FLD: A robust methodology for face recognition. Proceedings of the Fifth IEEE Workshop on Automatic Identification Advanced Technologies, (AutoID-2007) 7-8 June, Alghero, Italy, June 7-8, 2007, pp. 99-102
202. Kiranagi B B, **Guru D S** and Ichino M., Exploitation of multivalued type proximity for symbolic feature selection. Proceedings of the International Conference on Computing: Theory and Applications, (ICCTA'07), Kolkota, India, March 5-7, 2007, pp. 320 - 324
203. Suraj M G and **Guru D S**, Secondary diagonal FLD for fingerspelling recognition. Proceedings of the International Conference on Computing: Theory and Applications, (ICCTA'07), Kolkota, India, March 5-7, 2007, pp. 693-697.
204. Dinesh R and **Guru D S**, Finite Automata inspired model for dominant point detection: A non-parametric approach. Proceedings of the International Conference on Computing: Theory and Applications, (ICCTA'07), Kolkota, India, March 5-7, 2007, pp. 579-583.
205. Punitha P, Naveen and **Guru D S**, Indexing of Document Images based on Triangular Spatial Relationships. Proceedings of the International Conference on Computing: Theory and Applications, (ICCTA'07), Kolkota, India, March 5-7, 2007, pp. 533 – 537.
206. Suraj M G and **Guru D S**, Appearance based Recognition Methodology for Recognising Fingerspelling Alphabets. Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI'07), Hyderabad, India. Jan 9-12, 2007, pp. 605-610.
207. Punitha P, Naveen and **Guru D S**, Indexing and Retrieval of Document Images by Spatial Reasoning. Proceedings of the Third International Conference on Distributed Computing and Internet Technology (ICDCIT'2006), Bhubaneswar, India. Dec 20-23, 2006, LNCS 4317, pp. 457-464.
208. Punitha P, Naveen and **Guru D S**, Indexing of Document Images based on Nine-Directional Codes. Proceedings of the Fourth International Conference on Intelligent Sensing and Information Processing (ICISIP'2006), Bangalore, India. Dec. 14-16, 2006, pp. 5-10.



209. Shekar B H, **Guru D S** and Nagabhushan P., Two-dimensional optimal transform for appearance based object recognition. Proceedings of the Fifth Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP- 2006), Madurai, Tamilnadu, India. December 13-16, 2006. pp. 650-661.
210. Shekar B H, Nagabhushan P and **Guru D S**, Concept of polar-fisher space for appearance based object recognition: An approach invariant to linear transformation. Proceedings of IEEE International Conference on Visual Information Engineering (VIE'06), Bangalore, India, September 26-28, 2006. pp. 577-582.
211. Naveen and **Guru D S**, Retrieval of document images based on page layout similarity. Proceedings of the Fourth International Workshop on Adaptive Multimedia Retrieval (AMR'06), Geneva, Switzerland, July 27-28, 2006, pp. 136-148.
212. Nagendraswamy H S and **Guru D S**, Clustering of shapes described by fuzzy-symbolic features using a similarity measure and the concept of k-mutual nearest neighborhood. Proceedings of the International Conference on Intelligent Systems and Control (ISCO'06), Coimbatore, India, August 9-11, 2006. pp. 6-10.
213. Kiranagi B B and **Guru D S**, Feature selection scheme for unsupervised classification of symbolic data. Proceedings of the International Conference on Intelligent Systems and Control (ISCO'06), Coimbatore, India, August 9-11, 2006. pp. 64-68.
214. Ashkan M Y, **Guru D S** and Punitha P., Skew estimation in persian documents: A novel approach. Proceedings of the International Conference on Computer Graphics, Imaging and Visualization (CGIV'06), United Kingdom, June 19-22, 2006. pp. 64-70.
215. Shekar B H, **Guru D S** and Nagabhushan P., Appearance based object recognition using two-dimensional optimal feature transformation. Proceedings of the IEEE International Conference on Engineering of Intelligent Systems, Islamabad, Pakistan, April 22-23, 2006. pp. 283-288.
216. Nagendraswamy H S and **Guru D S**, Symbolic representation scheme for matching and retrieval of two dimensional shapes. Proceedings of the IEEE International Conference on Engineering of Intelligent Systems, Islamabad, Pakistan, April 22-23, 2006. pp. 431-436.
217. Kiranagi B B and **Guru D S**, Unsupervised feature selection scheme for clustering of symbolic data using multivalued type similarity measure. Proceedings of the International Workshop on feature selection and datamining: Interfacing machine learning and statistics, Maryland, USA, April 22, 2006, pp. 67-74.
218. **Guru D S** and Nagendraswamy H S., Clustering of symbolic patterns based on similarity measure and the concept of k-mutual nearest neighborhood. Proceedings of the Seventh Asian Conference of Computer Vision (ACCV), Hyderabad, India, Jan. 13-16, 2006, LNCS 3852, pp. 234-243.

