BIO-DATA

1. Name   :   **Dr. Sukhendu Das**.

2. Date of birth :   June XY , 1962.

3. Designation   :   Professor,
   and Address   Deptt. of Computer Science and Engg.,
                             IIT Madras, Chennai - 600036.
                             INDIA.

4. Academic qualifications:

Degree	Institute	Area/Discipline	Year
Ph. D	IIT Kharagpur	Computer Vision	1993
M. Tech	IIT Delhi	Computer Technology	1987
B. Tech	IIT Kharagpur	Electrical Engg.	1985

5. Experience :

(a)   Work in India :

Organization	Designation	Period
IIT Madras	Lecturer	1989 - 1994.
IIT Madras	Asstt. Prof.	1994 – 2004.
IIT Madras	Assoc. Prof.	2004 - 2010.
IIT Madras	Professor	since June 2010.

(b)   Work Abroad:

-       Post-doctoral research work at the Deptt. of ET&IT, University of Applied Sciences, Pforzheim, Germany, from Dec. 2001 till May 2003.

-       Gledden visiting scientist at the Deptt. Of CS&SE, University of Western Australia, Perth, Australia, from June – Aug. 2006.

-       Australian Leadership Award Fellowship at the Deptt. Of CS&SE, University of Western Australia, Perth, Australia, from July – Sept. 2008.

(c)   Visits Abroad :

Duration	Place	Purpose
Oct. - Nov. 1995	Neunkirchen, Germany	Industry Sponsored Consultancy assignment.
Sept. 2002	Toulouse, France	Present a paper at EUSIPCO '02 Conf.
Sept. 2002	Malaga, Spain	Present a paper at IASTED/VIIP '02 Conf
Aug. 2006	Hong Kong	Present a paper at IEEE-ICPR '06 Conf.
Jan. 2008	Seoul, Korea	Tutorial talks on "Computer Vision"
Nov. 2009	Cairo, Egypt	Present a paper at IEEE – ICIP '09 Conf.
July 2010	Seattle, USA	Microsoft Faculty Summit, 2010
Nov. 2011	Barcelona, Spain	DEMO on a prototype of VIDLOOKUP, short-listed (among **top 12**) at IEEE-**ICCV-2011** Conf.
Aug. 2012	LA, USA	**SIGGRAPH**-2012 Conf.
Mar-Apr, 2014	Stuttgart, Germany	DAAD Sandwich Exchange Programme
Sept. 2014	Nottingham, UK	Present a paper at **BMVC**'14 Conf.
Oct. 2014	Paris, France	Present a paper at ICIP'14 Conf.
July 2015	Seattle, USA	Microsoft Faculty Summit, 2015
June 2016	Las Vegas, USA	Present a paper at **CVPRW** Conf. 2016
Dec. 2017	Long Beach, USA	Present a paper at **NIPS** Conf. 2017
Sept. 2018	Munich, Germany	**ECCVW** '18 Conference – 3 workshop papers
Dec. 2018	Perth, Australia	Two papers at ACCV '18
July 2019	Budapest, Hungary	Paper presentation and chairing session, at **IJCNN** '19
Mar. 2020	Snowmass Village, Colarado, USA	Paper presentation at **WACV** '20.

6. Teaching Interests :
    Comment from a renowned International academician, admiring my Teaching skills (also, as Annexure at end of DOC):

https://drive.google.com/file/d/10_RG2ktrGjEm3hJlcylJEx7CyPTW1lcH/view?usp=sharing

Course No:	Course Title (*- Courses taught so far)

A. *Software:*

*	CS 1100	**Introduction to Computing**
*	CS 3500	**Introduction to Operating Systems**
	CS 3100	Programming Languages

B. *Hardware:*

*	CS 2200	**Switching theory and Digital Design (& Lab.)**
*	CS 2600	**Computer Organization**
*	CS 321	**Integrated Circuit Electronics (& Lab.)**
	CS 324	Microprocessors

C. *Theory:*

*	CS 2800	**Data Structures and Algorithms (& Lab.)**
*	CS 240	**Numerical Computing**
	CS 6030	Mathematics Concepts in Computer Science
*	CS 6015	**Linear Algebra and Random Processes**

D. *Applications:*

*	CS 5691	**Pattern Recognition and Machine Learning**
*	CS 6350	**Computer Vision**
*	CS 6777	**Optimization methods for Computer Vision Applications**
*	CS 6464	**Concepts in Statistical Learning Theory**
*	CS 6710	**Advances in Visual Perception**
*	CS 6360	**Computer Graphics**
*	CS 6849	**Modern Trends in Computer Graphics**
*	CS 6870	**Digital Video Processing**
*	CS 6340	**Soft Computing**
*	ID7123	**Machine Intelligence and Brain Research**
	CS 6310	Artificial Neural Networks.

7. Research interests (for details visit http://www.cse.iitm.ac.in/~vplab/) :

Visual Perception - Computer Vision, Digital Image Processing, Pattern Recognition; Digital Video Analytics, Computer Graphics; Biometry; Soft Computing, Deep learning and Computational Brain modeling; Computational Science and Engineering;

8. Guidance { Stats: Ph. D. – 08 (+6); M. S. – 40 (+2); M. Tech. + Dual – 54 ; B. Tech. – 09 (+6)} :

Sl	Degree /year	Name of Scholar	Thesis Title
1	*Ph. D / 2001	R. Balasubramanian	Some mathematical methods and simulation for the reconstruction of 3-D object primitives from arbitrary perspective views.
2	Ph. D / 2010	A. Dyana	Video Object Representation for Content Based Video Retrieval (CBVR).
3	*Ph. D / 2010	T. Mirnalinee	A Multi-stage Framework Based on Salient Features, for Automatic Extraction of Road Network from Satellite Images of Urban Areas.
4	Ph. D / 2012	P. Vinod	Face Recognition across Illumination and Variations, using a Single Training Sample
5	Ph. D / 2015	Chiranjoy Chattopdhyay	Video Content Representation Using Spatio-Temporal Features for Content-based Video Retrieval
6	Ph. D / 2016	Suranjana Samanta	Domain Adaptation Methods for Visual Object Categorization
7	Ph. D / 2019	Samik Banerjee	Face Recognition from Degraded images using Statistical and Deep Learning techniques
8	Ph. D / 2020	Geethu M Jacob	Video Stabilization, Moving Object Segmentation and Panorama Creation from Unconstrained Videos
9			

Currently, SIX (6) more PhD students working.

