Abu Sufian, Ph.D.

Village & PO: Bodua, Dist: Murshidabad, West Bengal-742147, India.

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- My **Scopus** Page: Link
- My **Google Scholar** Page: Link
- My **ORCID** Page Link

- My **Current Affiliation** Page: Link
- My **LinkedIn** Page: Link
- My **GitHub** Page: Link

Career Highlight:

- I have been in research for the last 8 years in the area of Computing and AI. This period includes 5 years to my Ph.D. and active participation as a researcher and consultant in projects and collaborative endeavors. I have published 37 papers in leading journals and conferences. My work has earned significant recognition with 1680 citations on Google Scholar and 930 on Scopus to date.

- I have been teaching for the last 12 years where I develop and deliver effective course materials, and employ diverse instructional methods including lectures, practical sessions, seminars, student-led discussions, etc. I have successfully supervised 30 students in their M.Sc. Computer Science and AI projects and dissertations. Currently, I am supervising and co-supervising 4 master students and 3 PhD scholars.

- During my tenure as the department coordinator, I developed new undergraduate and postgraduate curricula and introduced an industry trends computer application honours programme. I was the convener of undergraduate and postgraduate boards for 2 years. Gained student recruitment experience as joint convener of the admission committee.

- Served as an executive committee member of the IEEE Computational Intelligence Society Kolkata Chapter. Organized national and international-level events, including an ACVR workshop under ICCV 2023 in Paris. Continuously engaged with reputable journals and conferences through volunteer work.

Formal Education:

- **Ph.D.** in Computer Science **(July 2017 – June 2022)**
  Visva Bharati (A Central University and an Institute of National Importance)
  Santiniketan, West Bengal, India.

- **Master of Computer Applications (M.C.A.)** **(July 2007 – July 2010)**
  West Bengal University of Technology (MAKAUT)
  Kolkata, West Bengal, India.

- **B.Sc. (Honours)** in Mathematics **(July 2002 – June 2007)**
  University of Kalyani
  Kalyani, West Bengal, India.

Appointment & Experience (Regular Duty):

- **(Feb 2016 – Present)**:   **Assistant Professor**
  Department of Computer Science, University of Gour Banga (A State University)
  English Bazar, West Bengal-732103, India.

- **(July 2011 – Feb 2016)**:   **Assistant Teacher**
  Kanska Rahimia High Madrasah (Higher Secondary)
  Murshidabad, West Bengal- 742302, India.

- **(Nov 2010 – July 2011)**:   **Block Social Audit Coordinator (Junior Progamme Officer)**
  MGNREGA Project, Krishnanagar-II Development Block
  Dhubulia, West Bengal- 741139, India.

Appointment & Experience (Additional Duty):

- **Convener**   **(Dec 2022 – present)**
  Board of Research Studies, Dept. of Computer Science, University of Gour Banga
  English Bazar, West Bengal, India.

- **Joint Convener**   **(For the session 2019-20)**
  Post Graduate Admission Committee, University of Gour Banga
  English Bazar, West Bengal, India.

- **Coordinator (Head)**   **(Aug 2017 – Aug 2019)**
  Department of Computer Science, University of Gour Banga
  English Bazar, West Bengal, India.

- **Convener**   **(Aug 2017 – Aug 2019)**
  UG and PG Board of Studies, Dept. of Computer Science, University of Gour Banga
  English Bazar, West Bengal, India.

- **Secretary**   **(2013 – 2015)**
  Academic Council, Kanska Rahimia High Madrasah (Higher Secondary)
  Murshidabad, West Bengal, India.

Research Experience:

Fundation and Applied research on the following areas:

- Explaibale and Generalizable Deep Learning

- Meta-learning and Few-Shot Learning.

- Resource Efficient and Privacy-Preserving Computer Vision

- Image, Video & Audio Authentication

- Deepfake Detection

Teaching-learning Experience:

- Mathematics for Computing, Artificial Intelligence, and Data Science

- Programming (including Object Oriented Programming)

- Programming Languages (C, C++, Java, Python, PyTorch, and TensorFlow)

- Algorithms and Data Structures

- Databases

- Artificial Intelligence

- Machine Learning and Deep Learning

- Data Science

- Networking

- Cybersecurity (Primarily Digital Forensic)

Research Output:

Type	Number
Conference Paper:	11
Journal Paper:	21
Book Chapter:	04

- **Conference Paper:**

  - Anirudha Ghosh, **Abu Sufian,** and Debaditya Barman "**A Framework for Adaptive Bias Mitigation on Lightweight Meta-Learning with Machine Unlearning** ".
    [Communicated to ICPR 2024]

