## **Publications**

### Journals:

- 1. Kousik Sarkar, **Soumen Bag**, and Prasun Chandra Tripathi, "*Noise Aware Content-noise Complementary GAN with Local and Global Discrimination for Low-dose CT Denoising*", Neurocomputing, Elsevier, vol. 582, article no. 127473, 2024 **[Impact Factor: 5.5]**.
- Prasun Chandra Tripathi and Soumen Bag, "An Attention-guided CNN Framework for Segmentation and Grading of Glioma using 3D MRI Scans", IEEE/ACM Transactions on Computational Biology and Bioinformatics, IEEE, vol. 20, no. 3, pp. 1890–1904, 2023 [Impact Factor: 3.6].
- 3. Priyanka Roy and **Soumen Bag**, "Ink Analysis based Forensic Investigation of Handwritten Legal Documents", Multimedia Tools and Applications, **Springer**, vol. 81, pp. 23001–23047, 2022 [Impact Factor: 3.0].
- Prabhat Dansena, Soumen Bag, and Rajarshi Pal, "Pen Ink Discrimination in Handwritten Documents using Statidtical and Motif Texture Analysis: A classification based Approach", Multimedia Tools and Applications, Springer, vol. 81, pp. 30881–30909, 2022 [Impact Factor: 3.0].
- 5. Prasun Chandra Tripathi and **Soumen Bag**, "A Computer-aided Grading of Glioma Tumor using Deep Residual Networks Fusion", Computer Methods and Programs in Biomedicine, **Elsevier**, vol. 215, article no. 106597, 2022 [Impact Factor: 4.9].
- 6. Deepika Gupta and Soumen Bag, "Holistic versus Segmentation-based Recognition of Handwritten Devanagari Conjunct Characters: A CNN-based Experimental Study", Neural Computing and Applications, Springer, vol. 34, pp. 5665–5681, 2022 [Impact Factor: 4.5].
- 7. Anuja Dixit and **Soumen Bag**, "Adaptive Clustering-based Approach for Forgery Detection in Images Containing Similar Appearing but Authentic Objects", Applied Soft Computing, vol. 113, part A, article no. 107893, **Elsevier**, 2021 [Impact Factor: 7.2].
- 8. Anuja Dixit and **Soumen Bag**, "A Fast Technique to Detect Copy-move Image Forgery with Reflection and Non-affine Transformation Attacks", Expert Systems with Applications, vol. 182, article no. 115282, **Elsevier**, 2021 [Impact Factor: 8.5].
- 9. Rahul Pramanik and Soumen Bag, "A Novel Skew Correction Methodology for Handwritten Words in Multilingual Multi-oriented Documents", Multimedia Tools and Applications, **Springer**, vol. 80, pp. 27323–27342, 2021 **[Impact Factor: 3.0]**.
- 10. Rahul Pramanik and Soumen Bag, "Handwritten Bangla City Name Word Recognition using CNN-based Transfer Learning and FCN", Neural Computing and Applications, **Springer**, vol. 33, pp. 9329–9341, 2021 **[Impact Factor: 4.5]**.
- 11. Prabhat Dansena, **Soumen Bag**, and Rajarshi Pal, "*Generation of Synthetic Data for Handwritten Word Alteration Detection*", IEEE Access, **IEEE CS Press**, vol. 9, pp. 38979–38990, 2021 **[Impact Factor: 3.4]**.
- 12. Deepika Gupta and **Soumen Bag**, "CNN-based Multilingual Handwritten Numeral Recognition: A Fusion-free Approach", Expert Systems with Applications, vol. 165, article no. 113784, **Elsevier**, 2021 **[Impact Factor: 7.5]**.
- 13. Anuja Dixit and **Soumen Bag**, "Composite Attacks-based Copy-move Image Forgery Detection using AKAZE and FAST with Automatic Contrast Thresholding", IET Image Processing, **IET Digital Library**, vol. 14, no. 17, pp. 4528–4542, 2020 **[Impact Factor: 2.0]**.

