Manish Okade

Education

Degree	University/ Institution	Year	Subjects/ Area of Specialization	% of Marks/ Division/Grade
B.E.	Visvesvaraya Technological University (VTU)/ B.V.B College of Engineering & Technology, Hubli, Karnataka, India.	1998-2002	Electronics and Communication Engineering	72.8 % Distinction
M.Tech.	Indian Institute of Technology (IIT) Kharagpur, India. (Advisor: Prof. Prabir K. Biswas)	2004-2006	Electronics and Electrical Communication Engineering (Automation and Computer Vision)	9.14 CGPA
Ph.D.	Indian Institute of Technology (IIT) Kharagpur, India. (Advisor: Prof. Prabir K. Biswas) Thesis Title: Camera Motion Estimation Characterization and its Applications	2009-2014	Electronics and Electrical Communication Engineering (Image Processing and Video Analysis)	Excellent Grade

Teaching

Duration	Designation	Organization	Area(s)
29.03.2023-Continuing	Associate Professor	National Institute of Technology, (NIT) Rourkela, Odisha, India.	Signal and Image Processing
02.02.2018 –28.03.2023	Assistant Professor Grade-I	National Institute of Technology, (NIT) Rourkela, Odisha, India.	Signal and Image Processing
23.04.2014 –01.02.2018	Assistant Professor Grade-II	National Institute of Technology, (NIT) Rourkela, Odisha, India.	Signal and Image Processing (Electronics and Communication Engineering Department)

01.07.2006 -16.07.2009 & 05.09.2003 -10.07.2004	Senior Lecturer & Lecturer	BVBCET, Hubli, Karnataka, India.	Computer Sc. & Engineering Department
20.01.2003 -04.09.2003	Assistant Lecturer	National Institute of Technology, (NIT) Surathkal, Karnataka, India.	Electronics and Communication Engineering Department

Doctoral / Master /Bachelor thesis Supervision

a.   Ph.D.

Scholar Name	Thesis Title	Status
Pavan Sandula	Thesis Title: Compressed Domain Video Zoom Motion Analysis and Saliency Estimation	Graduated
Ruby Mishra	Lightweight Block Cipher optimizations for IoT applications	Ongoing
Kondala Rao	Computational Color Naming for real time applications	Ongoing

b.   M.Tech. : 23

c.   B.Tech. : 24

Publications

Journal Publications

1. R. Mishra, M. Okade, K. K. Mahapatra, "Efficient hardware mapping of Boolean substitution boxes based on functional decomposition for RFID and ISM band IoT applications" Integration, Elsevier. (Accepted).

2. R. Mishra, M. Okade, K. K. Mahapatra, "Novel Substitution Box Architectural Synthesis for Lightweight Block Ciphers" IEEE Embedded Systems Letters, doi: 10.1109/LES.2023.3249291.

3. M. Okade, J. Mukherjee, "Discrete Cosine Transform: A Revolutionary Transform That Transformed Human Lives", IEEE Circuits and Systems Magazine, vol. 22, no. 4, pp. 58-61, Dec. 2022.

4. J. Mukhopadhyay, M. Okade, "Circuits & Systems: An Overview of Academic and Research Activities in India", IEEE Circuits and Systems Magazine, vol. 22, no. 4, pp. 73-75, Dec. 2022.

5. K. Jyothi, M. Okade "Text2Color Networks: Deep Learning Models for Color Generation from Compositional Color Descriptions" International Journal on Artificial Intelligence Tools, 2023 doi: 10.1142/S0218213023500264

6. P. Sandula, M. Okade, "A novel video saliency estimation method in the compressed domain", Pattern Analysis and Applications, vol. 25, pp. 867–878 November 2022.

7. P. Sandula, M. Okade, "Robust spatiotemporal saliency estimation method for H.264 compressed videos", Multimedia Tools and Applications, vol. 81, pp. 39021–39039 November 2022.

