About sushanta mukhopadhyay

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2 Present Address :

Dr. Susanta Mukhopadhyay
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Indian Institute of Technology, Dhanbad
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4 Educational/professional qualification :

A	Higher Secondary (12th std)	English, Bengali, Physics, Chemistry, Mathematics, Statistics	St. Xavier's College, Calcutta, India (West Bengal Council of H.S. Education, India)	Aug,1985
B	B.Sc.	Physics(Hons) Mathematics, Chemistry, English	Presidency College, Calcutta, India	Oct, 1988
C	B. Tech.	Radiophysics and Electronics	Calcutta University, India	Apr,1992
D	M. Tech	Radiophysics and Electronics	Calcutta University, India	Dec,1994
E	Ph.D.	Computer Science (Image Processing)	Indian Statistical Institute, Calcutta, India	Submission: Oct, 2001 Awarded: Mar, 2003

Thesis title: "Morphological Tower : A Tool for Multi-scale Image Processing"

5 Experience :

(a)	1997-2001	*Research Scholar (Ph.D. student)*, Electronics and Communication Sciences Unit Indian Statistical Institute, Calcutta-700108,India *Nature of assignment*: research leading to Ph.D. *Field*: Image Processing and Analysis
(b)	2001-2003	*Postdoctoral Fellow*, The Sanford Burnham Prebys Medical Discovery Institute, La Jolla, California-92037, USA *Nature of assignment*: Research Field: Image Processing and Analysis, Electron Microscopy and Cell Biology
(c)	2004-2007	*Research Fellow*, School of Computer Engineering, Nanyang Technological University, Singapore *Nature of assignment*: Research *Field*: Brain Mapping, fMRI

(d)	Apr, 2007-Mar2010	*Assistant Professor*, Department of Computer Science and Engineering Indian Institute of Technology (formerly known as Indian School of Mines), Dhanbad-826004, India
	Apr,2010-continuing	*Associate Professor* Department of Computer Science and Engineering Indian Institute of Technology (formerly known as Indian School of Mines), Dhanbad-826004, India

6 Research Interest : Image processing, biomedical image processing, computer vision, fMRI, brain mapping, image compression, image crypto-systems, image fusion, active contours, graph cuts, real time image processing, texture image processing, video processing. visual secret sharing, image inpainting

7 Teaching/Supervising PhD candidates : *(i)* Subjects taught : B.Tech, M.Tech, M.Sc. and Int M.Sc, Dual Degree,Ph.D.:

(a)	*Data structures*	Theory, tutorial, laboratory
(b)	*Graph Theory & Combinatorics*	Theory, tutorial
(c)	*Computer Graphics*	Theory, tutorial, laboratory
(d)	*Image and Video Processing*	Theory, tutorial, laboratory
(e)	*Computer Vision*	Theory, tutorial
(f)	*Pattern Recognition*	Theory, tutorial
(g)	*Discrete and Analytical Mathematics*	Theory, tutorial
(h)	*Algorithmic Graph Theory*	Theory, tutorial
(i)	*Mathematical Foundation for Computer Science and Engineering*	Theory, tutorial
(j)	*Algorithm Design and Analysis*	Shared with another faculty ,theory
(k)	*Research Methodology*	Theory, tutorial
(l)	*Computing Techniques and Mathematical Tools*	Theory, laboratory
m	*Graph Theory*	Theory

(ii) Final year projects supervised: B.Tech - 37, M.Tech-32

(iii) Ph.D. student guided(completed/ongoing) :

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Sl No	Status	Student	Title of Thesis/Synopsis
1	**Full time Awarded in Aug, 2011**	Arup K Pal	*Studies on Compression, Vector Quantization and Security of Images* (joint supervision and as co-supervisor)
2	**Full time Awarded in Feb 2016**	Manoj K Mishra	*Techniques of Compression and Encryption for Image/Video Data* (joint supervision and as main supervisor)
3	**Full time Awarded in Mar, 2017**	Debashis Das	*On Processing and Analyzing Finger-print Images with Template Security* (joint supervision and as main supervisor)
4	**Full time Awarded in August, 2018**	Sandeep Singh Sengar	*Development of Motion Segmentation, Tracking and Compression Techniques* (single supervision)
5	**Full time**	Mudassir. Rafi	*Techniques for Texture Processing, Analysis, Synthesis and Applications*