Sl	Degree /year	Name of Scholar	Thesis Title
1	* M. S. / 1997	N. Sudha	Principal Component Neural Networks for Applications in Signal Processing.
2	M. S. / 1998	N. Jagadeesh Babu	Texture Invariant Image Matching.
3	M. S. / 1999	M. Sanjay	Matching Noisy Bitmap Images Based on Distance Transform
4	* M.S. / 2001	P. Kiran Kumar	Texture Edge Extraction using One Dimensional Processing
5	*M.S. / 2002	S. Ramesh	Edginess Image for Face Recognition
6	*M. S. / 2002	K. Sharat Reddy	Source and System Features for Speaker Recognition
7	*M. S.	KVS Prasada	Automatic road detection from satellite images

	/2003	Reddy	of urban areas.
8	*M. S. / 2004	N.V. Palenkeswara Rao	Sneha-Samuham : A Parallel Computing Model over Grids
9	*M. S. / 2004	P. Vinod	Text-dependent audio-visual biometric person authentication
10	*M. S. / 2004	B. S. Venkatesh	Face detection in still gray image using Neural Networks
11	*M. S. / 2006	A. Pavan Kumar	A WMPCA-based Face Recognition System on Programmable chip
12	M. S. / 2007	Shivani G Rao	Estimation of orientation of an inclined planar texture using DWT: An approach to shape from texture
13	M. S. / 2007	Arpita Patra	Development of Efficient method for face Recognition and Multimodal biometry
14	M. S. / 2007	Manish Kalra	Framework for the fusion of 3D appearance and 2D shape cues for generic object recognition
15	M. S. / 2007	P. Deepti	Generic object recognition with virtual Manifolds and its application
16	M. S. / 2007	Lalit Gupta	Efficient texture segmentation by integrating region and edge information
17	M. S. / 2008	Surya Prakash	Active Contour Based Foreground Object Segmentation
18	*M. S./ 2008	R. Abhilash	Video Cut and Paste for 3D Composition - A Method of Video-Based Rendering for Virtual Reality Applications
19	M. S. / 2009	Sunando Sengupto	Issues in 3D Reconstruction from Multiple Views
20	*M. S. / 2010	Suranjana Samanta	Methods of feature Ranking and Selection For Pattern Classification
21	*M. S. / 2010	Suneetha Nadella	Object Oriented Framework for Hardening the Linux Kernel
22	*M.S. / 2013	Shiva Rudrani	Methods for face Recognition from Degraded Images
23	M.S. / 2013	Gyanesh Dwivedi	Simultaneous Localization And Recognition (SLAR) framework for smart (object-centric) CBIR application
24	M.S. / 2015	Sudeshna Ray	Salient Object Segmentation in Images
25	M.S. / 2016	Nitin Gupta	Cognitive inspired framework for Smart CBIR Design
26	M.S. / 2017	Utthara G. Mangai	Methods of Decision Fusion for Texture Segmentation and Pattern Classification Tasks.
27	M.S. / 2017	Prateek Shrivastava	GPU Implementation of Virtual Cutting of Deformable Assets in Games
28	*MS / 2018	Renu Sharma	Methods of Score-level fusion in Multi-biometric Systems
29	*MS /	K S Lalitha	Unsupervised Methods for Apictorial and

			Pictorial Jigsaw Puzzle Solving Problems
30	*MS / 2019	Vishnu Menon	Outlier Analysis using orthogonal constraints.
31	*MS / 2019	S. Ramya	CHECKOUT - AUGMENTED REALITY BASED DESIGN FOR VIRTUAL GARMENT/APPAREL TRIALS – An Adaptive Tool for realizing Customer Garment /apparel fits in the Digital Marketing and Fashion Discovery Industry
32	MS / 2020	Prateep Bhattacharya	Video Frame Prediction using Temporal Coherency Based Adversarial Networks
33	MS/2021	AVISHEK BHATTACHARJEE	Face Recognition through Generation using Deep Learning Techniques
34	MS/2021	SAPTAKATHA ADAK	Video Object Segmentation using Adversarial Techniques
35	MS/2021	SAYANTI BARDHAN	Saliency and co-saliency detection in images
36	MS/2021	R JANANI	Audio-Visual Event Localization in Unconstrained Videos using Deep Learning Techniques
37	MS/2021	N. P. Sandeep	Image Captioning using Deep Neural Networks which Dispense Recurrence
38	MS/2022	Sadbhavana Babar	Object Localization using Weakly Supervised Learning Paradigm
39	MS/2023	Arti Keshari	Unconditional Image and Video Generation by efficient disintegration of their attributes
40	MS/2023	Binoy K. Saha	Covert Geo-Location (CGL) Detection using Deep Learning Techniques
41			

- *Two (2) more MS scholars currently working.*
- ** - Jointly guided with another faculty member.*

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Sl	Degree /year	Name of PG Student	Thesis Title
1	**M. Tech** / 1991	S. Bandyopadhyay	An Approach to Determine the 3-D Position and Orientation of a Vehicle.
2	M.Tech / 1994	M. Kulanthaivel	Recognition of 2-D Polygonal Shapes using Pattern Specific Features.
3	M.Tech / 1994	S. R. Sharma	A study of Real Time Tracking of Moving Objects in Noisy Environments
4	M. Tech / 1994	S. Sujatha	Rendering of Simple 3D Geometrical Shapes.
5	*M. Tech / 1994	B. M. B. Tikarya	Estimation of Motion and Structure Parameters from a Sequence of Noisy Images using Kalman Filter Approach.