8. P. Sandula, M. Okade, "Compressed Domain Video Zoom Motion Analysis utilizing CURL", Multimedia Tools and Applications, vol.81, no.9, pp.12759–12776 April 2022.

9. P. Sandula, H. Reddy, M. Okade, "CNN-Based Camera Motion Classification using HSI Color Model for Compressed Videos", Signal Image and Video Processing, Springer, vol. 16, no. 1, pp. 103-110, June 2021.

10. V. Kesana, M. Okade, "Compressed domain zoom motion classification using Local Tetra Patterns", Signal, Image and Video Processing, Springer, vol.13, no.5, pp. 879-885, July 2019.

11. N. Dalmia, M. Okade, "Robust First Quantization Matrix Estimation based on Filtering of Recompression Artifacts for Non-Aligned Double Compressed JPEG Images", Signal Processing: Image Communication, Elsevier, vol. 61, pp. 9-20, Feb. 2018.

12. M. Okade, P. K. Biswas, "A Novel Moving Object Segmentation Framework utilizing Camera Motion Recognition for H.264 Compressed Videos", Journal of Visual Communication and Image Representation, Elsevier, vol. 36, pp. 199-212, April 2016.

13. M. Okade, G. Patel, P. K. Biswas, "Robust Learning based Camera Motion Characterization scheme with Application to Video Stabilization," IEEE Transactions on Circuits and Systems for Video Technology, vol. 26, no. 3, pp. 453-466, March 2016.

14. M. Okade, P. K. Biswas, "Video Stabilization using Maximally Stable Extremal Region Features," Multimedia Tools and Applications, Springer, vol. 68, no. 3, pp. 947-968, Feb. 2014.

15. M. Okade, P. K. Biswas, "Improving video stabilization using multi-resolution MSER features," IETE Journal of Research vol. 60, no. 5, pp. 375-382, Oct. 2014.

Under Review

1. N. Reddy, B. Das, M. Biswal, M. Okade, "CNN based Image Resizing Forensics for Double Compressed JPEG Images", Journal of Information Security and Applications. (Major Revision).

Conference Proceedings

1. R. Mishra, M. Okade, K. K. Mahapatra, 'FPGA based High Throughput Substitution Box Architectures for Lightweight Block Ciphers' in Proceedings of 3rd International Conference on Public Key Infrastructure and Its Applications, Bangalore, India, September 9-10, 2022.

2. B. Das, M. Biswal, A. Panigrahi, M. Okade, "CNN Based Image Resizing Detection and Resize Factor Classification for Forensic Applications", in Proceedings of 2nd IEEE International Conference on Range Technology, (ICORT), Integrated Test Range, DRDO, Chandipur, India, August 5-6, 2021.

3. R. Mishra, S. Dutta, M. Okade, K. Mahapatra, "Substitution Permutation Network Based Lightweight Ciphers with Improved Substitution Layers for Secure IoT Applications", in Proceedings of 2nd IEEE International Conference on Range Technology, (ICORT), Integrated Test Range, DRDO, Chandipur, India, August 5-6, 2021. **(Best Paper in the Session award)**

4. R. Mishra, M. Okade, K. K. Mahapatra, 'Optimized S-Box Architectures of PRESENT Cipher for Resource Constrained Applications' in Proceedings of IEEE International Symposium on Smart Electronic Systems, iSES 2020, Chennai, India, December 14-16, 2020 pp. 304-307.

5. H Reddy, P. Nagrale, M. Okade, K. K. Mahapatra, "Hardware Realization of Video Enhancement and Compression Algorithms", in Proceedings of 2nd IEEE International Conference on Range Technology, (ICORT), Integrated Test Range, DRDO, Chandipur, India, August 5-6, 2021.

6. M. Gowri, M. Okade, "Kinect Based Frontal Gait Recognition Using Skeleton and Depth Derived Features" in Proceedings of IEEE National Conference on Communications (NCC), IIT Kharagpur, February 21-23, 2020.