  - **Abu Sufian,** Anirudha Ghosh, Debaditya Barman, Marco Leo, Cosimo Distante and Baihua Li "**FewFaceNet: A Lightweight Few-Shot Learning-based Incremental Face Authentication for Edge Cameras**" In ICCV 2023 Workshop: Assistive Computer Vision and Robotics, Paris, October 2 - 6, 2023. Proceeding in IEEE Xplore. [Link]

  - Ekram Alam, **Abu Sufian,** Paramartha Dutta, Marco Leo. **"Real-Time Human Fall Detection using a Lightweight Pose Estimation Technique**" In *5th CICBA 2023,* hosted at Kalyani Govt. Engineering College, Kalyani, India, Springer CCIS Series. [Link]

  - Farhana Sultana, **Abu Sufian** and Paramartha Dutta. **"Automatic Diabetic Retinopathy Lesion Segmentation in UW-OCTA Images using Transfer Learning**" In MICCAI 2022 Grand-challenge: *DRAC22*, September 18–22, 2022, Singapore. Proceeding in Springer [Link]

  - Farhana Sultana, **Abu Sufian** and Paramartha Dutta. **"RIMNet: Image Magnification Networks with Residual Block for Retinal Blood Vessels Segmentation**" In *TENSYMP 2022,* hosting at Indian Institute of Technology Bombay, July 1-3, 2022, Proceeding in IEEE Xplore [Link]

  - **Abu Sufian,** Changsheng You, and Mianxiong Dong. "**A Deep Transfer Learning-based Edge**

Computing Method for Home Health Monitoring" In *55th Annual Conference on Information Sciences and Systems (CISS)* hosted at Johns Hopkins University (Online), March 24-26, 2021, Proceeding in IEEE Xplore [Link]

- Ekram Alam, **Abu Sufian**, Akhil Kumar Das, Arijit Bhattacharya, Md Firoj Ali, and MM Hafizur Rahman. "**Leveraging Deep Learning for Computer Vision: A Review**", In *22nd International Arab Conference on Information Technology (ACIT)*, Muscat, Oman, Decemeber 21-23, 2021, Proceeding in IEEE Xplore [Link]

- **Abu Sufian**, Anuradha Banerjee, and Paramartha Dutta. "**HFAIR: Hello Devoid Optimized Version of FAIR Protocol for Mobile Ad hoc Networks.**" *Intelligence Enabled Research: DoSIER, August 12-13,* 2020, Proceeding in Springer [Link].

- **Abu Sufian**, Anuradha Banerjee, and Paramartha Dutta. "**A Tree Multicast Routing Based on Fuzzy Mathematics in Mobile Ad-Hoc Networks**." In *International Conference on Computer Communication and Internet of Things (ICCCIoT)*, Tripura University, Agartala, Springer LNNS Series, (2020). [Link]

- Farhana Sultana, **Abu Sufian,** and Paramartha Dutta**. "Advancements in Image Classification using Convolutional Neural Network**" In *4thInternational Conference on Research in Computational Intelligence and Communication Networks (ICRCICN),* hosted at RCC Institute of Information Technology, Kolkata, IEEE Xplore, (2018). [Link]

- **Abu Sufian**, Anuradha Banerjee, and Paramartha Dutta. "**FSNRP: Fuzzy-controlled Priority Scheduling of Non-real Time Data Packets in Mobile Ad-hoc Networks**." In *11th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS)*, pp. 1-5. IEEE Xplore, (2017). [Link]

- **Journal Paper:**

  - **Abu Sufian** et.al "**LWB-FADD: A Lightweight Backbone Model for Few-Shot Face Authentication to Deepfake Detection**". [Will communicate to a journal very soon]

  - Ekram Alam, **Abu Sufian,** Paramartha Dutta, Marco Leo, and Ibrahim A. Hameed. "**GMDCSA-24: A Dataset for Human Fall Detection in Videos**", Data in Brief, Elsevier, (2024). [Communicated]

  - Anuradha Banerjee, **Abu Sufian**, Paramartha Dutta, and MMH Rahman. "**Minus HELLO: HELLO Devoid Protocols for Energy Preservation in Mobile Ad-hoc Networks.**" *Sustainable Computing: Informatics and Systems,* Elsevier, Vol 26, 100852, (2023). [Link]

  - Subhankar Ghosh, Anuradha Banerjee, **Abu Sufian**, Sachin Kumar Gupta, S. H. Alsamhi, and Abdu Saif. "Efficient selfish node detection using SVM in IoT-MANET environment." Transactions on Emerging Telecommunications Technologies, Wiley, e4858 (2023). [Link]