- 14. Prasun Chandra Tripathi and **Soumen Bag**, "Segmentation of Brain Magnetic Resonance Images using a Novel Fuzzy Clustering based Method", IET Image Processing, **IET Digital Library**, vol. 14, no. 15, pp. 3705–3717, 2020 [Impact Factor: 2.0].
- 15. Anuja Dixit and **Soumen Bag**, "Utilization of Edge Operators for Localization of Copy-move Image Forgery using WLD-HOG Features with Connected Component Labeling", Multimedia Tools and Applications, vol. 79, pp. 26061–26097, **Springer**, 2020 [Impact Factor: 3.0].
- 16. Prasun Chandra Tripathi and **Soumen Bag**, "CNN-DMRI: A Convolutional Neural Network for Denoising of Magnetic Resonance Images", Pattern Recognition Letters, vol. 135, pp. 57–63, **Elsevier**, 2020 [Impact Factor: 3.9].
- 17. Prabhat Dansena, Rajarshi Pal, and **Soumen Bag**, "Quantitative Assessment of Capabilities of Color Models for Pen Ink Discrimination in Handwritten Documents", IET Image Processing, vol. 14, no. 4, pp. 1594–1604, **IET Digital Library**, 2020 [Impact Factor: 2.0].
- 18. Rahul Pramanik and **Soumen Bag**, "A Segmentation-based Recognition System for Handwritten Bangla and Devanagari Words using Conventional Classification and Transfer Learning", IET Image Processing, vol. 14, no. 5, pp. 959–972, **IET Digital Library**, 2020 [Impact Factor: 2.0].
- 19. Deepika Gupta and **Soumen Bag**, "Handwritten Multilingual Word Segmentation using Polygonal Approximation of Digital Curves for Indian Languages", Multimedia Tools and Applications, **Springer**, vol. 78, no. 14, pp. 19361–19386, 2019 [Impact Factor: 3.0].
- 20. Rahul Pramanik and **Soumen Bag**, "Shape Decomposition-based Handwritten Compound Character Recognition for Bangla OCR", Journal of Visual Communication and Image Representation, **Elsevier**, vol. 50, pp. 123–134, 2018 **[Impact Factor: 2.6]**.
- 21. **Soumen Bag** and Partha Bhowmick, "Adaptive-interpolative Binarization with Stroke Preservation for Restoration of Faint Characters in Degraded Documents", Journal of Visual Communication and Image Representation, **Elsevier**, vol. 31, pp. 266–281, 2015 [Impact Factor: 2.6].
- 22. **Soumen Bag**, Gaurav Harit, and Partha Bhowmick, "*Recognition of Bangla Compound Characters using Structural Decomposition*", Pattern Recognition, **Elsevier**, vol. 47, no. 3, pp. 1187–1201, 2014 **[Impact Factor: 7.5]**.
- 23. **Soumen Bag** and Gaurav Harit, "A Survey on Optical Character Recognition for Bengali and Hindi Documents", Sadhana-Academy Proceedings in Engineering Science, **IAS & Springer**, vol. 38, no. 1, pp. 133–168, 2013 **[Impact Factor: 1.4]**.
- 24. **Soumen Bag** and Gaurav Harit, "An Improved Contour-based Thinning Method for Character Images", Pattern Recognition Letters, **Elsevier**, vol. 32, no. 14, pp. 1836–1842, 2011 [Impact Factor: 3.9].
- 25. **Soumen Bag** and Gaurav Harit, "Skeletonizing Character Images using a Modified Medial Axisbased Strategy", International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI), **WSPC**, vol. 25, no. 7, pp. 1035–1054, 2011 **[Impact Factor: 0.9]**.

#### Conferences:

1. Patho Barui, **Soumen Bag**, and Ayan Das, "*Potato Leaf Disease Classification using PSOK Image Segmentation and CNN Model*", 2<sup>nd</sup> International Conference on Agriculture-Centric Computation (ICA), **Springer-CCIS**, May 21–24, 2024.