7. U. Anumala, M. Okade, "Forensic Detection of Median Filtering in Images Using Local Tetra Patterns and J-Divergence" in Proceedings of IEEE National Conference on Communications (NCC), IIT Kharagpur, February 21-23, 2020.

8. M. Gowri, M. Okade, "Skeleton based Frontal Gait Recognition utilizing Fourier Descriptors", in Proceedings of IEEE TENCON, Kochi, India, October 17-20, 2019.

9. P. Sandula, M. Okade, "A Novel Zoom Detection and classification technique based on application of Histogram Intersection and Kullback Leibler divergence for compressed videos", in Proceedings of IEEE National Conference on Communications (NCC), IISc Bangalore, February 20-23, 2019.

10. P. Sandula, M. Okade, "Camera zoom detection in the compressed domain", in Proceedings of International Conference on Range Technology, (ICORT), Integrated Test Range, DRDO, Chandipur, India, February 15-17, 2019. **(Best Oral Presentation awarded to Manish Okade for the paper)**

11. K. Jyothi and M. Okade, "Computational Color Naming for Human-Machine Interaction," 2019 IEEE Region 10 Symposium (TENSYMP), Kolkata, India, 2019, pp. 391-396.

12. S. Sahu, M. Okade, "Exposing Image Resizing utilizing Welch Power Spectral Density Analysis for Double Compressed JPEG Images", in Proceedings of IEEE Workshop on Information Forensics and Security (WIFS), Hong Kong, 10-13 December 2018.

13. P. Sandula, M. Okade, "Compressed domain zoom motion detection and classification based on application of local ternary patterns on block motion vectors", in Proceedings of Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP-2018), IIIT Hyderabad, December 18-22, 2018.

14. N. Brinda, M. Okade, "Fast Camera Motion Estimation utilizing Mode and Directional Self Information in the Compressed Domain" in Proceedings of INDICON-2017, IIT Roorkee, December 15-17, 2017.

15. N. Dalmia, M. Okade, "First Quantization Matrix Estimation for Double Compressed JPEG Images Utilizing Novel DCT Histogram Selection Strategy", in Proceedings of Tenth Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) IIT Guwahati, 18 - 22 December 2016.

16. N. Dalmia, M. Okade, "A Novel Technique for Misalignment Parameter Estimation in Double JPEG Images with Application to Forensics", in Proceedings of Visual Communications and Image Processing (VCIP), Chengdu, China, 27-30 November 2016.

17. J. Bhatia, M. Okade, "A Novel Image Enhancement Technique based on Statistical Analysis of DCT coefficients for JPEG Compressed Images", in Proceedings of IEEE National Conference on Communications (NCC), IIT Guwahati, Mar 4-6th 2016, pp. 148-153.

18. S. A. Ganihar, S. Joshi, N. Patil, U. Mudenagudi, M. Okade, "Voting Based Decision Framework for Optimum selection of Interpolation Technique for 3-D Rendering Applications", in Proceedings of IEEE Techsym, IIT Kharagpur, Feb 28-Mar 2 2014. **(Best paper in Technology in Education category as well as Runner up in Best poster award category)**

19. M. Okade, P. K. Biswas, "A Novel Motion Vector Outlier Removal Technique based on Adaptive Weighted Vector Median Filtering for Global Motion Estimation", in Proceedings of IEEE Indicon, IIT Bombay, 13-15th Dec 2013.

20. M. Okade, P. K. Biswas, "Fast Video Stabilization in the Compressed domain", in Proceedings of IEEE International Conference on Multimedia and Expo (ICME) 2012, Melbourne, Australia, July 9-12, 2012, pp. 1015-1020.

21. M. Okade, P. K. Biswas, "Fast Camera Motion Estimation using Discrete Wavelet Transform on block motion vectors", in Proceedings of 29th IEEE Picture Coding Symposium (PCS) 2012, Krakow, Poland, May 7-9, 2012, pp. 333-336.

