Gopal Chandra Jana *(B.E-IT, M.Tech.-CSE, PhD-Submitted)*

⊙ Home Address: Nibra, Kanikha, 721149, Kharagpur, Paschim Medinipur, West Bengal, India
School Address: Interactive Technologies & Multimedia Research Lab , Department of Information
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♠ Google Scholar   R⁶ ResearchGate   ⓞ Github   in LinkedIn   🏛 26 Apr 1991

Profile

- Self-motivated responsible scholar with demonstrated research expertise growing in the domain of EEG signals Analysis and Machine Learning.
- Having interpersonal skill to learn a new concept and adopt in research and academic.
- Rich experience in modeling and computer simulation, using MATLAB, Python.
- Experienced with mostly familiar EEG signals processing tools like EEGLAB with MATLAB, EDFbrowser, pyEDF. Also, has some idea related to other existing EEG data visualization and processing tools like Bioelectromagnetism-Matlab toolbox, eeg-analysis-toolbox with MATLAB etc.
- Techniques explored and used related to Signal processing/Analysis are: Filtering techniques (Butterworth etc.), FFT, DWT, EMD, ICA etc.
- Techniques explored and used related to Machine Learning are: ANN, SVM, ELM, ANFIS, CNN, CapsNet, including Transfer Learning and Reinforcement Learning. Also, exploring explainable AI, DL and RL concepts.
- Experienced with other popular tools like FSL is a comprehensive library of analysis tools for FMRI, MRI and DTI brain imaging data.
- Experienced with Portable Batch System (PBS) to handle the distribution of batch jobs and interactive sessions across the available nodes in the high performance GPU/CPU cluster. Explored Google Cloud Platform for setup a VM with GPU for running high computing jobs.
- Experienced with: Linux/Windows, High Performance Computing, LaTeX-Overleaf, Origin, MS-office, Moodle for LMS etc.
- Experienced with manuscript preparation, review, modification, communicate, rebuttal preparation for reviewers and proof reading etc. related to manuscript preparation for publication.

Believe In: *Integrity, Responsibility, Continuity, Consistency, Dignity*

Teaching Experience

Mar 2023 – present Greater Noida, India	**Assistant Professor, DCSE, School of Computing Science and Engineering, Galgotias University** *During regular semester (July-Dec) course handled: Data Structures* *During regular semester (Jan-June) course handled: i) Algorithm Design and Analysis (DAA) and ii) Compiler Design* *During summer semester course handled: i) Research Methodology and IPR, and ii) Foundation of Computer Application.*

Administrative Experience

Jul 2023 – present Greater Noida, India	**GU SCSE Exam Cell -Team member**
Apr 2023 – present Greater Noida, India	**Team Member Intel Center of Excellence @Galgotias University** **Under my mentorship, one student achieved Winner Award in the Intel Unnati Industrial Training-Summar'2023 and 10 students successfully completed their assigned project.*
Aug 2023 – Oct 2023 Greater Noida, UP, India	**NAAC Criteria-3** *Responsibility: Core team members of NAAC Criteria-3 for data collection and verification of all data.* *School of Computing Science and Engineering, DCSE & DCA, Galgotias University*

Research Experience

Aug 2017 – Dec 2017 Bhubaneswar, India	**Junior Research Fellow** *School of Computer Engineering, Campus – 15, KIIT University, Bhubaneswar, 751024, Odisha* **Project Tile:** Intelligent Fault Distance Estimation Scheme for High Voltage AC and High Voltage DC Transmission Lines: An Comparative Study of Various Artificial Intelligent Techniques to Explore a Suitable Scheme **Funded organization:** SERB-DST Department of Education, Govt. of India. **Principal Investigator:** Dr. Aleena Swetapadma ⊡