  - Anuradha Banerjee, **Abu Sufian**, Ashutosh Srivastava, Sachin Kumar Gupta, Saru Kumari, and Sachin Kumar. "**An Energy and Time-Saving Task Scheduling Algorithm for UAV-IoT Collaborative System.**" Microprocessors and Microsystems, Elsevier, 104875, (2023). [Link]

  - MH Rahman, M Al-Naeem, Anuradha Banerjee, and **Abu Sufian**. "**EETO-GA: Energy Efficient Trajectory Optimization of UAV-IoT Collaborative System Using Genetic Algorithm**". *Applied Sciences*, MDPI, 13(4), 2535, (2023). [Link]

  - Ekram Alam, **Abu Sufian,** Paramartha Dutta, and Marco Leo. "**Vision-based Human Fall Detection Systems using Deep Learning: A Review**", *Computers in Biology and Medicine*, Elsevier, 105626 (2022). [Link]

- Md Sarfaraz Momin, **Abu Sufian**, Debaditya Barman, Paramartha Dutta, Mianxiong Dong, and Marco Leo. "**In-home older adults' activity pattern monitoring using depth sensors: A review",** *Sensors,* MDPI, 22, no. 23: 9067, (2022). [Link]

- **Abu Sufian,** Anirudha Ghosh, Avijit Naskar, Farhana Sultana, Jaya Sil, MMH Rahman. "**BDNet: Bengali Handwritten Numeral Digit Recognition based on Densely Connected Convolutional Neural Networks**" *Journal of KSU - Computer and Information Sciences,* Elsevier, Volume 34, Issue 6, Part A, (2022). [Link]

- Subhankar Ghosh, Anuradha Banerjee, **Abu Sufian**, and Sachin Kumar Gupta. "**Autoregressive moving average based anycast with support vector machine clustering in mobile ad-hoc networks**", *Transactions on Emerging Telecommunications Technologies*, Wiley, 33, no. 4): e4432, (2022). [Link]

- Anuradha Banerjee, **Abu Sufian,** Krishna Keshob Paul, and Sachin Kumar Gupta. "**EDTP: Energy and Delay Optimized Trajectory Planning for UAV-IoT Environment.**" *Computer Networks*, Elsevier, Volume 202, 108623, (2021). [Link]

- Anuradha Banerjee, **Abu Sufian**, Ali Safaa Sadiq, and Seyedali Mirjalili. "**Minimum Energy Transmission Forest based Geocast in Software-Defined Wireless Sensor Networks.**" *Transactions on Emerging Telecommunications Technologies,* Wiley, 32, no. 9, e4253, (2021). [Link]

- Anuradha Banerjee and **Abu Sufian**. "**Smart-Green-Mult (SGM): Overhear from Topological Kingpins in Software Defined Wireless Sensor Networks**." *Journal of Ambient Intelligence and Humanized Computing,* Springer, 12.1, 87-404, (2021). [Link]

- **Abu Sufian,** Anirudha Ghosh, Ali Safaa Sadiq, and Florentin Smarandache. "**A Survey on Deep Transfer Learning to Edge Computing for Mitigating the COVID-19 Pandemic**" *Journal of Systems Architecture,* Elsevier, Vol 108, 101830, (2020). [Link]

- Farhana Sultana, **Abu Sufian,** and Paramartha Dutta. "**Evolution of Image Segmentation using Deep Convolutional Neural Network: A Survey**" *Knowledge-Based Systems,* Elsevier, Vol 201-202, 106062, (2020). [Link]

- Rahman, MM Hafizur, Mohammed Al-Naeem, Mohammed NM Ali, and **Abu Sufian**. "**TFBN: A Cost Effective High-Performance Hierarchical Interconnection Network**", Applied Sciences, MDPI, 10, no. 22: 8252, (2020). [Link]

- **Abu Sufian**, Anuradha Banerjee, and Paramartha Dutta. "**Energy and Velocity based Tree Multicast Routing in Mobile Ad-hoc Networks.**" *Wireless Personal Communications,* Springer, Vol 107, no. 4, 2191-2209 (2019). [Link]

- **Abu Sufian**, Anuradha Banerjee, and Paramartha Dutta. "**Cheat-Proof Communication through Cluster Head (C3H) in Mobile Ad Hoc Network.**" *Pertanika Journal of Science and Technology,* University Putra Malaysia, Vol 26, no. 3, 1513-1526, (2018). [Link]