	Awarded in August, 2020		*(*single supervision)
6	**Full time Awarded in August, 2020**	Debasish Mukherjee	*Designing Hardware Architectures for Real Time Image Processing* (single supervision)
7	**Full time Awarded in Sept, 2020**	Ms. Priyambada Subudhi	*On Interactive Image Segmentation using Active Contours and Graph Cuts* (single supervision)
8	**Full Time *Awarded in Sept 2021***	Ms. Gunjan Gautam	*Discovering Patterns in Ocular Biometrics using Handcrafted and Deep Learning Features* (single supervision)
9	**Full Time *Awarded in Sept 2022***	Ajay Kumar Mallic k	*Techniques for Feature based Key frame Extraction and Matching for Content based Video Retrieval (single supervision)*
10	Ongoing Full time Joined in August, 2017	Ms Manali Roy	*Study and Development of Image Fusion Algorithms (*single supervision)
11	Ongoing Full Time Joined in August, 2018	Amit Soni Arya	*field Image inpainting, Compressed Sensing (*single supervision)
12	Ongoing Full Time Joined in August, 2018	Krishnendu Maiti	*field Visual Secret Sharing* (single supervision)

8 Other duties/assignments

a. Served as Organizing Secretary for the Indian National Conference – Recent Advances in Information Technology, Feb, 2009, ISM, Dhanbad, India

b. Served as Organizing Chair for the International Conference – Recent Advances in Information Technology, Mar, 2012, ISM, Dhanbad, India

c. Serving a number of committees (Department as well as the Institute) as member

d. Organized and taught in both theoretical and laboratory session of a number of short term certificate courses

e. Program Co-Chair for the 2nd International Conference on Recent Advances in Information Technology, 13-14 Mar, 2014, IIT(ISM), Dhanbad, India

f. Worked as President, Music Society of IIT(ISM) Dhanbad, August 2012 - Dec 2019

g. Worked as Faculty Adviser , SPIC MACAY (Society for the Promotion of Indian Classical Music and Culture Amongst Youth) (IIT(ISM) Dhanbad (since Aug, 2012 up to Dec 2019)

h. Member/Convener, Departmental Post Graduate Committee (DPGC) , CSE, IIT(ISM) Dhanbad, Member: May-Sept, 2018, convener : Oct 2019-Apr, 2022

i. Tutorial, Publication and Editorial Chair, 5th IEEE International Conference on Recent Advances in Information Technology, 3-5 Mar, 2023, IIT(ISM), Dhanbad, India

Books (editor/chapters):

1	Proceedings of the National Seminar on Recent Advances on Information Technology – RAIT2009, 6-7 February, 2009, Indian School of Mines University, Dhanbad, India. Editors: C. Kumar, S. Mukhopadhyay, G.P.Biswas, P.K.Jana, Allied Publishers Pvt. Ltd.
2	Chapter 20, in Pattern Directed Information Analysis, Editors: D. Dutta Majumdar and B. Chanda, New Age International Publishers, New Delhi, 2009
3	Advances in Intelligent Systems and Computing, Vol-266, G.P.Biswas and Susanta Mukhopadhyay (Eds): Recent Advances in Information Technology, Springer, 2014
4	*IEEE* Proceedings of the 5th International Conference on Recent Advances in Information Technology (RAIT- 2023) IIT (Dhanbad), India, 2023, Organized by Department of Computer Science and Engineering Indian Institute of Technology (Indian School of Mines) Dhanbad, Jharkhand, India, 3-5 March, 2023, Editors: Dr. Ansuman Bhattacharya, Dr. Ayan Das and Dr. Sushanta Mukhopadhyay, doi:10.1109/RAIT57693.2023.10126739. https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=10126739&isnumber=10126577