22. M. Okade, P. K. Biswas, "Mean shift clustering based outlier removal for global motion estimation" in Proceedings of IEEE NCVPRIPG IIT Jodhpur, India, Dec 18-21, 2013.

23. M. Okade, P. K. Biswas, "Improving Video Stabilization in the Presence of Motion Blur", in Proceedings of IEEE NCVPRIPG, Hubli, India, Dec. 15-17, 2011, pp. 78-81.

Sponsored Projects

Period	Sponsoring Organization	Title of Project	Budget (INR)	Co-Investigators (if any)
Sept. 2016- Sept. 2019	SERB, Government of India under Early Career Research Award	Role of camera motion cue in determining visual saliency and its applications to surveillance using TI DaVinci vision board.	22.73 lakhs	---
Nov. 2019- Nov. 2022	DRDO	Development of a low power video compression and enhancement module using TI's DaVinci board along with its FPGA realization.	16.11 lakhs	Prof. K. K. Mahapatra
Aug. 2021- Sept. 2023	DST	Gender Advancement for Transforming Institutions (GATI).	9 lakhs	Prof. Dipti Patra

Outreach Activities

Sl. No	Outreach Activity Details	Duration		No. of External Participants	Funding
		From	To		
1	Short term course on "Multimedia Forensics and Security"	02/07/2018	06/07/2018	15	TEQIP-III
2	Short term course on "Video Analytics: A Security Perspective"	05/07/2019	09/07/2019	42	MeitY under Information Security Education and Awareness (ISEA) project.
3	"Deep Learning Applications in Image Processing under Security ambit" (Online Mode)	05/10/2020	09/10/2020	80	MeitY under Information Security Education and Awareness (ISEA) project
4	"Machine/Deep Learning for Image and Video Processing Applications"	24/02/2021	28/02/2021	100	TEQIP-III under Twinning mode with GEC Bilaspur`

5	**GIAN Online Course:** Adversarial signal processing and machine learning with application to multimedia forensics	14/02/2022	18/02/2022	50	**GIAN Course:** Prof. Mauro Barni, University of Siena, Italy. Postponed due to Covid: Initial dates were in Sept. 2020 in Physical mode

Professional Membership

IEEE Senior Member: July 1, 2022

IEEE Member: March 2012-June 30, 2022

International Collaborations

Ongoing collaboration with Prof. Mauro Barni, University of Siena, Italy. MHRD sponsored GIAN course completed with Prof. Mauro Barni, titled "Adversarial signal processing and machine learning with application to multimedia forensics", Feb. 14-18, 2022.

Awards and Honors

Sl.No	Name of the Award/Honor	Awarded by	Year
1.	Member of the Indian Delegation which visited United Kingdom as part of the Gender Advancement for Transforming Institutions (GATI) programme of DST to understand the best practices of Athena Swan awarded institutions namely University of Manchester, Aston University, Birmingham and Advance HE, London.	DST, Govt. of India	2023
2.	Best Oral Paper Presentation in a session award at International Conference on Range Technology, ICORT-2021.	Integrated Test Range, DRDO	2021
3.	Honoured to anchor the 18th Annual Convocation of NIT Rourkela with Hon'ble President of India Shri. Ram Nath Kovind ji as Chief Guest in March 2021.	NIT Rourkela	2021
4.	Member of the Indian Delegation which visited Tokyo, Japan from 24 Jan. to 2 Feb. 2020 as part of the Sakura Science Exchange Program to explore bilateral collaboration in Science and Technology with Japanese Universities and Research Institutions.	Japan Science and Technology (JST)	2020
5.	Best Oral Paper Presentation in a session award at International Conference on Range Technology, ICORT-2019.	Integrated Test Range, DRDO	2019
6.	Early Career Research Award.	SERB-Govt. of India	2016
7.	Best paper in Technology in Education category and Runner up for best poster award for student paper at IEEE Techsym Conference.	IIT Kharagpur	2014
8.	Travel Grant Award of Rs. 75000/- to present paper at International Conference on Multimedia and Expo (ICME) conference held at Melbourne, Australia.	Microsoft Research India	2012
9.	IBM Great Mind Challenge Award for best project guidance.	IBM India	2008
10.	1st Prize in Essay writing competition during M.Tech. studies at IIT Kharagpur.	IIT Kharagpur	2006
11.	3rd Rank in Inter School Mathematics Olympiad held at State level (Karnataka).	Kendriya Vidyalaya (KV), Hubli, Karnataka, India	1996