- Anuradha Banerjee, **Abu Sufian**, and Paramartha Dutta. "**EMR-PL: Energy-efficient Multipath Routing based on Link Life Prediction in Ad-hoc Networks**", *Journal of Information and Optimization Sciences,* Taylor & Francis, 39, no. 1: 285-301, (2018). [Link]

- **Book Chapter:**

  - **Abu Sufian,** Ekram Alam, Anirudha Ghosh, Farhana Sultana, Debashis De, and Mianxiong Dong. "**Deep Learning in Computer Vision through Mobile Edge Computing for IoT**." *Mobile Edge Computing,* Springer, Chapter 18, pp. 443-471, (2021). [Link]

  - Anirudha Ghosh, **Abu Sufian,** Farhana Sultana, Amlan Chakrabarti, and Debashis De. "**Fundamental Concepts of Convolutional Neural Network**" *In Recent Trends and Advances in Artificial Intelligence and Internet of Things,* Springer, Chapter 36, pp. 519-567, (2020). [Link]

  - **Abu Sufian,** Dharm Singh Jat, and Anuradha Banerjee. "**Insights of Artificial Intelligence to Stop Spread of COVID-19**" *In Big Data Analytics and Artificial Intelligence Against COVID-19: Innovation Vision and Approach,* Springer, Chapter 11, pp. 177-190, (2020). [Link]

  - Farhana Sultana, **Abu Sufian,** and Paramartha Dutta. "**A Review of Object Detection Models based on Convolutional Neural Network**" *In Intelligent Computing: Image Processing Based Applications,* Springer, Chapter 1, pp. 1-16, (2020). [Link]

Sponsored Project:

- **Type of Project**   **Number of Project**

  - Internal (Researcher):   03
  - External (Researcher & Consultant):   03

Event Organized/Organizing (Selective):

- Worked as a **Technical Program Committee Member** to organize the **Eleventh International Workshop on Assistive Computer Vision and Robotics (ACVR 2023)** in Conjunction With **ICCV 2023,** Paris, in first week of October 2023.

- Worked **as Jt. Convener** to organize an **IEEE CIS DLP,** on "**Convolutional Networks for Medical Image Analysis: Its Past Future, and Issues.**" **A flagship program of IEEE CIS** at University of Gour Banga with technical collaboration with IEEE CIS Kolkata chapter at Virtual (online) on 17th September 2020.

- Worked **as Organizing Secretary & Program Chair** to organized **"One Day workshops on IoT Analytics & Mobile Crowd Sensing"** at University of Gour Banga with technical collaboration with Computer Society of India Kolkata chapter on 29th March 2019.

- Worked as **Coordinator** to organized "**One Day Special Lecture on learning using shallow to deep architecture"** at University of Gour Banga on 15th June 2018.

- Worked as Convener to organized "**One Day National Symposium on Recent Trends in Computational Intelligence"** at University of Gour Banga with the technical collaboration with IEEE CIS Kolkata chapter on 15th June 2017**.**

Faculty Training/Short term Course/Workshop/Skill Development Program Completed:

- **Faculty Training:**

  - UGC Sponsored Refresher Course in **Computer Science and Information Technology** at Human Resource Development Centre (HRDC), University Of Madras, 11th February – 24th February 2022.

  - UGC Sponsored **Faculty Orientation Programme** at Human Resource Development Centre (HRDC), Pandit Ravishankar Shukla University, 9th November – 29th November 2019.

- **Short term Course:**

  - Self-Paced Online Certification Course on **"Generative AI: Impact, Considerations, and Ethical Issues",** offered by IBM through Coursera, started in March 2024.

  - Self-Paced Online Certification Course on **"AI in Healthcare Specialization",** offered by Stanford University through Coursera, started in 2021.

  - Online Four Week Certification Course on **"The Postdoc Academy: Succeeding as a Postdoc",** offered by Boston University with EDX, July - August 2020.

  - Three days **"Bhuvan Overview Training"** offered by National Remote Sensing Centre, ISRO, India, October 2019.

  - Self-Paced Online Certification Course on **"Deep Learning Specialization: Master Deep Learning, and Break into AI"** offered by deeplearning.ai through Coursera from 20th March 2019.

  - Four weeks NPTEL Online Certification Course on **"Machine Learning"** under NPTEL, offered by KTH Royal Institute of Technology, Stockholm, February - April 2019.

  - One-week AICTE Recognized Short Term Course on **"Python Programming"** held at National Institute of Technical Teachers Training & Research, Chandigarh, 12th – 16th November 2018.