Selected journal publications
2023
Amit Soni Arya, Akash Saha, Susanta Mukhopadhyay, "*Adaptive Sparse modeling in Spectral & Spatial Domain for Compressed Image Restoration*", accepted in **Signal Processing**, in July 2023, Elsevier
Krishnendu Maity and Susanta Mukhopadhyay, "*VSBSIS: A Verifiable SVD-Based Secret Image Sharing Scheme for Lossless and Efficient Reconstruction"* **Displays**, *Elsevier, accepted in May, 2023,* ***doi:*** **https://doi.org/10.1016/j.displa.2023.102455**
Amit Soni Arya, Akash Saha, Susanta Mukhopadhyay, "*ADMM optimizer for integrating wavelet-patch and group-based sparse representation for image inpainting*",**Visual Computer - International Journal of Computer Graphics**, Feb, 2023, pp.1-18, Springer Berlin Heidelberg, **doi: https://doi.org/10.1007/s00371-023-02786-1**
2022
Ajay Kumar Mallick and Susanta Mukhopadhyay," *Video Retrieval Framework based on Color Co-occurrence Feature of Adaptive Low Rank Extracted Keyframes and Graph Pattern Matching* ", **Information Processing and Management,** Volume 59, Issue 2, March 2022, 102870 Elsevier,
Gunjan Gautam, Aditya Raj and SusantaMukhopadhyay, *¨Deep supervised class encoding for iris presentation attack detection***" , Digital Signal Processing,** Volume 121, March 2022, 103329
2021
Priyambada Subudhi and Susanta Mukhopadhyay, *"A statistical active contour model for interactive clutter image segmentation using graph cut optimization"* **Signal Processing** Volume 184, July 2021, 108056 , Elsevier
Gunjan Gautam, Aditya Raj and Susanta Mukhopadhyay, "*Identifying Twins Based On Ocular Region Features Using Deep Representations"*, : **Applied Intelligence, Springer,** Vol 51, pp-1-18. 2021,first online on 07 Oct, 2019, **doi: https://doi.org/10.1007/s10489-019-01562-w**
2020
Gunjan Gautam and Susanta Mukhopadhyay, "*Challenges, Taxonomy and Techniques of Iris Localization: A Survey",* accepted in **Digital Signal Processing**, Elsevier, Volume 107, December 2020, 102852
Ajay Kumar Mallick and Sushanta Mukhopadhyay, *" Video retrieval using salient foreground region of motion vector based extracted key frames and spatial pyramid matching",* **Multimedia Tools and Applications**, Vol.79, Issue:37-38, pp. 27995-28022, Oct, 2020

Manali Roy and Susanta Mukhopadhyay, *"A scheme for edge-based multi-focus color image fusion",* **Multimedia Tools and Applications, 79**, pages24089–24117 (2020)Published online : 17 June 2020, **DOI: https://doi.org/10.1007/s11042-020-09116-w**
Sandeep Singh Sengar and Susanta Mukhopadhyay. "*Moving object detection using statistical background subtraction in wavelet compressed domain*", in **Multimedia Tools and Applications, 79 (9-10), 5919-5940, 2020, Springer**, **DOI: 10.1007/s11042-019-08506-z**
Sandeep Singh Sengar, and Susanta Mukhopadhyay. "*Motion segmentation based surveillance video compression using adaptive particle swarm optimization*" in **Neural Computing and Applications,** 32:11443–11457, 2020, **Springer**, **, DOI: 10.1007/s00521-019-04635-6**
2019
Aditya Raj, Gunjan Gautam, Siti Norul Huda Sheikh Abdullah, Abbas Salimi Zaini and Susanta Mukhopadhyay, "*Multi-level Thresholding based on Differential Evolution and Tsallis Fuzzy Entropy"*, accepted in July, 2019 in **Image and Vision Computing**, 91 (2019) 103792, **doi:https://doi.org/10.1016/j.imavis.2019.07.004** ***(SCI/SCIE)***
Debasish Mukherjee, Susanta Mukhopadhyay, "*Hardware Efficient Architecture for 2D DCT and IDCT using Taylor-series Expansion of Trigonometric Functions*", in **IEEE Transactions on Circuits and Systems for Video Technology** 10 July, 2019 **doi: 10.1109/TCSVT.2019.2928045**
Mudassir Rafi and S. Mukhopadhyay, " *Salient Object Detection employing Regional Principal Color and Texture Cues* ", in **Multimedia Tools and Applications**, Volume 78, Issue 14, July 2019, pp 19735–19751 **doi: https://doi.org/10.1007/s11042-019-7153-z**
Debasish Mukherjee and Susanta Mukhopadhyay, "*Fast hardware architecture for fixed-point 2D Gaussian filter*", in **AEU- International Journal of Electronics and Communications** Volume 105, June 2019, Pages 98-105 **doi: https://doi.org/10.1016/j.aeue.2019.03.020**
Priyambada Subudhi and Susanta Mukhopadhyay, " *An efficient graph reduction framework for interactive texture segmentation*", accepted in January, 2019 in **Signal Processing: Image Communication**, Volume 74, May 2019, Pages 42-53 **doi: https://doi.org/10.1016/j.image.2019.01.010**
Niladri Chakraborty, Priyambada Subudhi and Susanta Mukhopadhyay, "*A Shock filter based Morphological Scheme for Texture Enhancement*", in **IET Image Processing**., 2019, Vol. 13 Iss. 4, pp. 653-662 doi: **10.1049/iet-ipr.2018.5652** , Print ISSN 1751-9659, Online ISSN 1751-9667
Gunjan Gautam and Susanta Mukhopadhyay, " *An adaptive localization of pupil degraded by eyelash occlusion and poor contrast ",* in **Multimedia Tools and Applications** , Volume 78, Issue 6, March 2019, pp 6655–6677 *(SCI)* **doi:10.1007/s11042-018-6371-0**
2018
Mudassir Rafi and S. Mukhopadhyay, "*Texture Description using Multi-scale Morphological GLCM* ", **Multimedia Tools and Applications** (Springer), Volume 77, Issue 23, December 2018,, pp 30505–30532 **doi: https://doi.org/10.1007/s11042-018-5989-2**
Debasish Mukherjee and Susanta Mukhopadhyay, "*Fast Hardware Architecture for 2D Separable Convolution Operations",* in **IEEE Transactions on Circuits and Systems II: Express Briefs**, Vol. 65(12), 2018, pp. 2042-2046. **doi:10.1109/TCSII.2018.2819187**
Priyambada Subudhi and Susanta Mukhopadhyay, " *A Novel Texture Segmentation Method based on Co-occurrence Energy driven Parametric Active Contour Model*", **Signal, Image and Video processing** (Springer) vol.12, issue-4, pp.669-676, May, 2018 **doi: https://doi.org/10.1007/s11760-017-1206-4**
2017
Sandeep Singh Sengar and Susanta Mukhopadhyay, "*Motion detection using block based bi-directional optical flow method*", **Journal of Visual Communication and Image Representation**, [Elsevier] Vol.49,Nov, 2017, pp.89-103 **doi: https://doi.org/10.1016/j.jvcir.2017.08.007**
Sandeep Singh Sengar, and Susanta Mukhopadhyay, "*Moving object detection based on frame difference and W4*", **Signal, Image and Video Processing**, March 2017. [Springer], Vol.11, Issue-7, October, 2017, pp.1357-1364, **doi: https://doi.org/10.1007/s11760-017-1093-8**
Sandeep Singh Sengar, and Susanta Mukhopadhyay, "*Detection of moving objects based on enhancement of optical flow*", **Optik - International Journal for Light and Electron Optics**, [Elsevier] Vol. 145, Sept, 2017, pp.130-141 **doi: https://doi.org/10.1016/j.ijleo.2017.07.040**
Priyambada Subudhi and Susanta Mukhopadhyay, " *A fast texture segmentation scheme based on active contours and discrete cosine transform*", **Computers and Electrical Engineering** (Elsevier) Vol.62, August, 2017, pp.105-118 **doi: https://doi.org/10.1016/j.compeleceng.2017.04.021**