Institute Administration

Post	Details	From	To
Member	Department Academic Committee	01/07/2014	31/06/2016
Member	Department Purchase Committee	01/07/2014	31/06/2016
Professor In-Charge	Department Computer Simulation Laboratory	07/08/2015	30/06/2020
Professor In-Charge	Department Timetable	01/07/2017	31/06/2019
Faculty Advisor	B.Tech. and Dual Degree batch	01/07/2014	31/06/2019
Member	Central Timetable Committee (Senate Committee)	01/07/2017	31/06/2019
Member	14th Annual Convocation Dress Distribution Committee	12/01/2016	22/01/2016
Member	15th Annual Convocation Venue Preparation and Seating Arrangement committee	13/10/2017	22/01/2018
Member	Scrutiny Committee for faculty members for participation in continuing education programmes under TEQIP-III	05/01/2018	30/06/2020
Member	Institute Furniture Committee	15/03/2018	23/09/2019
Warden	M S Swaminathan Hall of Residence	01/07/2018	30/06/2020
Help Desk Member	CSAB/JOSAA Counseling	16/06/2018	30/07/2018
Member	Housekeeping and Sanitation committee for all Halls of Residence & Academic and Administrative areas	23/07/2018	30/06/2020
Member	Institute Anti-Ragging Committee	31/08/2018	21/08/2019
Member	Institute Research Scholars Week (RSW) committee	01/03/2014	31/06/2019
Professor In-Charge	Institute Research Scholars Week (RSW)	01/07/2019	Continuing
Faculty in-charge	CSAB/JOSAA Counseling	16/06/2019	30/07/2019

Convener	16th Annual Convocation Venue Preparation and Seating Arrangement committee	30/10/2018	22/01/2019
Convener	17th Annual Convocation Venue Preparation and Seating Arrangement committee	29/07/2019	22/01/2020
Member	Committee for deciding Best Performance Awards among Non-Teaching Employees.	07/11/2019	30/06/2020
Member	Curriculum, Ranking and Accreditation Committee (Senate Committee)	01/07/2020	Continuing
Convener	18th Annual Convocation Venue Preparation and Seating Arrangement committee	29/07/2020	22/03/2021
Chairman	Department Information Brochure	28/08/2020	30/10/2020
Chairman	Institute Information Brochure	01/12/2020	26/01/2021
Convener	18th Annual Convocation Anchor & Stage Management. Anchored the Convocation in presence of Chief Guest, Hon'ble President of India, Shri. Ramnath Kovind ji.	29/07/2020	22/03/2021
Head of Centre (HoC)	Computer & Informatics Centre	01/07/2021	Continuing
Convener	19th Annual Convocation Anchor & Stage Management.	25/10/2021	13/08/2022
Professor In-Charge	Blockchain based digital degrees for 19th Annual Convocation graduands.	03/05/2021	13/08/2022
Convener	20th Annual Convocation Anchor & Stage Management.	20/10/2022	Continuing
Professor In-Charge	Centre of Excellence (CoE) on Cybersecurity and Open-Source Technologies.	31/10/2022	Continuing
Member	Institute Surveillance Committee	10/11/2022	Continuing