219. Dinesh R and **Guru D S**, Corner Detection Using Morphological Skeleton: An Efficient and Robust Approach. Proceedings of the Seventh Asian Conference of Computer Vision (ACCV), Hyderabad, India, Jan. 13-16, 2006, LNCS 3852, pp. 752-760.
220. Shekar B H, **Guru D S** and Nagabhushan P., Object recognition through the principal component analysis of spatial relationship amongst lines. Proceedings of the Seventh Asian Conference of Computer Vision (ACCV), Hyderabad, India, Jan. 13-16, 2006, LNCS 3851, pp. 170-179.
221. Dinesh R and **Guru D S**, Corner Detection and Interpretation of Boundary Segments Useful for Production of Symbolic Images for 2D Objects. Proceedings of the International Conference on Recent Trends in Information Systems (IRIS), Kovilpatti, Tamilnadu, INDIA, Jan. 6-8, 2006, pp. 80-88.
222. Kiranagi B B and **Guru D S**, Unsupervised learning of symbolic patterns using unconventional dissimilarity measure. Proceedings of the International Conference on Recent Trends in Information Systems (IRIS), Kovilpatti, Tamilnadu, INDIA, Jan. 6-8, 2006, pp. 180-186.
223. Shekar B H, **Guru D S** and Nagabhushan P., Object recognition through the principal component analysis of spatial relationship amongst corners. Proceedings of the International Conference on Systemics, Cybernetics and Informatics, Hyderabad, India, Jan 4-8, 2006, pp. 855-861.
224. Shekar B H, Sharmila Kumari M, **Guru D S** and Nagabhushan P., An appearance based model for efficient representation and recognition of coins. Proceedings of the International Conference on Systemics, Cybernetics and Informatics, Hyderabad, India, Jan 4-8, 2006, pp. 488-492.
225. **Guru D S** and Nagendraswamy H S., Two-dimensional shape representation and matching: An unconventional approach. Proceedings of the International Conference on Systemics, Cybernetics and Informatics, Hyderabad, India, Jan 4-8, 2006, pp. 862-867.
226. Punitha P and **Guru D S**, Concept of Direction of Reference and B-Tree for Preserving Spatial Relationships in Symbolic Images: An Invariant Approach Useful for Exact Match Retrieval. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 283-290.
227. Dinesh R and **Guru D S**, Partially Occluded Object Recognition by Incorporating Adjacency Relationship of Feature Points: An Efficient and Robust Approach, Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 277-282.
228. Kiranagi B.B and **Guru D S**, SD and COV Based Feature Selection Scheme and Clustering of Symbolic Data. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 90-94.

229. Nagabhushan P, **Guru D S** and Shekar B H., Object Recognition  $\Leftarrow$  Lines + PCA. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 250-256.
230. **Guru D S** and Nagendraswamy H S., A new method for representing and matching two dimensional shapes. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 52-59.
231. Ashkan M Y, Punitha P and **Guru D S**, Skew estimation in digitized Kannada documents: A simple approach. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 273-280.
232. Punitha P, **Guru D S** and Vikram T N., Relative spatial distance matrix: A novel & invariant data structure for representation & retrieval of exact match symbolic images. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 257-263.
233. **Guru D S**, Nagabhushan P and Shekar B H., Two Dimensional Principal Component Analysis for Visual learning and recognition of 3D objects: A robust and an efficient approach. Proceedings of the International Conference on Cognition and Recognition, (ICCR), Mysore, India, Dec 22-23, 2005, pp. 272-276.
234. Shekar B H, **Guru D S** and Nagabhushan P., Visual learning and recognition of 3-dimensional objects using 2-dimensional Fishers Linear Discriminant Analysis: A robust and an efficient approach. Proceedings of the Second Indian International conference on Artificial Intelligence (IICAI), Pune, India, Dec 20-22, 2005, pp. 3207-3218.
235. **Guru D S** and Nagendraswamy H S., Matching and retrieval of distorted and occluded two dimensional shapes: An unconventional approach. Proceedings of the Second Indian International conference on Artificial Intelligence (IICAI), Pune, India, Dec 20-22, 2005, pp. 3161-3173.
236. Dinesh R, Damle S and **Guru D S**, A split based method for polygonal approximation of shape curves. Proceedings of the First International Conference on Pattern Recognition and Machine Intelligence (PReMI), Kolkata, India, Dec 18-22, 2005, LNCS 3776, pp. 382-387.
237. Nagabhushan P, **Guru D S** and Shekar B H., Eigen transformation based edge detector for Gray images. Proceedings of the First International Conference on Pattern Recognition and Machine Intelligence (PReMI), Kolkata, India, Dec 18-22, 2005, LNCS 3776, pp. 434-440.
238. Nagabhushan P, **Guru D S** and Shekar B H., Object recognition  $\Leftarrow$  Corners + PCA. Proceedings of the Thirteenth International conference on Advanced Computing and Communications (ADCOM), Coimbatore, India, Dec 14-17, 2005, pp. 158-164.