6	M. Tech / 1995	A. S. Arumugham	Errors in Reconstruction of a 3-D Line from Noisy Stereo Images : some Studies and Experimentation.
7	M. Tech / 1995	Anupam	Depth Map Construction from Line Correspondences in Stereo Images.
8	*M. Tech / 1995	Babu Thomas	Stereo Correspondences using Gabor Logons and Neural Networks.
9	*M. Tech / 1996	V. Somanath	Compression Techniques for Database Query Project : INQUEST.
10	M. Tech / 1996	V. K. Beri	Solid Object Modeling and Object Management for a 3-D Graphics Package: SOLIDRAW.
11	M. Tech / 1996	B. Shivaramakrishnan	Viewing and Rendering Schemes for a 3-D Graphics Package: SOLIDRAW.
12	M. Tech. / 1996	P. Narasimhamoorthy	Raster Snap Function for Vectorization of Image Maps.
13	*M. Tech / 1997	Viswam Gampala	3D Graphics Engine – An Object Oriented Approach (Visual Realism, Graphical User Interface).
14	*M. Tech / 1997	S. Chandramouleeswaran	3D Graphics Engine – An Object Oriented Approach (Scene Definition and Management).
15	*M. Tech / 1998	Ravindranathan K. R.	Unsupervised texture Segmentation Using Gabor Filters.
16	*M. Tech / 1998	Amit Kumar Agrawal	An Interactive Graphics System for the Design of Buildings : A Structured Approach.
17	M. Tech. / 1998	H. M. Rafi Assadi	Optimal Filtering Approach and Neural Network Model for Edge Detection.
18	M. Tech. / 1998	Hanumanthu R.	Fingerprint identification.
19	M. Tech. / 1998	Sunil Kumar	Ridge Orientation based Fingerprint Matching.
20	*M. Tech. / 1998	S. Jagadish	Surface Reconstruction from Planar Contours Extracted from MRI Images
21	M. Tech. / 1999	J. N. Subramanyam	Design and Development of an Image Processing Engine on X-Windows
22	M. Tech / 1999	B. V. J. Manohar	Reconstruction of Road Network from Aerial Images for GIS Applications.
23	M. Tech./ 1999	J. Rajamohan	Raster Snap function for Vectorization of Bitmap Images.
24	M. Tech. / 1999	K. S. Praneshwar Rao	Organization of Video database for Browsing and Retrieval.
25	*M. Tech. / 1999	V. Kondala Rao	Speaker Clustering using SOM.
26	M. Tech. / 1999	D. V. Bhaskar Reddy	Development of a Software Tool for the Aid of Cricket Umpires.
27	M. Tech./ 1999	G. Vidyasagar	Person Authentication Using Audio and Video Data.
28	M. Tech./ 2006 (Dual)	Pragya Minz	Navigation tool in 3D environment

29	M. Tech. / 2008	M. P. Subramanian	Content Based Video Retrieval Based on Shape and Motion Trajectory of Video Objects.
30	M. Tech./ 2008	Krishna Biswas	Design and Implementation of a Game Description language using OpenGL
31	M. Tech./ 2009 (Dual)	Nimit Jain	3-D Modeling and Realistic Image Based Rendering
32	M. Tech. / 2010 (Dual)	Naren Krishna	LDA Based Modular Eigen Analysis for Efficient Face Recognition
33	*M. Tech./ 2010 (Dual)	Shruti Srivastava	Text-to-Touch Converter System for Visually Challenged
34	M. Tech 2010 (Dual)	Harshita Khanna	Effect of Defocusing in Estimation of Orientation of Planar Textured Surface
35	M. Tech. / 2012 (Dual)	Sai Sandeep	Multi-view Face Recognition using subband faces
36	M. Tech. / 2013	Amit Kumar Marya	Spatio temporal modeling for application of video analytics
37	M. Tech. / 2013	Ankit Shrivastava	Biped Character Locomotion and Control
38	M. Tech. / 2013 (Dual)	Eswar Sai Putti	Segmentation of Multiple Foreground Objects in a Scene
39	M. Tech 2014 (Dual)	Tirumarai Selvan	Domain Adaptation for Object Categorization
40	M. Tech. / 2016 (Dual)	Venu Gopal Vangala	Neuron Cell Detection in Fluorescent Mouse Brain Scans
41	M. Tech. / 2016 (Dual)	S. Vishnu Vardhan Reddy	Classification of Subsurface Compounds Using Hyper Spectral Imaging
42	M. Tech 2020	Abhijeet Nijampurkar	**SURVOnt**: Ontology for Indoor Scene Understanding and Robotic Visual Surveillance
43	M. Tech 2020	DEVBRAT SHARMA	Unconstrained Face Recognition Using Semantically Aligned Deep Domain Adaptation
44	M. Tech 2020	JASMEEN KAUR	Future Frame Prediction of a Video Sequence
45	M. Tech 2020	NEHA SAH	NAVIGATIONAL AID BY SCENE MODELING USING DEPTH MAP AND SEGMENTATION CUES
46	M. Tech 2020	AARTI SHRIKISHAN TAPDIYA	Nissl Cell Segmentation in high resolution light microscopic Mouse Brain scans
47	M. Tech 2020	PRANJAL KANYAL	AR SLAM-Augmented Reality on Point Cloud with Semantic Segmentation
48	M. Tech 2021	VISHNU PRAKASH GUPTA	Future Video Frame Prediction using GAN
49	M. Tech 2021	SONU KUSHWAHA	3D object detection using Deep Learning
50	M. Tech 2021	MD SHADAN KARIM	Object Detection of Fluorescence in Mouse Brain Scans
51	M. Tech 2021	MALLEPALLI HIMASAGAR	Nissl Cell Segmentation in high resolution light microscopic Mouse Brain scans
52	M. Tech 2021	JANAKIRAM YELLAPU	Ontology for Indoor scene understanding and robotic visual surveillance
53	M. Tech 2022	RITUPARNA ADHA	Image to Image Translation for Sensor-Invariance

