Dr. Ashis Kumar Dhara

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Professional Experience

Dec 2018 to present: **Assistant Professor**, National Institute of Technology Durgapur, **INDIA**
April 2018 to Dec 2018: **Assistant Professor**, Dr. Shyama Prasad Mukherjee International Institute of Information Technology, Naya Raipur, **INDIA**
Sept 2017 to Apr 2018, ***Post Doctoral Researcher*** in Uppsala University, **SWEDEN**
Dec 2015 to Aug 2017: **Adhoc Faculty**, National Institute of Technology Jamshedpur, **INDIA**
Nov 2007 to Jan 2010: **Assistant System Engineer**, TATA Consultancy Services Ltd. Kolkata, **INDIA**

Education:

2016: Ph.D. in **Medical Image Analysis** from **Indian Institute of Technology Kharagpur, INDIA,** Dissertation entitled *"Development of a Self-learning Tool for Radiologists using Content-Based Image Retrieval Techniques."*
2007: Master of Technology in **Electrical Engineering** from the Department of Applied Physics, **University of Calcutta, INDIA.**
2005: Bachelor of Technology in **Electrical Engineering** from the Department of Applied Physics, **University of Calcutta, INDIA.**
2002: B.Sc. with **Physics (Hons), and Chemistry & Mathematics** as general subjects from Ramakrishna Mission Vidyamandira, Belur Math under **University of Calcutta, INDIA.**

Research projects:

Sl. No.	Title of the Project	Funding Agency	Financial Outlay	Year of Start & Total Period	Name of the P.I. and Other Investigators	Started/Completed/In Progress
1	Computer-aided Glioblastoma and Intracranial Aneurysms Treatment Response Quantification in Neuroradiology	DBT, Govt. of India	Rs.39,69,480/-	Aug, 2021, 3years	Dr. Ashis Kumar Dhara (PI), Dr. Robin Strand (PI), Dr. Johan Wikström (Co-PI), Dr. Chirag Ahuja (C0-PI)	In Progress
2	Artificial Intelligence for Affordable Screening and Prediction of Diabetic Retinopathy in the Framework of Big Data	DBT, Govt. of India	RS.2,72,23,224/-	Dec, 2021, 3years	**PI:** Dr. Ashis Kumar Dhara, Dr. Rajiv Raman, Dr. S. Mathavan, Dr. R. Rajalakshmi, Dr. Sambuddha Ghosh, Dr. Anita Chatterjee, Dr. Sushmita Mitra	In Progress

					Co-PI: Dr. V. Mohan, Dr. R.M. Anjana, Ms. S. Jebarani, Dr. B. Uma Shankar, Dr. Tushar Kanti Bera	

Publications:

Journal paper

1. Souvik Maiti, Debasis Maji, **Ashis Kumar Dhara**, Gautam Sarkar. " Automatic detection and segmentation of optic disc using a modified convolution network**". Biomedical Signal Processing and Control** Elsevier, vol 76,, pp : 103633, 2022, (**Impact factor: 3.88**).

2. Debasis Maji, Souvik Maiti, **Ashis Kumar Dhara**, Gautam Sarkar. "Automatic grading of retinal blood vessel tortuosity using Modified CNN in deep retinal image diagnosis ". **Biomedical Signal Processing and Control,** Elsevier, vol 76, pp :103633, 2022, (**Impact factor: 3.88**).

3. Sunita Agarwala, Abhishek Kumar**, Ashis Kumar Dhara,** Sumitra Basu Thakur, Anup Sadhu, Debashis Nandi. "Special Convolutional Neural Network for Identification and Positioning of Interstitial Lung Disease Patterns in Computed Tomography Images " **, Pattern Recognition and Image Analysis,** Pleiades Publishing, vol 31, issue 4, October 2021, pp: 730-738. (**Impact factor** : **1.24**).