239. Kiranagi B B and **Guru D S**, An unconventional similarity measure based divisive clustering approach for unsupervised learning of symbolic patterns. Proceedings of the thirteenth International conference on Advanced Computing and Communications (ADCOM), Coimbatore, India, Dec 14-17, 2005, pp. 99-105.
240. **Guru D S** and Nagendraswamy H S., Landmark based shape representation scheme for recognition of two-dimensional shapes. Proceedings of the Image and Vision Computing, Newzealand (IVCNZ), University of Otago, Dunedin, Newzealand, Nov. 28-29, 2005, pp. 299-304.
241. Dinesh R and **Guru D S**, Recognition of Partially Occluded Objects Using Perfect Hashing: An Efficient and Robust Approach. Proceedings of the Second Canadian Conference on Computer and Robot Vision, CRV-2005, Victoria, British Columbia, May 9-11, 2005, pp. 528-535.
242. **Guru D S**, Nagabhushan P and Shekar B H., Dominant lines perceptual organization and eigen value analysis: an integrated approach for object recognition. Proceedings of the International Conference on Systemic, Cybernetics and Informatics ICSCI-05, Hyderabad, India, Jan 6-9, 2005, pp 431-437.
243. Shivakumar P, Hemanthakumar G, **Guru D S** and Nagabhushan P., A new boundary growing and Hough Transform based approach for accurate skew detection in binary document images. Proceedings of the International Conference on Intelligent Sensing and Information Processing, Chennai, Tamil Nadu, India, Jan 4-5, 2005, pp. 140-146.
244. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., An improved Hough transform based skew estimation technique for binary document images. Proceedings of the international conference on Human Machine Interface (ICHMI) 2004, Bangalore, India, Dec. 20-23, 2004, pp. 369-374.
245. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., A new gradient vector based skew estimation technique for binary document images. Proceedings of the Fifth International Conference on Knowledge Based Computer Systems, KBCS-2004, Hyderabad, India, Dec. 19-22, 2004, pp. 325-335.
246. Dinesh R and **Guru D S**, Recognition of partially occluded objects using B-tree index structure: an efficient and robust approach. Proceedings of the Fourth Indian Conference on Computer Vision, Graphics and Image Processing ICVGIP-2004, Kolkata, Dec. 16-18, 2004, pp. 246-251.
247. Punitha P and **Guru D S**, Similarity retrieval of symbolic images with multiple instances of iconic objects: a novel approach. Proceedings of the Fourth Indian Conference on Computer Vision, Graphics and Image Processing ICVGIP-2004, Kolkata, Dec. 16-18, 2004, pp. 417-422.