- 2. Raj Kumar Saw, Ayan Das, and **Soumen Bag**, "A Deep Learning-based Tomato Plant Disease Classification System", 2<sup>nd</sup> International Conference on Agriculture-Centric Computation (ICA), **Springer-CCIS**, May 21–24, 2024.
- 3. Prasun Chandra Tripathi and **Soumen Bag**, "A Dilated Convolution-based Denoising Network for Magnetic Resonance Images", 31<sup>st</sup> International Joint Conference on Neural Networks (IJCNN), **IEEE CS Press**, pp. 1–8, Jul 18–22, 2021.
- 4. Deepika Gupta and **Soumen Bag**, "Degraded Document Image Binarization using Active Contour Model", 5<sup>th</sup> International Conference on Computer Vision and Image Processing (CVIP), **Springer-CCIS**, vol. 1377, pp. 124–136, Allahabad, India, Dec 4–6, 2020.
- 5. Priyanka Roy and **Soumen Bag**, "Detection of Handwritten Document by Analyzing Writers' Handwriting", 8<sup>th</sup> International Conference on Pattern Recognition and Machine Intelligence (PReMI), **Springer-LNCS**, pp. 596–605, Tezpur, India, Dec 17–20, 2019.
- Prabhat Dansena, Rahul Pramanik, Soumen Bag, and Rajarshi Pal, "Ink Analysis Using CNN-based Transfer Learning to Detect Alteration in Handwritten Words", 4<sup>th</sup> International Conference on Computer Vision and Image Processing (CVIP), vol. 1147, pp. 223–232, Springer-CCIS, Jaipur, India, Sep 27–29, 2019.
- 7. Shraddha Wankhade, Anuja Dixit, and **Soumen Bag**, "A Fast and Rigid Copy Move Forgery Detection Technique using HDBSCAN", 4<sup>th</sup> International Conference on Computer Vision and Image Processing (CVIP), vol. 1147, pp. 15–24, **Springer-CCIS**, Jaipur, India, Sep 27–29, 2019.
- 8. Priyanka Roy and **Soumen Bag**, "Forensic Performance on Handwriting to Identify Forgery Owing to Word Alteration", 5<sup>th</sup> IEEE International Conference on Identity, Security and Behavior Analysis (ISBA), **IEEE CS Press**, Hyderabad, India, Jan 22–24, 2019.
- 9. Anuja Dixit and **Soumen Bag**, "Utilization of HOG-SVD based Features with Connected Component Labeling for Multiple Copy-move Image Forgery Detection", 5<sup>th</sup> IEEE International Conference on Identity, Security and Behavior Analysis (ISBA), **IEEE CS Press**, Hyderabad, India, Jan 22–24, 2019.
- 10. Prasun Chandra Tripathi and **Soumen Bag**, "*Non-Invasively Grading of Brain Tumor through Noise Robust Textural and Intensity based Features*", 1<sup>st</sup> International Conference on Computational Intelligence in Pattern Recognition (CIPR), **Springer-AISC**, vol. 999, pp. 531–539, Shibpur, India, Jan 19–20, 2019.
- 11. Deepika Gupta and **Soumen Bag**, "A Local to Global Approach for Document Image Binarization", 1<sup>st</sup> International Conference on Computational Intelligence in Pattern Recognition (CIPR), **Springer-AISC**, vol. 999, pp. 693–702, Shibpur, India, Jan 19–20, 2019.
- 12. Saumyadipta Sarkar, Prasun Chandra Tripathi, and **Soumen Bag**, "An Improved Non-Local Means Denoising Technique for Brain MRI", 1<sup>st</sup> International Conference on Computational Intelligence in Pattern Recognition (CIPR), **Springer-AISC**, vol. 999, pp. 765–773, Shibpur, India, Jan 19–20, 2019.
- 13. Rahul Pramanik, Prabhat Dansena, and **Soumen Bag**, "A Study on the Effect of CNN-based Transfer Learning on Handwritten Indic and Mixed Numeral Recognition", 4<sup>th</sup> Workshop on Document Analysis and Recognition (DAR 2018), **Springer-CCIS**, vol. 1020, pp. 41–51, Hyderabad, India, Dec 18, 2018.
- 14. Arkajyoti Mitra, Prasun Chandra Tripathi, and **Soumen Bag**, "*Identification of Astrocytoma Grade using Intensity, Texture, and Shape based Features*", 8<sup>th</sup> International Conference on Soft Computing for Problem Solving (SocProS), **Springer-AISC**, vol. 1048, pp. 455–465, Vellore, India, Dec 17–19, 2018.