Jul 2016 – Jul 2017 Bhubaneswar, India	**Post Graduate Thesis** *School of Computer Engineering, Campus – 15, KIIT University, Bhubaneswar, 751024, Odisha* ⊡ **Thesis Title:** Discriminating Physical Movement Using Machine Learning Techniques based on EEG and EMG signals intended for Brain Computer Interface Applications **Supervisors:** Prof. Prasant Kumar Pattnaik ⊡ (Prof. @School of Comp. Engg.), Dr. Aleena Swetapadma ⊡ (Assoc. Prof. @School of Comp. Engg.) and Dr. Biswajyoti Rath ⊡ (Assistant Professor Neurology @KIMS, KIIT-DU Bhubaneswar during 2016-17).
May 2016 – Jun 2016	**Student Volunteer** *IIT Kharagpur* **Project Title:** CrowdMap ⊡ **Nature of duties/work Performed:** Data collection **Performance**: Excellent **Mentor:** Dr. Sandip Chakraborty ⊡ (Asst. Professor, Dept. of Com. Sci. & Engg., IIT KGP). and Dr. Rohit Verma ⊡ (Research Associate, Computer Laboratory, University of Cambridge). **Certificate:** link ⊡
Jun 2014 – Jun 2015 Burdwan, India	**Graduate Project** *University of Institute of Technology, The University of Burdwan* ⊡ **Project Title:** Invisible watermarking using reversible logic based on LSB technique **Supervisor:** Mr. Sourav Samanta ⊡ , Assistant professor, Department of Computer Science & Engineering, University Institute of Technology, The University of Burdwan.

Education

Jan 2018 – present Prayagraj, India	**PhD (Thesis Submitted on 17th-Aug'23)** *Department of Information Technology, Indian Institute of Information Technology Allahabad* ⊡ **Thesis Title:** *Development of Intelligent Schemes for Epileptic Seizure Detection* using EEG Signals *Grade Maintaining*: 1st Class
Jul 2015 – Jul 2017 Bhubaneswar, India	**Master of Technology (M. Tech.) in Computer Science & Engineering** *School of Computer Engineering, KIIT Deemed to be University* ⊡ *Grade Maintained*: 1st Class
Jul 2011 – Jul 2015 Burdwan, India	**Bachelor of Engineering (BE) in Information Technology** *Department of Information Technology, University Institute of Technology, The University of Burdwan* ⊡ *Grade Maintained*: 1st Class
2009 Shyamchak, India	**Higher Secondary** *Shyamchak Jnanendra High School* *Grade*: 1st Division
2006 Kanikha, India	**Secondary** *Kanikha Satish Chandra High School* *Grade*: 1st Division

Publications (S/W Copyright: 2, Journal Papers: SCIE-5, Scopus-2, Conf. Papers: 8)

Software Copyright:
- Anupam Agrawal, **Gopal Chandra Jana**, and Abhishek Karmakar *"EEG VMAC Toolbox"* Computer Software, Under Govt. of Indian Copyright, dairy no: *21361/2020-CO/SW. ROC No. SW-14530/2021*.
- Anupam Agrawal, **Gopal Chandra Jana**, et al., *"IIITA AlumniConnect : A community Platform to Bridge the Gap between Alumni, Students and Faculty"* Computer Software, Under Govt. of Indian Copyright, dairy no: *22845/2022-CO/SW. ROC No. SW-17059/2023.*

Refereed Journal Publications(SCIE):
- **Gopal Chandra Jana**, et. al.,*"Capsule neural network based approach for subject specific and cross-subjects seizure detection from EEG signals"*, Multimedia Tools and Applications(Springer), 2023, Vol.xx, Issue x, PP.xx-xx (SCIE, IF 2.57, H-Index 80) *DOI* ⊡
- **Gopal Chandra Jana**, Anupam Agrawal et. al., *"DWT-EMD Feature Level Fusion Based Approach over Multi and Single Channel EEG Signals for Seizure Detection"*, Diagnostics(MDPI), 2022, Vol.12, Issue 2, PP.324 (SCIE, IF 3.99, H-Index 19). *DOI* ⊡
- **Gopal Chandra Jana**, Anshuman Sabath and Anupam Agrawal *"Capsule neural networks on spatio-temporal EEG frames for cross-subject emotion recognition"*, Biomedical Signal Processing and Control (Elsevier), 2022, Vol.72, No.B, PP.103361 (SCIE, IF 5.076, H-Index 72). *DOI* ⊡
- **Gopal Chandra Jana**, Mogullapally Sai Praneeth and Anupam Agrawal *"A Multi-View SVM Approach for Seizure Detection from Single Channel EEG Signals"*, IETE Journal of Research (Taylor & Francis), 2021, Vol. X, No. X, PP. XX-XX (SCIE, IF 1.87, H-Index 22). *DOI* ⊡
- **Gopal Chandra Jana**, Aleena Swetapadma and Prasant K. Pattnaik *"Enhancing the Performance of Motor Imagery Classification to Design a Robust Brain Computer Interface using Feed Forward Back-Propagation Neural Network"*, Ain Shams Engineering Journal (Elsevier), 2018, Vol. 9, No. 4, PP. 2871-2878 (SCIE, IF 4.79, H-Index 26). *DOI* ⊡