248. **Guru D S**, Punitha P and Mahesh S., Skew estimation in digitized documents: a novel approach. Proceedings of the Fourth Indian Conference on Computer Vision, Graphics and Image Processing ICVGIP-2004, Kolkata, Dec. 16-18, 2004, pp. 314-319.
249. Dinesh R and **Guru D S**, Mathematical morphology based corner detection scheme: a non-parametric approach. Proceedings of the Fourth Indian Conference on Computer Vision, Graphics and Image Processing ICVGIP-2004, Kolkata, Dec. 16-18, 2004, pp. 76-81.
250. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Accurate skew detection algorithm based on principal component analysis for binary document images. Proceedings of the Twelfth International Conference on Advanced Computing and Communication – ADCOM 2004, Ahmedabad, Gujarat, India, Dec.15-18, 2004, pp. 669-674.
251. **Guru D S** and Punitha P., An invariant scheme for exact match retrieval of symbolic images: direction of reference based approach. Proceedings of the Twelfth International conference on Advanced Computing and Communication ADCOM 2004, Ahmedabad, Gujarat, India, Dec.15-18, 2004, pp. 647-655.
252. **Guru D S** and Dinesh R., Determination of adaptive corner non-symmetric region of support useful for dominant point detection: a nonparametric approach. Proceedings of the Twelfth International conference on Advanced Computing and Communication ADCOM 2004, Ahmedabad, Gujarat, India, Dec.15-18, 2004, pp. 656-662.
253. Shivakumara P, Hemantha Kumara G, **Guru D S** and Nagabhushan P., Document image mosaicing: an approach based on Zernike moments. Proceedings of the sixth International Conference on Cognitive Systems – ICCS 2004, Centre for Research in Cognitive Systems, New Delhi, India, Dec. 14-15, 2004.
254. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., An efficient skew estimation technique for binary document images based on boundary growing and linear regression analysis. Proceedings of the Eleventh International Conference on Neural Information Processing, ICONIP-2004, Kolkata, India, Nov. 2004, pp. 659-665.
255. **Guru D S** and Dinesh R., Finite automata model for determination of adaptive region of support useful for dominant point detection. Proceedings of the Eighth World Multi-Conference on Systemics, Cybernetics and Informatics, Orlando, Florida, USA, Vol.16, July 18-21, 2004, pp. 309-314.
256. **Guru D S**, Dinesh R and Nagabhushan P., Boundary based corner detection and localization using new cornerity index: a robust approach. Proceedings of the First Canadian conference on Computer and Robot Vision (CRV'04), at University of western Ontario-London, Ontario, Canada, May 17-19, 2004, pp. 417- 423.

257. **Guru D S**, Nagabhushan P and Shekar B H., Tri-line grouping and principal component analysis for object recognition: an integrated approach. Proceedings of the International Conference on Systemics, Cybernetics and Informatics, Pentagram Research Center, Hyderabad, India, February 2004, pp. 134-137.
258. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Mosaicing of multiple script images: novel approach based on region growing. Proceedings of the International Conference on Recent Trends and New Directions of Research in Cybernetics and Systems Theory, Guwahati, India, January 1-3, 2004.
259. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Fourier transform based column-block and row-block matching procedure for document image mosaicing. Proceedings of the International Workshop on Fuzzy Logic and Applications (WILF – 2003), Palazzo Serra di Cassano, Via Monte di, Dio 14, Napoli, ITALY October 9-11, 2003, LNAI 2955, 2006, pp. 240-254.
260. Nagabhushan P, Anami B S and **Guru D S**, Dictionary supported generation of English text from Pitman shorthand scripted phonetic text. Proceedings of the International Conference on Language Engineering, University of Hyderabad, published by IEEE Computer Society USA, December 13-14, 2002, pp.33-45.
261. Chandra K S, Sharma M and **Guru D S**, Loss and delay behavior of an ATM multiplexer for aggregated PMPP (Pareto Modulated Poisson Process). Proceedings of Ninth IEEE International Conference on Networks (ICON' 01), October 2001, pp. 314.
262. **Guru D S** and Nagabhushan P., Triangular spatial relationships of the components in a symbolic image for object recognition. Proceedings of the Fourth International Conference on Advances in Pattern Recognition and Digital Techniques ICAPRDT'99, ISI Calcutta, India, Dec. 27-29, 1999, pp. 117-121.
263. **Guru D S**, Nagabhushan P and Suraj M G., Complete shape from imperfect boundary of an object: an attempt towards a rule based system. Proceedings of the International Conference on Cognitive Systems ICCS'99, New Delhi, India, Dec. 13-15, 1999, pp. 427-433.
264. Nagabhushan P and **Guru D S**, Transformation of the physical image of an object into symbolic image using segmentation of the boundary curve. Proceedings of the International Conference on Cognitive Systems (ICCS'98) New Delhi, India, Dec 13-15, 1998. pp. 183-187.
265. Nagabhushan P and **Guru D S**, Principal Component Analysis on symbolic image for accurate object recognition: a new approach. Proceedings of the International Conference on Cognitive System (ICCS'97), New Delhi, India, Dec. 13-17, 1997, pp. 94-99.