4. Mariëlle JA Jansen, Hugo J Kuijf, **Ashis K Dhara**, Nick A Weaver, Geert Jan Biessels, Robin Strand, Josien PW Pluim. " Patient-specific fine-tuning of convolutional neural networks for follow-up lesion quantification " ,**Journal of Medical Imaging** , International Society for Optics and Photonics , vol 7, issue 6 , pp : 064003.December 2020. (**Impact factor : 3.61**).

5. Sandip Sadhukhan, Arpita Sarkar, Debprasad Sinha, Goutam Kumar Ghorai, Gautam Sarkar, **Ashis K Dhara**. " Attention Based Fully Convolutional Neural Network for Simultaneous Detection and Segmentation of Optic Disc in Retinal Fundus Images " , **International Journal of Medical and Health Sciences**, vol 14, issue 8, pp : 200-204, July 2020. (**Impact factor :2.399**).

6. S Agarwala, M Kale, D Kumar, R Swaroop, A Kumar, **A Kumar Dhara**, S Basu Thakur, A Sadhu, D Nandi. "Deep learning for screening of interstitial lung disease patterns in high-resolution CT images" , **Clinical radiology**, WB Saunders, vol 75, issue 6, pp : 481, June 2020. (**Impact factor : 2.350)**

7. Prayas Pal, Swagata Kundu, **Ashis Kumar Dhara**, " Detection of red lesions in retinal fundus images using YOLO V3", Curr. Indian Eye Res. J. Ophthalmic Res. Group, vol 7, pp : 49, 2020.

8. Azharuddin, Mohammad, Karin Roberg, **Ashis Kumar Dhara**, Mayur Vilas Jain, Padraig Darcy, Jorma Hinkula, Nigel KH Slater, and Hirak K. Patra. "Dissecting multi drug resistance in head and neck cancer cells using multicellular tumor spheroids." **Scientific Reports, Nature, Vol.** 9, no. 1, (2019): 1-12. (**Impact factor: 4.12**).

9. Hirak K. Patra, Mohammad Azharuddin, Mohammad M. Islam, Georgia Papapavlou, Suryyani Deb, Geyunjian Harry Zhu, Thobias Romu, **Ashis K. Dhara**, Mohammad J. Jafari, Amineh Gadheri, Jorma Hinkula, Madhavan S Rajan, Nigel Slater, "Rational nanotoolbox with theranostic potential for medicated pro-regenerative corneal implants", Advance Functional Material, Wieley, vol. 29, no. 38, pp. 1-11 (**Impact factor: 13.40**).

10. Mehre, Shrikant A., **Ashis Kumar Dhara**, Mandeep Garg, Naveen Kalra, Niranjan Khandelwal, and Sudipta Mukhopadhyay. "Content-Based Image Retrieval System for Pulmonary Nodules Using Optimal Feature Sets and Class Membership-Based Retrieval." **Journal of Digital Imaging**, vol 32, no. 3, pp 362-385, 2019. (**Impact factor: 4.056**).

11. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Anirvan Dutta, Mandeep Garg, and Niranjan Khandelwal, Content-Based Image Retrieval System for Pulmonary Nodules: Assisting Radiologists in Self-learning and Diagnosis of Lung Cancer, **Journal of Digital Imaging** (ISSN: 0897-1889), Springer, vol 30, no. 1, pp 63–77, February 2017, (**Impact factor: 4.056**).

12. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Anirvan Dutta, Mandeep Garg, and Niranjan Khandelwal, A Combination of Shape and Texture Features for Classification of Pulmonary Nodules in Lung CT Images, **Journal of Digital Imaging** (ISSN: 0897-1889), Springer, vol. 29, no. 4, pp. 466-475, August 2016, (**Impact factor: 4.056**).

13. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Satrajit Chakrabarty, Mandeep Garg, and Niranjan Khandelwal, Quantitative Evaluation of Margin Sharpness of Pulmonary Nodules in Lung CT Images, **IET Image Processing** (ISSN: 1751-9659), IET, vol. 10, no. 9, pp. 631-637, September 2016, (**Impact factor: 2.373**).

14. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Pramit Saha, Mandeep Garg, and Niranjan Khandelwal, Differential Geometry-based Techniques for Characterization of Boundary Roughness of Pulmonary Nodules in CT Images, **International Journal of Computer Assisted Radiology and Surgery** (ISSN: 1861-6410), Springer, vol. 11, no. 3, pp. 337-349, March 2016, **(Impact factor: 2.473).**

15. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Rahul Das Gupta, Mandeep Garg, and Niranjan Khandelwal, A Segmentation Framework of Pulmonary Nodules in Lung CT Images, **Journal of Digital Imaging** (ISSN: 0897-1889), Springer, vol. 29, no. 1, pp. 148-148, February, 2016, (**Impact factor: 4.056**).

16. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, and Niranjan Khandelwal, Computer Aided Detection and Analysis of Pulmonary Nodule from CT Images: A Survey, IETE Technical review (ISSN: 0256-4602), **Taylor & Francis**, vol. 29, no. 4, pp. 263-273, August 2012, (**Impact factor: 2.071**).

Conference paper

1. Arka Bera, Arindam Dutta, **Ashis K Dhara**, " Deep learning based fault classification algorithm for roller bearings using time-frequency localized features". 2021 International Conference on Computing, Communication, and Intelligent Systems (ICCCIS),IEEE, February 2021, pp : 419-424.
2. Subhashis Banerjee, **Ashis Kumar Dhara**, Johan Wikström, Robin Strand, " Segmentation of Intracranial Aneurysm Remnant in MRA using Dual-Attention Atrous Net ", 2020 25th International Conference on Pattern Recognition (ICPR), IEEE, October 2021.

3. **Ashis Kumar Dhara**, Kalyan Ram Ayyalasomayajula, Erik Arvids, Markus Fahlström, Johan Wikström, Elna-Marie Larsson, and Robin Strand. "Segmentation of Post-operative Glioblastoma in MRI by U-Net with Patient-Specific Interactive Refinement." In International MICCAI Brainlesion Workshop, Sept, 16-20, 2018, pp. 115-122.

4. Sandip Sadhukhan, Goutam Kumar Ghorai, Souvik Maiti, Vikrant Anilrao Karale, Gautam Sarkar, **Ashis Kumar Dhara**, Optic Disc segmentation in Retinal Fundus Images using Fully Convolutional Network and Removal of False-positives Based on Shape Features, in Proceedings of MLCDS 2018, MICCAI, Sept, 16-20, 2018, Granada, Spain, pp. 369-376.

5. **Ashis Kumar Dhara**, Erik Arvids, Markus Fahlströmy, Johan Wikström, Elna-Marie Larsson and Robin Strand, Interactive Segmentation of Glioblastoma for Post-surgical Treatment Follow-up, ICPR 2018, 20-24, Aug, Beijing, China, pp. 1199-1204. [Received best scientific paper award]

6. Sandip Sadhukhan, Goutam Kumar Ghorai, Souvik Maiti, **Ashis Kumar Dhara**, Gautam Sarkar, Optic Disc Localization in Retinal Fundus Images, in Proceedings of Fifth International Conference on Emerging Applications of Information Technology 2018, Kolkata, India .

7. Sunita Agarwala, Abhishek Kumar, Debashis Nandi, **Ashis Kumar Dhara**, Anup Sadhu, Sumitra Basu Thakur, and Ashok Kumar Bhadra. "Convolutional Neural Networks for Efficient Localization of Interstitial Lung Disease Patterns in HRCT Images." In Annual Conference on Medical Image Understanding and Analysis 2018, pp. 12-22.

8. Kumar, A., Agarwala, S., **Dhara, Ashis Kumar**., Nandi, D., Mukhopadhyay, S., Garg, M., Khandelwal, N. and Kalra, N., 2018, February. Localization of lung fields in HRCT images using a deep convolution neural network. In Proceedings of **SPIE Medical Imaging 2018**, Texas, USA, Computer-Aided Diagnosis (Vol. 10575, p. 1057535).