54	M. Tech 2022	KAUSHAL KAPADIYA	Detection of neuronal fiber in mouse brain
55			

SI	Degree /year	Name of UG Student	Thesis Title
1	**B. Tech. / 1995**	Praveen Kumar	Image Compression techniques: A comparative study
2	*B. Tech. / 1998	Ajay Chakraborty	Traffic Flow Simulator.
3	B. Tech 1998	Chandrasekhar Yalangi	A Graphical Tool for the Aid of Cricket Umpires.
4	*B. Tech. / 2007	J. Deepak	Procedural Texture Synthesis and 3D Surface Wrapping
5	B. Tech. / 2008	Mahesh Kumar Reddy	A Real-time Face Recognition System using Modular PCA approach
6	B. Tech. / 2009	Ravi Teja	Image Enhancement, Segmentation and Pose Estimation in Videos.
7	B. Tech. / 2010	N. Hari Prasad	Study of Foreground Image Segmentation using Support Vector Machines
8	B. Tech / 2012	SASI INGUVA	Tracking of Multiple Objects using Segmentation and Object Detection
9	B. Tech. / 2017	K. Riwtika	Image Scene Ontology Creation for Scene Representation
10			

< also see in table earlier, Dual degree candidates guided – for students awarded joint B. Tech and M. Tech degrees *>*

* -- Guided jointly with another faculty member (Co-guide).

Currently, guiding **SIX (6) Ph. D,   Two (2) M.S. Scholars, six(6) BTP students.**

9. Courses introduced (mostly new*) and modified:

CS 6350   **Computer Vision***   **(1994, modified 2005/12/18)**

CS 6710   **Advances in Visual Perception***   **(July 2005)**

CS 6870   **Digital Video Processing***   **(Oct. 2008)**

CS 6489   **Modern Trends in Computer Graphics***   **(July 2012)**

CS 6360   **Computer Graphics**   **(modified 2011/18)**

CS 6777   **Optimization Methods for Computer**   **(June 2014)**

Vision Applications*

CS 6464   Concepts in Statistical Learning Theory*   **2016**
                                                                       (modified 2018)

ID7123   Machine Intelligence and Brain Research*   **2017**

10. Lab/Design/Development Activity :

(i)   **VISUALIZATION and PERCEPTION Laboratory** was established and set up in August 2004;
        (URL: //www.cse.iitm.ac.in/~vplab/).

(ii)   Faculty in-charge of departmental computing facility (DCF), from 2003-2005.

(iii)   Faculty in-charge - Classroom Electronic facility – PC + projection + PA system; 2004-2011.

(iv)   VICOGSA (VIsual COGnitive Smart Agent) lab. – under IMPRINT (MHRD and DRDO) funding – 2018-22.

11. Projects undertaken:

(a) **Sponsored:**
(Prior to year 2004)

Agency	Value	Title	Other Coordinators	Year
ONR, USA	Rs. 19.00 Lakhs	&&	Prof. B. Yegnanarayana	1998-2001
ISRO, INDIA	Rs. 7.80 Lakhs	##	Prof. B. Yegnanarayana, Dr. Koshy Varghese	1997-2000
INTEL ASIA	Rs. 60.00 Lakhs	@@	Prof. B. Yegnanarayana Dr. C. Chandrasekhar Dr. Hema A Murthy	1999-2004
ISRO, INDIA	Rs. 1.00 Lakhs	**	Prof. B. Yegnanarayana	1998-9

&& -   Information Recovery from Partial Data for Image Processing Applications.

-   Development of techniques for Classification of Urban Features from remote Sensed Data for use in GIS Applications : A Multi-disciplinary approach.

@@ - Development of Phonetic Engine for Speech in Indian Languages.

** - Neural Network Models for Health Monitoring of Propulsion Systems.

Since year 2004:

Agency	Value	Title	Whether as PI	Year
MHRD (GOI)	Rs. 20.80 Lakhs	&&	YES	2004-6
DRDO (GOI)	Rs. 10.00 Lakhs	$$	YES	2004-6
DRDO (GOI)	Rs. 22.92 lakhs	**	YES	2004-6
MCIT (GOI)	Rs. 39.60 Lakhs	%%	NO	2005-7
DST (GOI)	Rs. 14.04 Lakhs	§§	NO	2005-7
DRDO (GOI)	Rs. 9.85 Lakhs	@@	YES	2006-7
DRDO (GOI)	Rs. 9.95 Lakhs	**##**	YES	2007-9
MCIT (GOI)	Rs. 40.4 Lakhs	++	NO	2008-11
ICMR (Indo-German)	Rs. 15.00 lakhs	!!	NO	2008-10
MCIT (GOI)	Rs. 104.0 Lakhs	~~	NO	2009-12
MHRD (IMPRINT-MHRD/DRDO)	Rs. 187.0 Lakhs	ΘΘ	Yes	2017-22

- && - Multi-modal biometrics based secured access system using face and fingerprint recognition.

- $$ - SAR image exploitation, Classification of Man-made and Natural regions, Automatic Target Detection.

- ** - Probabilistic Classification of Satellite Images to Obtain Landform Patterns.

- %% - Minimal Object Oriented Linux.

- §§ - Integration Knowledge system on soil Nutrient management through Image Processing of Chromatograms.

- @@ - Recovery of 3D shapes based on multiview textures.

- **##** - Combining Classifiers using Decision Fusion: An approach to Probabilistic Landform Segmentation.

- ++ - Research and Development of Multi-camera algorithms for security and surveillance.

- !! - Telemedicine station for Rural Health Monitoring and diagnosis of epidemic diseases.

- ~~ -   Service Oriented Architecture and its implementation for the Linux Kernel, middleware (NRCFOSS Phase II).