Debashis Das, Susanta Mukhopadhyay and S. R. Sai Praveen, "*Multi-scale Contrast Enhancement of Oriented Features in 2D Images using Directional Morphology*", **Optics and Laser Technology**, Elsevier, 87, 51-63, 2017. **doi: https://doi.org/10.1016/j.optlastec.2016.07.016**
2016
Sandeep Singh Sengar and Susanta Mukhopadhyay, "*Moving object area detection using normalized self-adaptive optical flow*," **Optik-International Journal for Light and Electron Optics**, Vol.-127, pp. 6258-6267, 29 March 2016. [Elsevier] **doi: https://doi.org/10.1016/j.ijleo.2016.03.061**
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Sawrav Roy, Susanta Mukhopadhyay and Manoj Kumar Mishra, "*Enhancement of morphological snake based segmentation by imparting image attachment through scale-space continuity",* **Pattern Recognition** 48 (7), 2015, pp. 2254-2268 **doi: https://doi.org/10.1016/j.patcog.2015.01.007, IF: 8.518 SCIE, Q1**
The old ones
Jagath C. Rajapakse, C. L. Tan, Xuebin Zheng, Susanta Mukophadyay, Kanyan Yang "*Exploratory Analysis of Brain Connectivity with ICA*", **IEEE Engineering in Medicine and Biology Magazine**, Volume: 25 Issue: 2, pages: 102-111, March/April 2006.
S. Mukhopadhyay and B. Chanda, "*Multi-scale morphological segmentation of gray-scale images*", **IEEE Transactions on Image Processing**, Vol 12, No. 5, pages: 533-549, 2003.
S. Mukhopadhyay and B. Chanda, "*An edge preserving noise smoothing technique using multi-scale morphology*", **Signal Processing**, 82(4): pages: 527-544, 2002.
S. Mukhopadhyay and B. Chanda, "*Fusion of 2d grayscale images using multi-scale morphology*", **Pattern Recognition**, 34(10): pages: 1939-1949, 2001.
S. Mukhopadhyay and B. Chanda, "*A multi-scale morphological approach to local contrast enhancement,* **Signal Processing**", 80(4): pages: 685-696, 2000.

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