9. Agarwala, S., Nandi, D., Kumar, **A.K, Dhara,** A.K., Sadhu, S.B.T.A. and Bhadra, A.K., 2017, November. Automated segmentation of lung field in HRCT images using active shape model. In Proceedings of **IEEE TENCON** 2017, Malaysia (pp. 2516-2520).

10. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Shrikant A. Mehre, Niranjan Khandelwal, Nidhi Prabhakar, Mandeep Garg, and Naveen Kalra, A study of retrieval accuracy of pulmonary nodules based on external attachment, **SPIE Medical Imaging 2017**, Florida, USA, Vol. 101343T, pp. 101343T-1-6.

11. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Anirvan Dutta, Mandeep Garg, and Niranjan Khandelwal, Classification of Pulmonary Nodules in Lung CT Images using Shape and Texture Features, Proceedings of **SPIE Medical Imaging** 2016, California, USA, Vol. 9785, pp. 83152Y-1-6.

12. Shrikant A. Mehre, Sudipta Mukhopadhyay, Anirvan Dutta, Nagam Chaithan Harsha, **Ashis Kumar Dhara**, and Niranjan Khandelwal, An automated lung nodule detection system for CT images using synthetic minority oversampling, Proceedings of **SPIE Medical Imaging 2016**, California, USA, 9785, pp. 97850H-1-8.

13. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Mayur Joseph Bency, Rangaraj M. Rangayyan, Reema Bansal, and Amod Gupta, Development of A Screening Tool for Staging of Diabetic Retinopathy in Fundus Images, Proceedings of **SPIE Medical Imaging 2015**, Florida, USA, Vol. 9414, pp. 94140H-1-10.

14. **Ashis Kumar Dhara**, Rangaraj M. Rangayyan, Faraz Oloumi, and Sudipta Mukhopadhyay, Methods for the Detection of Blood Vessels in Retinal Fundus Images and Reduction of False-Positive Pixels Around the Optic Nerve Head, Proceedings of **IEEE E-health and Bioengineering conference 2013**, IASI, Romania, pp. 1-6.

15. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, Naved Alam, and Niranjan Khandelwal, Measurement of Spiculation Index in 3-D for Solitary Pulmonary Nodules in Volumetric Lung CT Images, **Proceedings of SPIE Medical Imaging 2013**, Florida, USA, Vol. 8670, pp. 86700K-1-6.
16. **Ashis Kumar Dhara**, Sudipta Mukhopadhyay, and Niranjan Khandelwal, 3-D Texture Analysis of Solitary Pulmonary Nodules using Co-concurrence Matrix from Volumetric Lung CT Images, Proceedings of **SPIE Medical Imaging 2013**, Florida, USA, Vol. 8670, pp. 867039-1-6.

17. Chanukya Krishna Chama, Sudipta Mukhopadhyay, Prabir Kumar Biswas, **Ashis Kumar Dhara**, Niranjan Khandelwal, and Mahendra Kumar, Automated Lung Field Segmentation in CT images using Mean Shift Clustering and Geometrical Features, Proceedings of **SPIE Medical Imaging 2013**, Florida, USA, Vol. 8670, pp. 867032-1-10.

18. **Ashis Kumar Dhara** and Sudipta Mukhopadhyay, A Hybrid Preprocessing Method Using Geometry Based Diffuusion and Selective Enhancement Filtering for Pulmonary Nodule Detection, Proceedings of **SPIE Medical Imaging 2012**, California, USA, Vol. 8315, pp 83152Y-1-6.
19. Abhishek Kumar Tripathi, Sudipta Mukhopadhyay, and **Ashis Kumar Dhara**, Performance Metrics for Image Contrast, Proceedings of **IEEE International Conference on Image Information Processing**, Shimla, India, 2011, pp. 1-4.

Awards:

- Best scientific paper award in the Biomedical Imaging and Bioinformatics track of ICPR-2018
- Recipient of Merit Scholarship in B.Sc (Physics Hons.)
- Recipient of National Merit Scholarship in higher secondary

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Personal details:

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