- ΘΘ –   Scene Understanding for Identification of covert Geo-locations in a scene, using a Hyper-Classifier based Visual Intelligent system.

(b) **Consultancy** :

Agency	Value	Title	Other Coordinators	Year
PGG, Nuenkirchen,	Rs. 2.5 lakhs Germany.	**	Prof. B. Yegnanarayana (PI)	1994-6
HCL Technologies, India	Rs. 0.45 Lakhs	&&	NIL	2000-01
Metricone Technologies, India	Rs. 1.0 Lakhs	@@	NIL	2001
HCL	Rs. 0.40 Lakhs	%%	NIL	2001

Technologies, India.

ATB, (GOI) Secunderabad	Rs. 15.00 lakhs	++	Dr. Anurag Mittal	2008-9
DRDO (GOI)	Rs. 9.98 Lakhs	|""|	Prof. T. S. Natarajan (Deptt. of Phys.)	2009-11
DRDO (GOI)	Rs. 45.00 Lakhs	##	Dr. Sutanu Chakraborti	2011-14
Nathan Research Chennai	Rs. 7.2 Lakhs	??	Nil	2020-21
Cloud Physician Bangalore	Rs. 2.5 L	!!	Nil	2020-21
Manatech Pondicherry	Rs. 15.7 L	^^	Nil	2023-24

- ** - Image Processing algorithms for GIS.

- && - Algorithms for Simulation and Image Analysis

- @@ - Algorithms for Fingerprint Identification

- %% - Traffic Signal Identification

- ++ - Sizing of Sensors for Tracking Trainee Movements in Simulation Arena.

- \|""\| - Smart segmentation of objects in images

- ## - Localization and Identification of targets in Satellite Images using Feature based approaches.

- ?? - Identification and Detection of spatial layouts of fixed set of fixtures in images.

- !! - Technical Proposal for your Consultancy Services for Collaborative Research on Analyzing ventilator images to detect respiratory abnormalities.

- ^^ - Wheel Alignment Software

12. Text Books, Monographs, etc. Authored :

- Co-editor of the LNCS (Springer) proceedings of the 8th

International Conference on Human Computer Interaction, IHCI 2016, Pilani, India, December 12-13, 2016.

- Co-editor of the IEEE proceedings of the Fourth National Conference on "Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG)", IIT Jodhpur, Rajasthan, India, 18-21 December 2013.

- Co-Editor of the Proceedings of International Conference on Multimedia Processing and Systems (ICMPS '2000), IIT Madras, Chennai, India, during August 13-15, 2000.

13. CEC programs and Conferences organized :

(a) CEC Short-term course on "**Computer Graphics and Image Processing**", conducted at IIT Madras during 18-19th, April, 1997, for Industries and Academic Institutions, with Dr. Hema A Murthy.

(b) Co-convener of the **International Conference on Multimedia Processing and Systems**, IIT Madras, Chennai, during August 13-15, 2000.

(c) Faculty convener on the **IBM-day** event held in IIT Madras, on August 11, 2007; TCS Research Day at IIT Madras, Oct. 2016.

(d) DRDO-sponsored International Workshop (CEC program) on "**DIGITAL VIDEO ANALYTICS and PROCESSING (DVAP-2012)**", held at IC&SR, IIT Madras, 21-22, Dec. 2012.

(e) **Program co-chair of NCVPRIPG-13**, held at IIT Jodhpur, Dec. 2013.

(f) **Faculty Convener of TCS Interaction day event, held at IIT Madras, Oct. 01, 2016; IC&SR, IIT Madras.**

(g) **Program co-chair of IHCI-2016,** held at CEERI/BITS Pilani, Dec. 2016.

(h) **Organizing Chair of Workshop on LIVOR (Learning Issues in Visual Object Recognition),** organized at **IIT Jodhpur,** July 2023.

14. Awards/Honours Received & **Highlights**:

    (i)   **Winner (best design) at the design contest of "SOPC World" event on** Embedded Systems and VLSI systems, conducted by ALTERA in Bangalore, 2004; jointly with Dr. V. Kamakoti and Pavan Kumar.

    (ii)   **Best paper award** at National Conference on Image Processing (NCIP '05), Bangalore, for Vinod Pathangay and Dr. Sukhendu Das for their work published in the paper entitled "Exploring the use of selective Wavelet Subbands for PCA based Face Recognition", March 2005.

    (iii)   **Best paper** at National Conference on Computer Vision, AI and Robotics (NCCVAIR '07), at Chennai, awarded to Sunando Sengupta and Dr. Sukhendu Das for their work published in the paper entitled "Error Norm for Determining 3D Structure from Different Appearances of an Object", October 2007.

    (iv)   "An integrated multi-stage framework for automatic road extraction from high resolution satellite imagery" published in Journal of Indian Society of Remote Sensing 39 (1): 1-26; Authors: Mirnalinee, TT, Das, S and Varghese, K; **is adjudged as the best paper**. The award ceremony was held during the inaugural session of National Symposium on "Space technology for food and environment security" at NASC complex, Devi Prakash Marg near IARI, New Delhi on 5th Dec. 2012.

    (v)

"VIDLOOKUP: A web-based online CBVR system for query video shots"
Among the <u>top 12</u> selected Demos, **at the (IEEE) International Conference on Computer Vision (IEEE-ICCV) 2011; rated A*; h5-index - 89;** **Barcelona, Spain.**

(vi)   Finalist (among the top 9 short-listed papers) for the best paper award, at the IEEE-**ICIP**'14 Conference, held at Paris, France, Oct. 2014.

(vii)   **Best student paper award** in 16th International Conference on Advanced Concepts for Intelligent Vision Systems (ACIVS), Poitiers, France, 24-27 September, 2018.

(viii)   **Best Student paper award** in 26th International Conference on Neural Information Processing (**ICONIP**) – Rank A; Sydney, Australia, December 12-15, 2019.