Refereed Journal Publications(Scopus):

- **Gopal Chandra Jana**, Aleena Swetapadma and Prasant K. Pattnaik *"A Hybrid Method for Classification of Physical Action Using Discrete Wavelet Transform and Artificial Neural Network"*, International Journal of Bioinformatics Research and Applications (IJBRA), Inderscience, 2021, Vol. 17, No. 1, PP. 25-37.(Scopus, ESCI). *DOI* ⌐

- Sabyasachi Chakraborty, **Gopal Chandra Jana**, et al. *"An improved method using supervised learning technique for diabetic retinopathy detection"*, International Journal of Information Technology, Springer, 2020, Vol. 12, PP. 473–477.(Scopus). *DOI* ⌐

Refereed Conference Publications (All are in Scopus Index):

- Anupam Agrawal, Sharmistha Dey and **Gopal Chandra Jana**, *"Depressive and Non-depressive Tweets Classification using a Sequential Deep Learning Model"* 1st International conference on Intelligent systems, advanced computing and communication (ISACC 2023). (Accepted)

- Shubham Chandra Joshi, **Gopal Chandra Jana**, and Anupam Agrawal, *"A Multi-view Representation Learning Approach for Seizure Detection over Multi-channel EEG Signals"* 10th International Conference on Frontiers of Intelligent Computing: Theory and Applications (FICTA) ,2022, Intelligent Data Engineering and Analytics, Vol. 327, pp. 375-385. *DOI* ⌐

- **Gopal Chandra Jana**, Aditya Tripathi and Anupam Agrawal *"EEG Channel Selection Approach for Seizure Detection Based on Integrated BPSO and ELM"*,2020 7th International Conference on Signal Processing and Integrated Networks (SPIN), Noida, India, 2020, pp. 856-861. *DOI* ⌐

- **Gopal Chandra Jana**, Ratna Sharma and Anupam Agrawal *"A 1D-CNN-Spectrogram Based Approach for Seizure Detection from EEG Signal"*, Procedia Computer Science(Elsevier),Vol. 167, 2020, pp. 403-412. *DOI* ⌐

- **Gopal Chandra Jana**, Anshuman Sabath and Anupam Agrawal *"Performance Analysis of Supervised Machine Learning Algorithms for Epileptic Seizure Detection with high variability EEG datasets*: *A Comparative Study"*, 2019 International Conference on Electrical, Electronics and Computer Engineering (UPCON), ALIGARH, India, 2019, pp. 1-6. DOI ⌐

- Anupam Agrawal, **Gopal Chandra Jana**, Prachi Gupta *"A Deep Transfer Learning Approach for Seizure detection using RGB features of Epileptic Electroencephalogram Signals"*, 2019 IEEE International Conference on Cloud Computing Technology and Science (CloudCom), Sydney, Australia, 2019, pp. 367-373. [GGS Rating: B, Tier II] DOI ⌐

- **Gopal Chandra Jana**, Shivam Shukla, Divyansh Srivastava and Anupam Agrawal *"Performance Estimation and Analysis over the Supervised Learning Approaches for Motor Imagery EEG Signals Classification"*, 5th International Conference on Intelligent Computing and Applications (ICICA-19), Intelligent Computing and Applications, edited by Subhransu Sekhar Dash et al., Springer, 2021, pp. 125–41. Springer. DOI ⌐

- **Gopal Chandra Jana**, and Anupam Agrawal *"An Artificial Intelligence Method for Discriminating Eye state from Quantitative EEG"*, 2018 4th International Conference for Convergence in Technology (I2CT), Mangalore, India, 2018, pp. 1-7. DOI ⌐

- **Gopal Chandra Jana**, Aleena Swetapadma and Prasant K. Pattnaik *"An Intelligent Method for Classification of Normal and Aggressive Actions from Electromyography Signals"*, 1st International Conference on Electronics, Materials Engineering and Nano-Technology (IEMENTech), Kolkata, 2017, pp. 1-5. DOI ⌐

Communicated Research Works (S/W Copyright: 1, Journal Papers: SCIE-2))

Software Copyright:

- Anupam Agrawal, **Gopal Chandra Jana**, et al., "OnlineproctorE" Computer Software, Under Govt. of Indian Copyright, dairy no: 9847/2022-CO/SW.