## In National Proceedings

1. **Guru D S**, Ravikumar R and Harish B S., A Review on Offline Handwritten Script Identification” in National Conference on Advanced computing and Communications - NCACC-12, 27 – 28, April 2012, Shimoga, Karnataka, India, pp. 246 – 250.
2. **Guru D S**, Harish B S and Manjunath S., An review on text classification. *National Seminar on Recent Trends in Image Processing and Pattern Recognition (RTIPPR 2010)*, Bidar, Karnataka, India, pp. 108 – 113, **2010**.
3. **Guru D S**, Sharath Y H and Manjunath S., Texture features based KNN Classifier for flower classification. *National Seminar on Recent Trends in Image Processing and Pattern Recognition (RTIPPR 2010)*, Bidar, Karnataka, India, pp.95 – 99, **2010**.
4. **Guru D S** and Suraj M G., Clustering of principal component for fast finger spelling recognition. *Proceedings of the Third National Conference on Advanced Image Processing and Networking*, National Engineering College, kovilpatti, Tamilnadu, March 2 – 3, **2007**. pp. 16-21.
5. Nagendraswamy H S and **Guru D S**, Learning and classification of two dimensional shapes. *Proceedings of the Third National Conference on Advanced Image Processing and Networking*, National Engineering College, kovilpatti, Tamilnadu, March 2 – 3, **2007**. pp 28-39.
6. **Guru D S** and Roopa M J., Graph edit distance based similarity useful for pattern classification. *Proceedings of the Third National Conference on Advanced Image Processing and Networking*, National Engineering College, kovilpatti, Tamilnadu, March 2 – 3, **2007**. pp. 40-47.
7. **Guru D S**, Vikram T N and Punitha P., Indexing and retrieval of symbolic images by spatial similarity: An approach based on kd-tree. *Proceedings of the Third National Conference on Advanced Image Processing and Networking*, National Engineering College, kovilpatti, Tamilnadu, March 2 – 3, **2007**. pp. 22-27.
8. Kiranagi B B and **Guru D S**, Pulling Leader: A clustering approach for non symmetric proximity matrices. *Proceedings of the Third National Conference on Advanced Image Processing and Networking*, National Engineering College, kovilpatti, Tamilnadu, March 2 – 3, **2007**. pp. 588-594.
9. **Guru D S** and Nagendraswamy H S., Symbolic representation and classification of two-dimensional shapes. *Proceedings of the Third Workshop on Computer Vision, Graphics and Image Processing (WCVGIP)*, Hyderabad, INDIA, Jan 12-13, **2006**. pp. 19-24.

10. Shekar B H, **Guru D S** and Nagabhushan P., 3D object recognition using Laplacian-objects. *Proceedings of the Third Workshop on Computer Vision, Graphics and Image Processing (WCVGIP)*, Hyderabad, INDIA, Jan 12-13, **2006**. pp. 234-240.
11. **Guru D S** and Girisha R., Online hand identification system useful for recognition of sign language: A heuristic approach. *Proceedings of the National Conference on current trends in Computer Technology and Bio-informatics*, Organized by CSI division-8, Lucknow chapter, May 13-15, **2005**, pp 20.
12. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Sliding window based technique for document image mosaicing. *Proceedings of the National Conference on IT: Pathway for Transformation of Society*, DAV College, Amritsar, Punjab, India, March 13 -14, **2004**, pp. 90-99.
13. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Invariant approach for south indian script lines useful for document image mosaicing. *Proceedings of the Second National Workshop on Computer Vision, Graphics and Image Processing – WCVGIP – 04*, MITS, Gwalior, Madhya Pradesh, India. Feb 21-22, **2004**, pp. 81-90.
14. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Regression line based skew detection for text document images useful for document image mosaicing. *Proceedings of National Convention of CSI*, Delhi, India, Dec. 11–13, **2003**
15. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Mosaicing of distorted split document images using wavelet decomposition. *Proceedings of the National Conference on Signal Processing, Intelligent Systems and Networking – SPIN 2003*, Bangalore, India, December 4 -5, **2003**, pp. 153-156.
16. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P, Document image mosaicing: a novel approach based on column block matching. *Proceedings of the National Workshop on Machine Intelligence using Soft Computing NWMISC – 2003*, Kavaraipettai, Tamil Nadu, India, August 9-**2003**, pp 16.
17. **Guru D S**, Dinesh R and Nagasundara K B., Co-occurrence matrix based approach for recognition of Indian currency. *Proceedings of the Second National Conference on Document Analysis and Recognition NCDAR-2003*, PES College of engineering, Mandya, India, July 11-12, **2003**, pp. 103-109.
18. **Guru D S**, Kiranagi B B and Nagabhushan P., Multivalued type proximity measure and concept of mutual similarity value useful for clustering of interval valued symbolic patterns. *Proceedings of the Second National Conference on Document Analysis and Recognition NCDAR-2003*, PES College of engineering, Mandya, India, July 11-12, **2003**, pp. 95-102.