(ix)   **Best Student paper award** in Winter Conference on Applications of Computer Vision (**WACV**) [rank A | h5-index - 62 (2021)], Snowmass Village, Colorado, USA, March 2-5, 2020.

Three MS students won **5 best thesis (CSE-IITM) awards 2021-23**.

15. Professional Societies involved: IEEE, USA (Computer and SMC).

Reviewed technical papers for the following international Conferences/journals (from 2004 till date):

    (i)   **CVPR, ICCV, ECCV, NIPS, ICML, ICLR, WACV, ICPR, ICVGIP**

    (ii)   **IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)**

    (iii)   **IEEE Transactions on Image Processing (T-IP)**

    (iv)   **IEEE Transactions on Systems, Man and Cybernetics (T-SMC)**

    (v)   **International Journal of Computer Vision (IJCV)**

    (vi)   **Pattern Recognition Letters (PRL).**

    (vii)   **Journal of Information Fusion**

    (viii)   **International Journal of Biomedical Imaging**

    (ix)   **Signal Processing**

    (x)   **Pattern Recognition**

    (xi)   **Neuro-Computing**

    (xii)   **Fuzzy Sets and Systems**

    (xiii)   **Image and Vision Computing**

    (xiv)   **IET – Transactions on Image processing**

    (xv)   **IET – Computer Vision**

16. Research work in progress – planned/unplanned:

    (a)   Analyzing video sequence for **Prediction**, **tracking, estimation, detection and reconstruction of moving objects and CBVR** (representation, event analysis and Retrieval)

    (b)   **Deep learning** models for face, object and event categorization, under constrained environments – very less annotated training set, cluster, shadows, glare, camouflage etc. .

    (c)   **Face Recognition** in unconstrained environments (e.g. classroom, public gathering) from degraded (low quality) snaps and spoof.

    (d)   **Computational models and structure analytics from Brain scan data.**

    (e)   **Visual Ontology -** description of scenes, VQA, VSG.

    (f)   **Foreground salient object detection**, from images and video

    (g)   Generic Scene classification, using perceptual models

    (h)   **Edge preserving super-resolution**.

    (i)   **Smart object-centric Segmentation** based on human perceptual

cues – SLAR based.

(j) **Deep Domain Adaptation** for visual object categorization and recognition.

(k) Video Analytics; Video Informatics; Intelligent Eye **and SIXTH SENSE INTELLIGENCE.**

17. List of research publications:

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2.131). "Motion-based Occlusion-aware Pixel Graph Network for Video Object Segmentation", Saptakatha Adak and Sukhendu Das; in 26th International Conference on Neural Information Processing **(ICONIP) – Rank -A**; Sydney, Australia, December 12-15, 2019 *[Oral; Best Student Paper Award]*.

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2.145). A study of accuracy variation from shallow to deep learning methods for the classification of ships using SAR satellite images; Shovakar Bhattacharjee, Palaniswami Shanmugam, Sukhendu Das; Hyperspectral/Multispectral Imaging and Sounding of the Environment; Optica Publishing Group, 2023.

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2.147).

18. Additional Information and responsibilities - academic and extra-curricular:

i) **Senior Member, IEEE, USA; Reviewer in CVPR, ICCV, ECCV, NIPS, ICML, ICLR, WACV, ICPR, ICVGIP.**

ii) **Editorial Board of Sadhana (Springer series) journal.**

iii) **Program Co-chair of NCVPRIPG-13** Conference, held at IIT Jodhpur, Dec. 18-21, 2014.

iv) **Chairman, PRSG review committee** for the **Ministry of Communications and Information Technology (GOI) project** entitled "Robust Watermarking of Digital Images using Wavelet like Transforms for Image Security"; Univ. of Madras, Chennai, India, 2005-08.

v) **Chairman, PRSG review committee** for the **Ministry of Communications and Information Technology (GOI) project** entitled "An investigation on the impact of encoding schemes in Steganography and Watermarking algorithms"; Andhra University, Vishakapatnam, India, 2009-10.

vi) **Chairman, PRSG review committee** for the **Ministry of Communications and Information Technology (GOI)** project entitled "Development of algorithms for matching near-infrared facial images to visible light images in uncontrolled scenarios" being implemented by **IISc Bangalore,** 2016-17.

vii) Member of PRSG review committee for the **Ministry of Communications and Information Technology (GOI)** project entitled "Research on Multimodal Context Switching using multi-spectral Face, Periocular and Iris recognition at a distance" being implemented by **IIIT Delhi**; 2014-17.

viii) Member, PRSG review committee for the **Ministry of Communications and Information Technology (GOI) project** entitled "Design of New Iris Recognition System for Personal Authentication with Orthogonal Polynomials Model" by Bharathidasan Institute of Technology, Anna University, Tiruchirappalli; India, 2009-11;

ix) Member, review committee for the **DST project** entitled "Video Surveillance", at IISC Bangalore, since 2012.

x) Member of the **GIES-IMINT project review board in ADE, DRDO, Bangalore**, 2004-2006.

xi) Member of the DRDO-RAC Recruitment and Assessment

Board/Committee, DRDO (Delhi), since 2006.

xii) NPTEL (MHRD program) video lecture series in "Computer Graphics" (available in Doordarshan – Ekalvya Channel and now on Youtube), completed in Sept. 2005; ***9th most viewed Video lecture on Youtube, 2010; most viewed (in 2009) among all courses in Computer Science and Engg. field***.

xiii) NPTEL-Phase II - (a) Discipline (course) Coordinator in Computer Science and Engg., IIT Madras, Chennai – 36, since 2009; (b) Co-instructor of the video lecture series in "Pattern Recognition".

xiv) CSE faculty incharge of classrooms, Course Allocation, TA Allocation, QIP/Sponsored interviews etc., 2006-16.

xv) Department (CS&E) faculty representative in the Institute Board of Academic Courses (*BAC member, Deptt. Of CS&E, IIT Madras*), 2005-2007.

xvi) Department (CS&E) Faculty representative in the IIT time-table committee, 2004-2007.

xvii) Department (CS&E) faculty representative in the Institute Board of Training and Placement (BT&P *member, Deptt. Of CS&E, IIT Madras*), 2008-09, 2011-2013.

xviii) Appointed as the *General Secretary of the Staff Club, IIT Madras*, 2004-2006; Also, served earlier as executive committee member and Sports secretary of Staff Club, IIT Madras.