Communicated Journal Papers (SCIE):

- **Gopal Chandra Jana,** Anupam Agrawal, and *Abhishek Karmakar* "*EEG VMAC Toolbox*: *An Open-Source Python based Toolbox for EEG Signals Visualization, Manipulation, Analysis and Classification*",.

- **Gopal Chandra Jana** et al., "*Automatic EEG Channel Selection for Seizure Detection*: *Two Hybrid Approaches Utilizing Binary Genetic and Jaya Algorithm with Extreme Learning Machine*" march'24.

Under Preparation and Ongoing Research Works

I'm involved in more that five research work which are related to Seizure Detection using machine learning techniques and EEG signals data. From those work, three will be completed soon and communicated to the journals sequentially.

Short Term Courses and Certificates

Feb 2022 – Feb 2022 Rourkela, India	**GAIN Course on "Adversarial Signal Processing and Machine Learning with applications to Multimedia Forensics" (14th Feb to 18th Feb, 2022))** ⌐ *NIT Rourkela* Foreign faculty: Prof. Mauro Barni ⌐ , University of Siena Certificate: *link* ⌐
Dec 2021 – Dec 2021 India	**Workshop on "Applications of Machine Learning in Signal, Image & Computer Vision"** *IEEE UP Section, IEEE UP SPS Chapter, IEEE Young Professionals and BTKIT Dwarahat, Uttarakhand, India.* Organizers: The workshop is being organized under the banner of IEEE UP Section, IEEE UP SPS Chapter, IEEE Young Professionals and BTKIT Dwarahat, Uttarakhand, India. Course Duration: 27th Dec 2021 to 31st Jan 2021. Certificate: *link* ⌐

Sep 2020 – Sep 2020 Chennai, India	**30 Days Internship Program on Matlab** *Pantech Prolabs India Pvt ltd. and IETE Mumbai* Organizers: Pantech Prolabs India Pvt ltd. ☑ and IETE Mumbai ☑ Course Duration: 1st Jun 2020 to 30th Jun 2020. Certificate: link ☑
Jun 2020 – Jun 2020 Gurugram, India	**Faculty Development Program/Short Training on "Artifical Intelligence (AI), Machine Learning, Deep Learning & Its Applications** *EduxLabs (Esoir Business Solution LLP)* Course Duration: 17th June to 28th June, 2020 Organized by: EduxLabs (Esoir Business Solution LLP) ☑ Certificate: link ☑
Jul 2018 – Jul 2018 Varanasi, India	**3rd Indian Workshop on Machine Learning (IWML)** ☑ *Department of Computer Science and Engineering at the Indian Institute of Technology (Banaras Hindu University)* Workshop Duration: July 01,2018 till July 03, 2018. Organizers: Dr. Amrita Chaturvedi ☑ and, Dr. Pratik Chattopadhyay ☑ and Dr. Lakshmanan K ☑
Oct 2017 – Oct 2017 Rourkela, India	**GIAN Course on "Artificial Intelligence for MR Brain Image Processing" (October 9-18, 2017),** ☑ *NIT Rourkela* Foreign faculty: Dr. Yudong Zhang ☑ Certificate and Grade Card links: Certificate link ☑ , Grade card link ☑ .

Research Interests

- Biomedical Signal and Image Processing
- EEG Signal Analysis
- Explainable Machine Learning
- Portable Real-time product for Healthcare

- Human and Brain Computer Interface
- Machine Learning
- Reinforcement Learning
- Assistive technology solution for healthcare and wellness

- Vision and Signal Processing
- Deep Learning
- Artificial Intelligence (AI) in Healthcare

Teaching Interest

UG Level
- Data structure, Database Management Systems, Introduction to Computer Programming/Basics of Programming, Machine Learning Techniques and Practices, Artificial Intelligence and its Applications, Operating Systems, Image and Video Processing, Deep Learning, Programming Language (C, Python and MATLAB). Interested to guide UG Project students.

PG Level
- Image and Video Processing, Computer Vision, Machine Learning, Deep learning, Artificial Intelligent, Machine Learning and Deep learning related Programming Practices with Python and MATLAB. Interested to guide PG (including PhD) Project/thesis students.