- 15. Anupam Wadhwa, Mohak Maheshwari, Prabhat Dansena, and **Soumen Bag**, "*Geometrical and Structural Features for Forensics in Handwritten Bank Cheques*", 15<sup>th</sup> IEEE India Council International Conference (INDICON), **IEEE CS Press**, pp. 1–6, Coimbator, India, Dec 16–18, 2018.
- 16. Anuja Dixit and **Soumen Bag**, "Copy-move Image Forgery Detection using Gray-tones with Texture Description", 3<sup>rd</sup> International Conference on Computer Vision and Image Processing (CVIP), **Springer-CCIS**, vol. 1024, pp. 75–86, Jabalpur, India, Sep 29–Oct 1, 2018.
- 17. Priyanka Roy and **Soumen Bag**, "Identification of Fraudulent Alteration by Similar Pen Ink in Handwritten Bank Cheque", 3<sup>rd</sup> International Conference on Computer Vision and Image Processing (CVIP), **Springer-CCIS**, vol. 1024, pp. 183–195, Jabalpur, India, Sep 29–Oct 1, 2018.
- 18. Rahul Pramanik, Vivek Raj, and **Soumen Bag**, "Finding the Optimum Classifier: Classification of Segmentable Components in Offline Handwritten Devanagari Words", 4<sup>th</sup> International Conference on Recent Advances in Information Technology (RAIT), **IEEE CS Press**, pp. 1–5, Dhanbad, India, Mar 15–17, 2018.
- 19. Rahul Pramanik, **Soumen Bag**, and Ranjit Kumar, "A Fuzzy and Contour-based Segmentation Methodology for Handwritten Hindi Words in Legal Documents", 4<sup>th</sup> International Conference on Recent Advances in Information Technology (RAIT), **IEEE CS Press**, pp. 1–6, Dhanbad, India, Mar 15–17, 2018.
- 20. Mouli Laha, Prasun Chandra Tripathi, and **Soumen Bag**, "A Skull Stripping from Brain MRI using Adaptive Iterative Thresholding and Mathematical Morphology", 4<sup>th</sup> International Conference on Recent Advances in Information Technology (RAIT), **IEEE CS Press**, pp. 1–6, Dhanbad, India, Mar 15–17, 2018.
- 21. Deepika Gupta and **Soumen Bag**, "An Efficient Character Segmentation Approach for Handwritten Hindi Text", 5<sup>th</sup> International Conference on Signal Processing and Integrated Networks (SPIN), **IEEE CS Press**, pp. 730–734, Noida, India, Feb 22–23, 2018.
- 22. Deepayan Chakraborty, Rahul Pramanik and **Soumen Bag**, "A Novel Approach Towards Segmentation of Connected Handwritten Numerals", 4<sup>th</sup> International Conference on Image Information Processing (ICIIP), **IEEE CS Press**, pp. 340–344, Shimla, India, Dec 21–23, 2017 (**Received Best Paper Award in Information Processing track**).
- 23. Rahul Pramanik and **Soumen Bag**, "Linear Curve Fitting-based Headline Estimation in Handwritten Words for Indian Scripts", 7<sup>th</sup> International Conference on Pattern Recognition and Machine Intelligence (PReMI), **Springer-LNCS**, vol. 10597, pp. 116–123, Kolkata, India, Dec 05–08, 2017 (**Received Springer Beat Student Paper Award**).
- 24. Prabhat Dansena, **Soumen Bag**, and Rajarshi Pal, "Differentiating Pen Inks in Handwritten Bank Cheques using Multi-layer Perceptron", 7<sup>th</sup> International Conference on Pattern Recognition and Machine Intelligence (PReMI), **Springer-LNCS**, vol. 10597, pp. 655–663, Kolkata, India, Dec 05–08, 2017 (**Received Springer Beat Student Paper Award**).
- 25. Rahul Pramanik and **Soumen Bag**, "Linear Regression-based Skew Correction of Handwritten Words in Indian Languages", 2<sup>nd</sup> International Conference on Computer Vision and Image Processing & Workshop on Multimedia (CVIP-WM), **Springer-AISC**, vol. 704, pp. 129–139, Greater Noida, India, Sep 09–12, 2017.

