



# Dr. Ajay Kumar Mallick

Assistant Professor, NIT Hamirpur (H.P), India

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## *Curriculum Vitae*

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### Affiliation and Contacts

Department of Computer Science & Engineering  
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### Permanent Address

Ajay Kumar Mallick  
Hoo-chi-min Nagar,  
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### Educational Qualification

- 2016-Present **Ph.D**, Department of Computer Science and Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand-826004, India. .
- 2015 **M.Tech**, First Division, 7.97 CGPA, Department of Computer Science and Engineering, Indian Institute of Technology (Indian School of Mines), Dhanbad, Jharkhand-826004, India.
- 2013 **B. E.**, First Division, 70.90 %, Department of Computer Science and Engineering, University Institute of Technology, Burdwan, West Bengal-713104, India.
- 2007 **Intermediate(10 + 2)**, First Division in Science (Physics, Chemistry, Mathematics, Biology and English), 63.40%, Army Public School, Bengdubi, West Bengal-734424, India.
- 2005 **High School(10<sup>th</sup>)**, First Division, 76.80 %, Army Public School, Bengdubi, West Bengal-734424, India.

## Achievements

- (1) Qualified GATE-2013 .
- (2) Qualified IIT (ISM) Entrance-2013 .
- (3) Qualified GATE-2015 .
- (4) Qualified IIT (ISM) Entrance-2015 .
- (5) Qualified GATE-2017 .
- (6) Selection in Assistant Professor (on contract in the year 2018) under project TEQIP III, National Project Implementation Unit, Ministry of HRD .

## Theory Teaching

- (1) Machine Learning.
- (2) Artificial Intelligence.
- (3) Digital Image Processing.
- (4) Cyber Security.
- (4) Algorithm Analysis and Design.
- (4) Information Theory and Coding.

## Laboratory Teaching after Ph.D.

- (1) Artificial Intelligence.
- (2) Natural Language Processing.
- (3) Cyber Security.

## Subject of Interest.

- (1) Algorithm Analysis and Design.
- (2) Data Structure.
- (3) Machine Learning.
- (4) Artificial Intelligence.
- (5) Image and Video Processing.
- (6) Computational Technique and Mathematical Tools.
- (7) Natural Language Processing.
- (8) Compiler Design and Theory of Computation.

## Software Skills

- (1) **Operating system**, (i) Windows (ii) Linux.
- (2) **Application software**, (i) MS Office (ii) E-Draw .
- (3) **Programming language**, C Programming, C++, Java, Python .
- (4) **Computational language**, (i) MATLAB .
- (5) **Document Preparation Software**, (i) LATEX .

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## Thesis

- Ph. D. Techniques for Feature based Keyframe Extraction and Matching for Content based Video Retrieval.
- M-Tech. Digital Image Watermarking Based on Visual Cryptography and Singular value Decomposition.

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## Teaching Experience

- (1) Assistant Professor, National Institute of Technology, Hamirpur, India,, Duration: 04/09/2023 to present .
- (2) Assistant Professor Senior Grade-1 at School of Computer Science and Engineering , VIT-AP University, Duration: 09/06/2022 to present .
- (3) Teaching Personnel (Synonymous to Assistant Professor) at Department of Information Technology, Govind Ballabh Pant University of Agriculture & Technology, Pantnagar, Uttarakhand, Duration: 15/08/2015-08/12/2015 .

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## Research Experience

- (1) Content based image and video classification and retrieval.
- (2) Watermarking and Privacy in image retrieval.
- (3) Computer Vision.
- (4) Machine Learning.

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## List of Publications : Journals

- (1)**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 & Management (**Elsevier**) 59(2), pp. 102870 (2022),DOI: <https://doi.org/10.1016/j.ipm.2022.102870>, **SCIE, Q1, IF:7.466**.
- (2)**Ajay Kumar Mallick**, and Susanta Mukhopadhyay, “Video retrieval using salient foreground region of motion vector based extracted keyframes and spatial pyramid matching ”, Multimedia Tools and Applications (**Springer**) 79, no. 37 (2020): 27995-28022,DOI: <https://doi.org/10.1007/s11042-020-09312-8>, **SCIE, Q2, IF:3.610**.
- (3) Mukul Majhi, and **Ajay Kumar Mallick**, “ Random Projection and Hashing based Privacy Preserving for Image Retrieval Paradigm using Invariant and Clustered Feature ”, Journal of King Saud University - Computer and Information Sciences,Elsevier) (2022),DOI: <https://doi.org/10.1016/j.jksuci.2022.04.018>, **SCIE, Q1, IF: 9.006**, .

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## List of Publications : Conferences

- (1) **Ajay Kumar Mallick**, and Susanta Mukhopadhyay, “Video Retrieval based on Motion Vector Key Frame Extraction and Spatial Pyramid Matching”, 6th International Conference on Signal Processing and Integrated Networks (SPIN), IEEE, pp.687-692, DOI: 10.1109/SPIN.2019.8711781, (2019).