  - Eight weeks NPTEL Online Certification Course on **"Deep Learning"** under NPTEL FDP offered by Indian Institute of Technology Madras (IIT-M), August - October 2018.

- **Workshop and Skill Development Programme:**

  - One Week Advanced Entrepreneurship and Skill Development Programme (A-ESDP) on "**Smart Healthcare Systems using IoT and AI/ML**" Funded by Ministry of MSME, Government of India Organized by National Institute of Technology Sikkim on 27th February – 2nd March 2024.

  - Three-day workshop on "**MACHINE LEARNING AND DATA ANALYTICS**" Organized by the Department of Computer Science & Engineering, Jadavpur University on 26th - 28th March 2019.

  - One Day Symposium on "**Some New Research Directions in Machine Learning & Machine Intelligence**" Jointly Organized by IEEE Kolkata Chapter and Dept. of Computer & System Science, Visva-Bharati University, W.B. on 25th February 2017.

  - One day International Seminar on **Intelligent Computing (ISIC 2017),** organized by Dept. of Information Technology, Jadavpur University, W.B. under MIC of UGC-II with technical collaboration with IEEE CIS, Kolkata Chapter, on 16th December 2017.

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- One day Seminar on **Big Data Analytics: Research Scopes, Issue and Challenges**, organized by B.P. Poddar Institute of Management and Technology in collaboration with M.A.K.A.U.T, W.B., on 9th August 2017.

- Two day workshop on "**Scientific document writing using LaTeX**" held at Aliah University with CSI, Kolkata Chapter and Aliah University, Kolkata, West Bengal on 11th - 12th February 2017.

Invited Talk and Presentation:

- **Invited Talk** on Best Practices at Different Stages of Machine Learning Models at **One day Seminar on IoT and Machine Learning** Organized by Department of Computer Science and Applications, Malda College, Malda, India, 10th January 2024.

- **Invited Talk** on Deep Learning in Edge Computing for Vision-based In-home Care: Scopes & Challenges at the **Two-Day National Webinar on Application of Computational Statistics in Modern Era** at Vidyasagar University, Midnapore, India 2nd -3rd September 2022.

- **Invited Talk** on Deep Learning to Edge Computing to Mitigate pandemics at the **One day Webinar on Efficacy and Importance of IT in COVID Pandemic Condition** Organized by Department of Computer Science and Applications, Malda College, Malda, India, 28th July 2020.

- **Invited Talk** on Article Writing using LaTeX at the **National Symposium on Foundation and Advances in Research Methods & Computing (NSFARAC 2019)**, Raiganj University, India, 13th - 14th May 2019.

- **Invited Talk** on Technology in Education at the **One Day International Seminar on ICT** jointly organized by the Dept. of Mathematics and the Computer Science & Applications, Malda College, West Bengal, India, 24th Sept, 2018.

- **Oral Presentation via online** at the **55th Annual Conference on Information Sciences and Systems (CISS-2021)** hosted by the Department of E.C.E., Johns Hopkins University and Technical Co-sponsorship by the IEEE Information Theory Society, 24th - 26th March 2021.

- **Oral Presentation** at the **International Conference on Computer Communication and Internet of Things (ICCCIoT 2020)** held at Tripura University, Agartala, India 3rd - 4th February 2020.

- **Oral Presentation at Second International Conference on Communication, Devices and Computing (ICCDC 2019)** held at the Haldia Institute of Technology (HIT), W.B., India 14th - 15th March 2019.

- **Oral Presentation at First International Conference on Smart Technologies in Computer and Communication (SmartTech-2017)** Amity University Rajasthan, Jaipur, India, 27th – 29th March 2017.

- **Oral Presentation at International Conference on Industry Interactive Innovations in Science, Engineering and Technology (I3SET-2K16)**, JIS College of Engineering, Kalyani, India, 25th -26th October 2016.

Membership in Scientific and Professional Society:

- Professional Member of **IEEE** and the **IEEE CIS** (since 2017, member ID 94491064).

- Professional Member of IEEE Biometrics Council (since 2024, member ID 94491064).

- Executive Committee Member of **IEEE CIS,** Kolkata Chapter (For the Years 2021 & 2022).

- Lifetime Member of the **Computer Society of India** (since 2017, member ID I1510614).

Eligibility & Fellowship Awarded:

- Qualified **West Bengal State Eligibility Test (WBSET) 2014 (**the state-level eligibility examination conducted by the West Bengal College Service Commission (WBCSC) for the post of Assistant Professor in the colleges and universities of West Bengal, India).

- Awarded **Merit-cum-Means Scholarship**, Govt. of India to Pursue Master Degree during 2007-2010.