- 26. Rahul Pramanik and **Soumen Bag**, "Segmentation of Bengali Handwritten Conjunct Characters through Structural Disintegration", 1<sup>st</sup> International Conference on Computational Intelligence, Communications, and Business Analytics (CICBA), **Springer-CCIS**, vol. 776, pp. 297–306, Kolkata, India, Mar 24–25, 2017.
- 27. Kapil K Upreti and **Soumen Bag**, "Segmentation of Handwritten Hindi Words using Polygonal Approximation", 15<sup>th</sup> International Conference on Frontiers in Handwriting Recognition (ICFHR), **IEEE CS Press**, pp. 150–155, Shenzhen, China, Oct 23–26, 2016.
- 28. Shalmoly Mondal and **Soumen Bag**, "Face Recognition using PCA and Minimum Distance Classifier", 5<sup>th</sup> International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA), **Springer-AISC**, vol. 515, pp. 397–405, Bhubaneswar, India, Sep 16–17, 2016.
- 29. **Soumen Bag** and Ankit Krishna, "Character Segmentation of Hindi Unconstrained Handwritten Words", 7<sup>th</sup> International Workshop on Combinatorial Image Analysis (IWCIA), **Springer-LNCS**, vol. 9448, pp. 247–260, Kolkata, India, Nov 24–27, 2015.
- 30. **Soumen Bag** and Glory Chawpatnaik, "A Modified Parallel Thinning Method for Handwritten Oriya Character Images", 4<sup>th</sup> International Conference on Frontiers in Intelligent Computing: Theory and Applications (FICTA), **Springer-AISC**, vol. 404, pp. 181–189, Durgapur, India, Nov 16–18, 2015.
- 31. Soumyadeep Ghosh and **Soumen Bag**, "A Modified Thinning Strategy to Handle Junction Point Distortion for Bangla Characters", 3<sup>rd</sup> IEEE TechSym, **IEEE CS Press**, pp. 52–56, Kharagpur, India, Feb 28–Mar 2, 2014.
- 32. Soumyadeep Ghosh and **Soumen Bag**, "An Improvement on Thinning to Handle Characters with Noisy Contour", 3<sup>rd</sup> National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), **IEEE CS Press**, pp. 1–4, Jodhpur, India, Dec 19–21, 2013.
- 33. **Soumen Bag**, Partha Bhowmick, and Gaurav Harit, "Detection of Structural Concavities in Character Images–A Writer-independent Approach", 1<sup>st</sup> Indo-Japan Conference on Perception and Machine Intelligence (PerMIn), **Springer-LNCS**, vol. 7143, pp. 260–268, Kolkata, India, Jan 12–13, 2012.
- 34. **Soumen Bag**, Partha Bhowmick, Gaurav Harit, and Arindam Biswas, "Character Segmentation of Handwritten Bengali Text by Vertex Characterization of Isothetic Covers", 2<sup>nd</sup> National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), **IEEE CS Press**, pp. 21–24, Hubli, India, Dec 15–17, 2011.
- 35. **Soumen Bag**, Partha Bhowmick, Priyaranjan Behera, and Gaurav Harit, "Robust Binarization of Degraded Documents using Adaptive-cum-interpolative Thresholding in a Multi-scale Framework", 1<sup>st</sup> International Conference on Image Information Processing (ICIIP), **IEEE CS Press**, Shimla, India, Nov 3–5, 2011.
- 36. **Soumen Bag** and Goutam Sanyal, "An Efficient Face Recognition Approach using PCA and Minimum Distance Classifier", 1<sup>st</sup> International Conference on Image Information Processing (ICIIP), **IEEE CS Press**, Shimla, India, Nov 3–5, 2011.
- 37. **Soumen Bag**, Gaurav Harit, and Partha Bhowmick, "*Topological Features for Recognizing Printed and Handwritten Bangla Characters*", Joint Workshop on Multilingual OCR and Analytics for Noisy Unstructured Text Data (J-MOCR-AND) at 11<sup>th</sup> International Conference on Document Analysis and Recognition (ICDAR), **ACM Digital Library**, Article no. 10, Beijing, China, Sep 17, 2011.

- 38. **Soumen Bag**, Partha Bhowmick, and Gaurav Harit, "*Recognition of Bengali Handwritten Characters using Skeletal Convexity and Dynamic Programming*", 2<sup>nd</sup> International Conference on Emerging Applications of Information Technology (EAIT), **IEEE CS Press**, pp. 265–268, Kolkata, India, Feb 18–20, 2011.
- 39. **Soumen Bag** and Gaurav Harit, "*A Novel Topographic Feature Extraction Method for Indian Character Images*", 1<sup>st</sup> International Conference on Computer Science and Information Technology (CCSIT), **Springer–CCIS**, vol. 131, part–I, pp. 358–367, Bangalore, India, Jan 2–4, 2011.
- 40. **Soumen Bag** and Gaurav Harit, "A Medial Axis based Thinning Strategy and Structural Feature Extraction of Character Images", 17<sup>th</sup> IEEE International Conference on Image Processing (ICIP), **IEEE CS Press**, pp. 2173–2176, Hong Kong, Sep 26–29, 2010.
- 41. **Soumen Bag** and Gaurav Harit, "A Medial Axis based Thinning Strategy for Character Images", 1<sup>st</sup> National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG), pp. 67–72, Jaipur, India, Jan 15–17, 2010.
- 42. **Soumen Bag**, Soumen Barik, Prithwiraj Sen, and Gautam Sanyal, "A statistical nonparametric approach of face recognition: Combination of eigenface & modified K-means clustering", 4<sup>th</sup> International Conference on Information Processing, **I. K. International Publishing House**, pp. 198–204, Bangalore, India, Aug 8–10, 2008.

# **Book Chapter:**

1. **Soumen Bag**, "A nearest opposite contour pixel based thinning strategy for character images", Feature Detectors and Motion Detection in Video Processing, Chapter 6, pp. 123–140, N. Dey, A, Ashour, P.K. Patra (Ed.), **IGI Global**, USA, 2017.

#### **Monograph:**

Soumen Bag, "An efficient human face recognition approach: Combination of eigenface and k-means clustering", Lap Lambert Academic Publishing GmbH & Co. KG, Germany, ISBN 978-3-8433-7830-7, 2010.