19. Top 10 significant Publications, with most Citations (APR. 2024):

Title	Cited by	Year
A survey of decision fusion and feature fusion strategies for pattern classification UG Mangai, S Samanta, **S Das,** PR Chowdhury IETE Technical review 27 (4), 293	**368**	2010
Use of salient features for the design of a multistage framework to extract roads from high-resolution multispectral satellite images **S Das**, TT Mirnalinee, K Varghese **Geoscience and Remote Sensing, IEEE Transactions on** 49 (10), 3906-3931	**265**	2011
Real-time upper-body human pose estimation using a depth camera HP Jain, A Subramanian, **S Das**, A Mittal Computer Vision/Computer Graphics Collaboration Techniques, 227-238	**105**	2011
Temporal Coherency based Criteria for Predicting Video Frames using Deep Multi-stage Generative Adversarial Networks P Bhattacharjee, S Das	**58**	2017

Title	Cited by	Year
Advances in Neural Information Processing Systems **(NIPS)** 2017 (30), 4271-80.		
See the Sound, Hear the Pixels; Janani R, S. Das, **WACV** (***Best student paper award***)	**73**	2020
Indoor versus outdoor scene classification using probabilistic neural network S Gupta, L., Pathangay, V., Patra, A., Dyana, A, **Das S**.; EURASIP Journal on Advances in Signal Processing 2007 (1), 1-10	**41**	2007
System-on-programmable-chip implementation for on-line face recognition A Pavan Kumar, V Kamakoti, **S Das** **Pattern Recognition Letters** 28 (3), 342-349	**40**	2007
MST-CSS (Multi-Spectro-Temporal Curvature Scale Space), a novel spatio-temporal representation for content-based video retrieval A Dyana, **S Das;** Circuits and Systems for Video Technology**, IEEE Transactions on,** 20 (8), 1080-94	**38**	2010
Mutual variation of information on transfer-CNN for face recognition with degraded probe samples; S Banerjee, S Das; **Neurocomputing**	**36**	2018
Capacitance of dielectric coated cylinder of finite axial length and truncated cone isolated in free space SB Chakrabarty, **S Das**, BN Das Electromagnetic Compatibility, **IEEE Transactions on** 44 (2), 394-398	**25**	2002
Trajectory representation using Gabor features for motion-based video retrieval A Dyana, **S Das; Pattern Recognition Letters** 30 (10), 877-892	**25**	2009
Enhancing decision combination of face and fingerprint by exploitation of individual classifier space: An approach to multi-modal biometry A Patra, **S Das; Pattern Recognition** 41 (7), 2298-2308	**18**	2008

Google Scholar Citation (APR. -2024) screenshot:
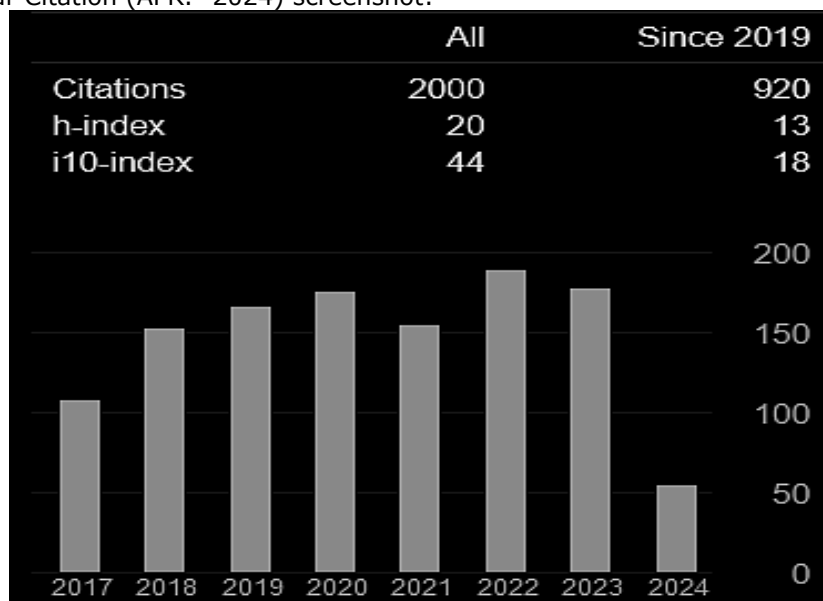
20.
REFERENCES:

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(ii)   **Prof. Thomas Greiner**
           Faculty of Engineering; Deptt. of ET & IT
           Pforzheim University
           Tiefenbronner Str. 65
           75175 Pforzheim
           Germany.

           Email: TGreiner@gmx.de

(iii)   **Prof. Bhabatosh Chanda (FNAE, FNASc.)**
           Electronics and Communication Sciences Unit,
           Indian Statistical Institute (ISI),
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May. 2024.