Teaching Assistant Experiance

Jan 2018 – present Prayagraj, India	**Teaching Assistant @IIIT Allahabad** **Course Instructor:** Prof. Anupam Agrawal, IIIT Allahabad **Nature of work:** Tutorial and Practice **Involvement in the Courses:** - Image and Video Processing (UG and PG level) - Artificial Intelligent (UP level) - Advance Graphics and Animation (UP and PG level) - Virtual Reality (PG level) **Involved in Projects Guidance:** Guided several Course projects (UG & PG level), Semester projects (UG & PG level) and Internships projects (UG level) which are specifically related to EEG and Machine Learning.

Invited Talks/Hands-on Session delivered

Jul 2019 – Jul 2021 Bangalore, India	**13days Faculty Development Program on Artificial Intelligence and Machine Learning** ***My Role In the FDP***: *Delivered hand-on session on "Prolog (day-1) and CLIPS (day-2 Programing for Expert system Design" and ANN/ Fuzzy (day-3) experiments with MATLAB.* ***Testimonial***: *link* ☑ *and Pics* ☑

Technical Society Membership

Jun 2019 – present USA	**ACM Student Member** *6016882* Testimonial: *link* ⬈
Dec 2017 – present USA	**IEEE Member** *93886889* Testimonial: *link* ⬈
Apr 2017 – present Kolkata, India	**IE India Associate Member** *AM170751-8* Testimonial: *link* ⬈
Apr 2016 – present India	**CSI Student Member** *01357983*

Achievements/Awards

Second Position in Poster Presentation

Secured Second Position in Poster Presentation in CSI Regional Student Convention held on 18th – 19th Feb, 2017 at School of Computer Engineering, KIIT University, Bhubaneswar, Odisha, India.
Testimonials: link ⬈ and Pics ⬈

Institute Fellowship for PhD

IIIT Allahabad
Received Institute fellowship during PhD @IIIT-Allahabad

Reviewer Service:

Served as a Reviewer in the following Refereed Journals:
- IEEE Transactions on Artificial Intelligence (2)
- Computers in Biology and Medicine (1)
- Scientific Reports (2)
- Biomedical signal processing and control (8)
- Applied Soft Computing (1)
- Computer Methods and Programs in Biomedicine Update (1)
- IET Signal Processing (3)
- IETE Journal of Research (2)
- Electric Power Components and Systems (5)
- Computer and Information Science (3)
- Multimedia Tools and Applications (2)
- IEEE multimedia (1)

Publons/web of science Profile: *link* ⬈

Served as a Reviewer in the following Conferences :
- CVIP 2020, 2021
- ICABCS 2023
- IC2PCT 2024

Moderator of Events:

- **Moderator** of the talk by *Dr Manish Saggar* ⬈ *, Assistant Professor, Stanford University, USA.*
  Topic: *"From Robotics to the Brain and Back*: *A Research Journey"* in the event "*The IIITA Alumni webinar Series #3 was held on 7th February 2021"*. **Testimonial:** Event link ⬈ , Event Video ⬈

- **Moderator** of the talk by *Dr Himanshu Verma* ⬈ *, Assistant Professor of Human-AI Collaboration at the Knowledge and Intelligence Design Group of Faculty of Industrial Design Engineering at TU Delft* **(***Netherlands***)**.
  Topic: *"Computing, Humans, and Spaces*: *From Lab Studies to Research In-the-Wild"* in the event "The IIITA Alumni webinar Series #6 held on 04th Sept.'2021" **Testimonial:** Event link ⬈ , YouTube link ⬈

- **Moderator** of the talk by *Dr. Aashish Pappu* ⬈ *, Senior Research Scientist and Research Lead, Spotify, New York, NY, USA* **(***MS & PhD, CMU, USA***)**.
  Topic: "*Query Understanding and Intent Prediction for Music and Podcasts*" in the event "*The IIITA Alumni webinar Series #8 held on 20th Sept.'2021"* **Testimonial:** Event link ⬈ , YouTube link ⬈ .

Languages

- English
- Hindi
- Bengali

References

Prof. Anupam Agrawal, *Professor,*
Interactive Technologies & Multimedia Research (ITMR) Lab, Department of Information Technology, Indian Institute of Information Technology Allahabad, Prayagraj, 211015, India
anupam@iiita.ac.in

Prof. Ratna Sharma, *Professor,*
Stress and Cognitive Electroimaging Lab, Department of Physiology, All India Institute of Medical Sciences, New Delhi, Delhi 110029, India
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