19. **Guru D S**, Dinesh R and Nagabhushan P., Small eigen value based adaptive region of support useful for dominant point detection. *Proceedings of the Second National Conference on Document Analysis and Recognition NCDAR-2003*, PES College of engineering, Mandya, India, July 11-12, **2003**, pp 88-94.
20. **Guru D S**, Nagabhushan P and Shekar B H., Small eigen value based edge detector in binary images: a simple and robust approach. *Proceedings of the Second National Conference on Document Analysis and Recognition NCDAR-2003*, PES College of engineering, Mandya, India, July 11-12, **2003**, pp. 81-87.
21. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Rotation invariant approach for text document images useful for document image mosaicing. *Proceedings of the Second National Conference on Document Analysis and Recognition NCDAR-2003*, PES College of engineering, Mandya, India, July 11-12, **2003**, pp. 20-27.
22. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Skew estimation of binary document images using static and dynamic thresholds useful for document image mosaicing. *Proceedings of the National Workshop on IT Services and Applications - WITSA – 2003*, Centre for Information Technology and Department of Computer Science, Jamia Milia Islamia, New Delhi, India, Feb 27-28, **2003**, pp 8.
23. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Skew estimation of binary document images: an approach based on text line boundary fitting. *Proceedings of National seminar on Algorithms and Artificial Systems*, Department of Computer Science, University of Madras, India, Jan.30 – Feb. 1, **2003**, pp 253-270.
24. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Skew detection in binary document image using linear regression analysis. *Proceedings of the National Conference on Advanced Computer Applications – NCACA*, Department of Computer Science, NGM college, Pollachi, Coimbatore, Tamil Nadu, India, Oct. 11 - 12, **2002**, pp. 41-46.
25. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Automatic segmentation of text lines and words from skewed text document: a technique based on nearest neighbor clustering approach. *Proceedings of the National Conference on Recent Trends in Information Communication Technology and Applications-RTICIA*, Jalagaon (MS), North Maharashtra University, India, Oct. 10 - 11, **2002**, pp. 7.
26. Nagabhushan P, Anami B S and **Guru D S**, A secant knowledge based technique for recognition of PSL primitives useful in automatic English text production from PSL documents. *Proceedings of the National workshop on Computer Vision, Graphics and Image Processing (wcvqip - 02)*, Madurai, Tamil Nadu, India, Feb. 15-16, **2002**, pp. 172-176.

27. Shivakumara P, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Text skew detection through contour following in a document image. *Proceedings of the National workshop on Computer Vision, Graphics and Image Processing*, Madurai, Tamil Nadu, India, Feb. 15-16, **2002**, pp. 39-44.
28. **Guru D S**, Kiranagi B B and Nagabhushan P., Similarity measure for interval valued symbolic data type: a novel technique. *Proceedings of the National workshop on Computer Vision, Graphics and Image Processing*, Madurai, Tamil Nadu, India, Feb. 15-16, **2002**, pp. 156-161.
29. Nagamani M R, Nagabhushan P and **Guru D S**, Creation of postal knowledge base and discernment of destination postal code: A step towards postal automation in India. *Proceedings of the Third National Conference on Recent Trends in Advanced Computing - NCRTAC*, Thirunelveli, Tamil Nadu, India, Feb 13-15, **2002**. pp. 110-119.
30. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Mosaicing of scrolled split images based on pattern matching approach. *Proceedings of the Third National Conference on Recent Trends in Advanced Computing - NCRTAC*, Thirunelveli, Tamil Nadu, India, Feb 13-15, **2002**.
31. Nagabhushan P, Anami B S and **Guru D S**, A context free grammar for validation of PSL strokes. *Proceedings of the National conference on mathematical and computational models*, PSG College of Technology, Coimbatore, Tamil Nadu, India, December 27-28, **2001**.
32. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Mosaicing color documents: a technique based on pattern matching approach. *Proceedings of the National Conference on Computers and Information Technology*, Kilakarai, Tamil Nadu, India, 24-25 Sept. **2001**, pp. 69-74
33. **Guru D S**, Ahmed S K and Irfan K., An attempt towards recognition of handwritten Urdu characters: a decision tree approach. *Proceedings of the National Conference on Computers and Information Technology*, Kilakarai, Tamil Nadu, India, Sept. 24-25, **2001**, pp. 75-83.
34. Dinesh R and **Guru D S**, Corner detection schemes: a brief survey. *Proceedings of the National Conference on Computers and Information Technology*, Kilakarai, Tamil Nadu, India, Sept. 24-25, **2001**, pp. 55-68.
35. Punitha P and **Guru D S**, Spatial knowledge representation: a brief survey. *Proceedings of the National Conference on Computers and Information Technology*, Kilakarai, Tamil Nadu, India, Sept. 24-25, **2001**, pp 103-115.