(2) **Ajay Kumar Mallick**, and Sushila Maheshkar, "Near-Duplicate Video Retrieval Based on Spatio Temporal Pattern Tree," Proceedings of 2nd International Conference on Computer Vision & Image Processing, Springer, pp.173-186, DOI: [https://doi.org/10.1007/978-981-10-7895-8\\_14](https://doi.org/10.1007/978-981-10-7895-8_14), (2018).

(3) **Ajay Kumar Mallick**, and Sushila Maheshkar, "Video Retrieval Based on Color Correlation Histogram Scheme of Clip Segmented Key Frames," Fourth International Conference on Parallel, Distributed and Grid Computing (PDGC), IEEE, pp.213-218, DOI: 10.1109/PDGC.2016.7913148, (2016).

(4) **Ajay Kumar Mallick**, and Sushila Maheshkar. "Digital image watermarking scheme based on visual cryptography and SVD", In Proceedings of the 4th International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA) 2015, Springer, pp. 589-598, DOI:[https://doi.org/10.1007/978-81-322-2695-6\\_50](https://doi.org/10.1007/978-81-322-2695-6_50), (2016).

(5) Aniket Ninawe, **Ajay Kumar Mallick**, Vikash Yadav, Hifzan Ahmad, Dinesh Kumar Sah, and Cornel Barna. "Cathedral and Indian Mughal Monument Recognition Using Tensorflow", In International Workshop Soft Computing Applications, Springer, pp. 186-196, DOI: [https://doi.org/10.1007/978-3-030-51992-6\\_16](https://doi.org/10.1007/978-3-030-51992-6_16), (2018).

(6) Mukul Kirti Verma, Rajesh Dwivedi, **Ajay Kumar Mallick**, and Ebenezer Jangam. "Dimensionality reduction technique on SIFT feature vector for content based image retrieval", In International Conference on Recent Trends in Image Processing and Pattern Recognition, Springer, pp. 383-394, DOI: [https://doi.org/10.1007/978-981-13-9181-1\\_34](https://doi.org/10.1007/978-981-13-9181-1_34), (2018).

(7) Susila Maheshkar, Bhavishya Mathur, Raj Roushan, and **Ajay Kumar Mallick**, "Automatic Hadoop cluster deployment and Management tool", In 2017 Third International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), IEEE, pp. 163-168, DOI:10.1109/ICRCICN.2017.8234500, (2017).

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## Member of Professional Bodies

- (1) IEEE.
- (2) IEEE Computer Society.
- (3) Life Member (L 226) of Indian Unit for Pattern Recognition and Artificial Intelligence (**IUPRAI**), an affiliate of International Association for Pattern Recognition.

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## Reviewer

- (1) Information Processing and Management Journal (Elsevier).
- (1) Fuzzy Systems and Data Mining (International Conference).

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## Short-Term Course/Workshop/Conferences Attended

- (1) 6<sup>th</sup> International Conference on Signal Processing and Integrated Networks (SPIN), Amity University, Sec-125, Noida, Delhi-NCR, India, March 07-08, 2019.

- (2) 3<sup>rd</sup> International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), RCC Institute of Information Technology, Kolkata, India, November 03-05, 2017.
- (3) Short Term Course on Information Security and Digital Forensics, Netaji Subhas Institute of Technology Dwarka Sector-3, New Delhi, India, June 5-9, 2017.
- (4) Workshop on Medical Imaging: Techniques & Image Processing, Indian Institute of Technology Delhi, India, April 14-16, 2017.
- (5) 4<sup>th</sup> International Conference on Computer Vision & Image Processing (CVIP), Indian Institute of Technology Roorkee (Noida Campus), India, September 10-12, 2017.
- (6) Workshop on Data Science and Machine Learning, Center for Soft Computing Research (An Associate Institution of ISI), Indian Statistical Institute, Kolkata, March 28-31 2017.
- (7) Workshop on Coding Theory and Cryptography: Fundamentals and Applications, Indian School of Mines, Dhanbad, India, December 13-17, 2017.
- (8) 4<sup>th</sup> International Conference on Parallel, Distributed and Grid Computing (PDGC), Jaypee University of Information Technology, Wagnaghat, Solan- Himachal Pradesh- India, December 22-24, 2016.
- (9) 3<sup>rd</sup> International Conference on Recent Advances in Information Technology (RAIT), Indian Institute of Technology (ISM), Dhanbad, India, March 03-05, 2016.

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## Reference

- (1) Prof. Susanta Mukhopadhyay, Associate Professor, Department of Computer Science and Engineering, Indian Institute of Technology (ISM), Dhanbad, Jharkhand, India. Email:msushanta2001@iitism.ac.in .
- (2) Prof. A.C.S Rao, Assistant Professor, Department of Computer Science and Engineering, Indian Institute of Technology (ISM), Dhanbad, Jharkhand, India. Email: acsrao@iitism.ac.in .
- (3) Prof. Rajendra Pamula, Assistant Professor, Department of Computer Science and Engineering, Indian Institute of Technology (ISM), Dhanbad, Jharkhand, India. Email: rajendra@iitism.ac.in .