Annexure:

<*EMAIL extract *> I owe a lot to IITM for an excellent BTech education and a superb peer group of students that gave me a good start. Special thanks to my CS professors such as you, CPR, CSRM, Mahabala, Janakiram, Chandrasekhar, KK (both KKs!),

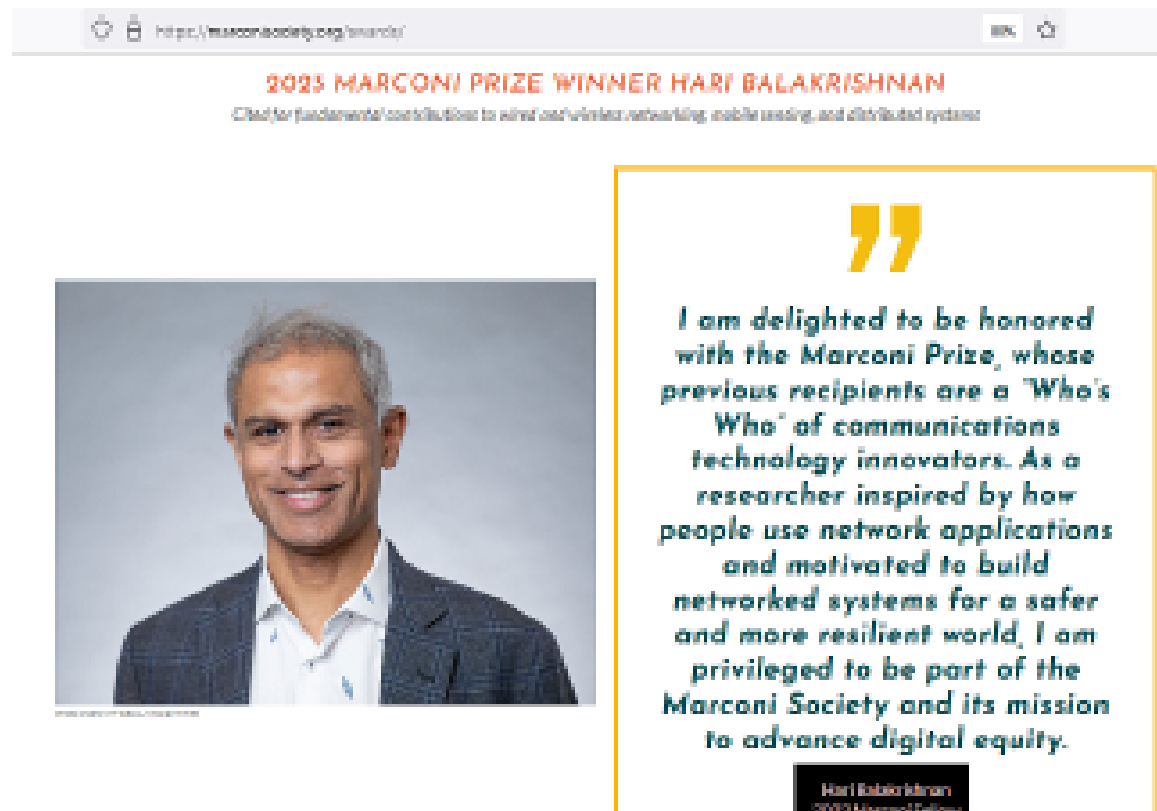_Sukhendu Das_, etc. for creating a good foundation.

It's good to see the CS department grow in strength.

Hari

Hari Balakrishnan Receives the Marconi Prize;

2008 ACM Fellow **Hari Balakrishnan** has received the prestigious **2023 Marconi Prize;**

https://www.thehindu.com/sci-tech/science/mit-professor-hari-balakrishnan-wins-2023-marconi-prize/article66552661.ece

2023 MARCONI PRIZE WINNER HARI BALAKRISHNAN

Cited for fundamental contributions to wired and wireless networking, mobile sensing, and distributed systems

I am delighted to be honored with the Marconi Prize, whose previous recipients are a "Who's Who" of communications technology innovators. As a researcher inspired by how people use network applications and motivated to build networked systems for a safer and more resilient world, I am privileged to be part of the Marconi Society and its mission to advance digital equity.

Hari Balakrishnan
2023 Marconi Fellow

Fellow IEEE, ACM; Infosys Prize in '20; ACM SIGCOMM Award, IEEE Koji Kobayashi Award '21; Distinguished Alumnus Award, IIT Madras

Feb. 2023.

Brief Biodata

Dr. **Sukhendu Das** is currently employed as a Professor in the Deptt. Of Computer Science and Engg., IIT Madras, Chennai, India. He completed his B.Tech degree from IIT Kharagpur in the Deptt. Of Electrical Engg. in 1985 and M. Tech Degree in the area of Computer Technology from IIT Delhi in 1987. He then obtained his Ph.D degree from IIT Kharagpur in 1993. His current areas of research interests are: Visual Perception, Computer Vision: Digital Image Processing and Pattern Recognition, Computer Graphics, Machine Learning and Artificial Neural Networks, Computational Sc. & Engg., Soft Computing, Deep Learning and Computational Brain modeling. Dr. Sukhendu Das has been a faculty of the Deptt. of CS&E, IIT Madras, INDIA since 1989. He has worked as a visiting scientist in the University of Applied Sciences, Pforzheim, Germany, for post-doctoral research work, from Dec. 2001 till May 2003; and as a visiting fellow/scientist in the Univ. of UWA, Perth, Australia, during June-Aug. 2006, and July-Sept. 2008. He has guided more than 100 students - 8 (currently guiding 6) Ph. D., 38 (currently guiding 2) M.S., 54 M. Tech and 9 B. Tech students. He had completed several international and national sponsored projects and consultancies, both as principle and co-investigators. He has published ~**200 technical papers (with 2000 citations – src: google scholar)** in international and national journals and conferences. He has reviewed several papers in international journals (IEEE, IET, Elsevier, Springer etc.), Conferences (CVPR, ICCV, ECCV, NIPS, ICLR, ICML, WACV, ICVGIP) and had chaired several sessions in conferences. He is a senior member of IEEE, and has received **six (6) best papers and a best design contest award**. Significant and novel technical contributions are: **MSGAN** & **GCDN** for Video prediction; **MST-CSS** representation for CBVR tasks; **SUBBAND** face, **3-MET** on **Deep-DA/transfer-CNN**, **LR-GAN**, Eigen-domain transformation (**EDT**), Eigen-scale space (**ESS**) representations for face-based biometry; Outdoor Surveillance (MCIT, GOI) and classroom face datasets; **CGL** detection and Manifold based alignment for optimization using DA, for applications in face, object & video categorization tasks.