36. Vasudev T, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Knowledge base for recognition of handwritten numerals using 7-segment projection. *Proceedings of the National Conference on Computers and Information Technology*, Kilakarai, Tamil Nadu, India, Sept. 24-25, **2001**, pp. 47-54.
37. Vasudev T, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Extension of 7-segment display concept for handwritten numeral recognition: a simple projection approach. *Proceedings of the National Conference on Document Analysis and Recognition*.Mandya, Karnataka, India, July 13-14, **2001**, pp 57-61.
38. Ramesh Babu D R, Hemantha Kumar G, **Guru D S** and Nagabhushan P., Mosaicing of orthonormal images: an approach based on texture analysis. *Proceedings of the National Conference on Document Analysis and Recognition*. Mandya, Karnataka, India, July 13-14, **2001**, pp. 165-170.
39. Shivakumara P, **Guru D S**, Hemantha Kumar G and Nagabhushan P., Pattern matching approach based image sequencing useful for document image mosaicing. *Proceedings of the National Conference on Document Analysis and Recognition*.Mandya, Karnataka, India, July 13-14, **2001**, pp. 192-198.
40. Kiranagi B B, **Guru D S** and Nagabhushan P., The concept of forest distance useful for cluster validation: an efficient and simple approach. *Proceedings of the National Conference on Document Analysis and Recognition*. Mandya, Karnataka, India, July 13-14, **2001**, pp. 220-224.
41. **Guru D S**, PrathibaR andSupriya H S., Pattern recognition methodologies for retrieving information from symbolic relational databases. *Proceedings of the National Conference on Document Analysis and Recognition*.Mandya, Karnataka, India, July 13-14, **2001**, pp. 212-219.
42. **Guru D S**, Classification of text documents: an overview, the challenges and future avenues. *Proceedings of the pre-conference workshop on Document Image Processing*, Mandya, India, July 12, **2001**, pp. 28-34.
43. Nagabhushan P, **Guru D S** and Kiranagi B B., Suitability study of some distance measures: a critical analysis. *Proceedings of the National Conference on Recent Trends in Advanced Computing*, NCRTAC, Kovilpatti, India, Feb.9-10, **2001**, pp. 120-129.
44. Shivakumara P, **Guru D S**, Hemantha Kumar G, and Nagabhushan P., Document image mosaicing: a novel technique based on pattern matching approach. *Proceedings of the National Conference on Recent Trends in Advanced Computing*, NCRTAC, Kovilpatti, India, Feb.9-10, **2001**, pp. 1-8.

45. **Guru D S** and Prathiba R., Axiomatization of fuzzy-symbolic functional dependencies: a new formal system; (World Mathematical Year – 2000). *Proceedings of the National conference on Challenges of the 21st century in mathematics and its allied topics*, University of Mysore, Mysore, Feb 3-4, **2001**, pp. 302-310
46. **Guru D S** and Nagabhushan P., Fuzzy theory based unconventional distance measure useful for object recognition. *Proceedings of the National conference on neural network and expert systems on civil engineering applications*. Hyderabad, Dec.15, **2000**, pp. 143-151.
47. **Guru D S**, Radha R and Archana R., Axiomatization of fuzzy functional dependencies with only two inference rules: a new formal system. *Proceedings of the XXXV annual convention of Computer Society of India*, CSI 2000, Chennai, India, Sept. 12 - 16, **2000**, pp. 99-105.
48. **Guru D S** and Nagabhushan P., A novel algebraic discriminating function for classification of corners based on n directional codes. *Proceedings of the National Seminar on Applied Systems Engineering and Soft Computing- SASESC-2000*, Agra, India, March 4-5, **2000**.
49. **Guru D S** and Nagabhushan P., Transformation of the physical image of an object into a symbolic image through detection and labeling of corners on boundary curve. *Proceedings of the National Conference on Recent Trends in Advanced Computing - NCRAC*, Thirunelveli, India, Feb 11-12, **2000**, pp. 152 - 157.
50. **Guru D S**, Bhavani K N and Goli S M., Thorough investigation of an automated tool for relational database design. *Proceedings of the XXXIV Annual National Convention of Computer Society of India, CSI99*. Mumbai, India, Nov. 1- 4, **1999**, pp. 228-237.
51. Nagabhushan P and **Guru D S**, An experimental investigation to minimize the look area in the symbolic image for accurate object recognition. *Proceedings of the National Seminar on Artificial Neural Networks & Cognitive Systems (ANCS-98)*, Cochin, India, Sept. 23-25, **1998**, pp. 152-155.

## **In Souvenir**

52. Kiranagi B B and **Guru D S**, Unconventional multivalued dissimilarity measure and dimensionality reduction useful for classification of symbolic data. *Abstract published in the proceedings of the conference of Society of Statistics, Computer and Applications*, New Delhi, India, Dec. 22-24, **2004**, pp 172-173.
53. Dinesh R and **Guru D S**, Detection and labeling of corner points useful for transformation of 2D objects into symbolic images. *Abstract published in the proceedings of the*

*conference of Society of Statistics, Computer and Applications*, New Delhi, India, Dec. 22-24, **2004**, pp. 172-173.

54. **Guru D S**, Raghavendrachari H J and Suraj M G., Binary search based sorting by insertion: a new approach. *Souvenir of the National Seminar & Second annual conference of the society of Statistics, Computer and Applications*, Pala, Kerala, India, Nov. 28– Dec. 1, **1999**, pp. 28-29.
55. Nagabhushan P and **Guru D S**, Object recognition through the analysis of spatial relationships: a study of two models. *Souvenir of the International Conference on Combinatorics, Statistics, Pattern Recognition and Related areas.*, Mysore, India, Dec. 28-30, **1998**, pp. 57.
56. **Guru D S** and Ganesh S., Synthesizer +, a minimal RDB designer. *Abstract of VII Karnataka Student CSI Convention*, **1993**.
57. Ganesh S and **Guru D S**, Automated relational database designer: a software system using optimal cover. *Abstract of VI Karnataka Student CSI Convention*, **1992**

### **In Book Chapters**

58. Punitha. P and **Guru D S**, Intelligent image archival and retrieval system. *Encyclopedia of data warehousing and mining*, 2<sup>nd</sup> Edition, Vol., 2, pp 1066 – 1072.
59. Prakash H N and **Guru D S**, Retrieval of online signatures. *Machine Interpretation of Patterns: Image Analysis, Data Mining*. Editors R.K.De, D.P.Mandal and A Ghosh, 2010, World Scientific Press.

### **15. Books Edited**

1. K.C. Santosh, Sameer Antani, **DS Guru**, Nilanjan Dey. *Medical Imaging: Artificial Intelligence, Image Recognition, and Machine Learning Techniques*, 1st Edition, **CRC Press, Taylor and Francis Group**, 2019.
2. P.Nagabhushan, **D S Guru**, B H Shekar and Y H Sharath Kumar., *Data Analytics and Learning*, Proceedings of DAL 2018, Lecture Notes in Networks and Systems 43, **LNNS-43, Springer Publishers**, 2019.
3. **D. S. Guru**, Vasudev T., Chethan H.K., and Sharath Kumar Y.H., *Cognition and Recognition*, Proceedings of ICCR 2016, Lecture Notes in Networks and Systems 14, **LNNS-14, Springer Publishers**, 2018.
4. Punitha P and **Guru D S**, *Multimedia Processing, Communication and Computing Applications*, Proceedings of ICMCCA 2012, Lecture Notes in Electrical Engineering 213, **LNEE-213, Springer Publishers**, 2013.

5. **Guru D S** and Vasudev T., Signal and Image Processing, Proceedings of ICSIP, **Excel India Publishers**, India.2009.

## **16. Books Authored**

1. Somashekara M T, **D S Guru** and K S Manjunatha. Problem Solving with C, **PHI Publications**, 2018.
2. Somashekara M T, **D S Guru** and K S Manjunatha. Object Oriented Programming with Java, **PHI Publications**, 2017.
3. Somashekara M T, **D S Guru**, H S Nagendraswamy and K S Manjunatha. Object Oriented Programming with C++, **PHI Publications**, 2012.

## **16. Journals Edited**

1. Editor of International Journal of Machine Intelligence. Volume – 3, Issue 3. 2011.ISSN: 09752927
2. Editor of International Journal of Machine Intelligence. Volume – 3, Issue 4. 2011.ISSN: 09752927.