

Dr. Barnali Gupta Banik

Associate Professor

Education

Doctor of Philosophy (Computer Science and Engineering)

Qualifications:

Specialization:

AI, Cyber Security and Blockchain technology



ADDRESS:

D – Block – lab 003-Room No -3

JNTUH ID:

3615-190226-162141

EMAIL:

barnaligupta_cse@mgit.ac.in

DATE OF JOINING:

01-02-2024

EXPERIENCE - 18 Years

- Teaching – 14

GRANT FETCHED:

Selected in C3ihub IIT Kanpur Cohort-2 Startup Incubation program for Cyber Security For National Patent , Application Number 202141010700)

PROFESSIONAL CERTIFICATE- 3

SUMMARY:

- Patents- 3
- Publications - 47
- Conferences - 18

EVENTS:

- Organized - 2
- Attended - 20

Membership of Professional Bodies:

- IEEE Member 93409761, Kolkata Section for last five years
- Associate Member of Cryptology Research Society of India (ID: A/0075)
Member of Indian Concrete Institute (ICI)LM 11640.

Responsibilities Held at Institution Level:

- Member, AI Club

Responsibilities Held at Department Level:

- Exam branch coordinator

Research Guidance:

- One student is awarded Ph. D. (2024)

Courses Handled at Under Graduate /Post Graduate Level:

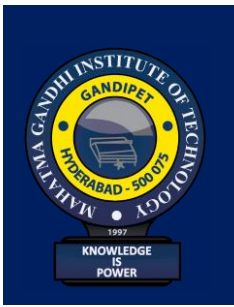
- UG:** Artificial Intelligence
- PG:** Network Security, Cryptography and Blockchain Technology

Publications:

In Refereed Journals (Count: 26)

Web-of-Science (Science Citation Index Expanded) and Scopus Indexed

- “Novel Text Steganography using Natural Language Processing and Part-of-Speech Tagging” by Barnali Gupta Banik and Samir Kumar Bandyopadhyay, IETE Journal of Research, Volume 66 (2020), Issue 3, Pages 384-395, First Published Online in July 2018, DOI: 10.1080/03772063.2018.1491807, Journal Impact factor: 0.793 (2018)
- “Blind Key based Attack Resistant Audio Steganography using Cocktail Party Effect” by Barnali Gupta Banik and Samir Kumar Bandyopadhyay, Security and Communications Networks, Volume 2018, Article ID 1781384, DOI: 10.1155/2018/1781384, Journal Impact factor: 1.376 (2018)
- “Visual Object Tracking Based on Modified LeNet-5 and RCCF.” By Gullapelly, Aparna, and Barnali Gupta Banik, Computer Systems Science and Engineering, vol. 46, no. 1, 2023, pp. 1127–39. DOI.org (Crossref), <https://doi.org/10.32604/csse.2023.032904>
- “Multiple Object Tracking with Behavior Detection in Crowded Scenes Using Deep Learning.” By Gullapelly, Aparna, and Barnali Gupta Banik, Journal of Intelligent & Fuzzy Systems, vol. 44, no. 3, Mar. 2023, pp. 5107–21. DOI.org (Crossref), <https://doi.org/10.3233/JIFS-223516>.



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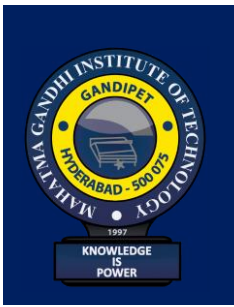
- Organized - 2
- Attended - 20

Web-of-Science (Emerging Sources Citation Index) and Scopus Indexed

1. "Performance Analysis of Ensemble Techniques for Rainfall Prediction: A Study Based on the Current Atmospheric Parameters " by Geeta Mahadeo Ambildhuke and Barnali Gupta Banik, Journal of Climate Change, Vol. 8, No. 3 (2022), pp. 51-62. DOI:10.3233/JCC220021
2. "IoT based Portable Weather Station for Irrigation Management using Real-Time Parameters" by Geeta Mahadeo Ambildhuke and Barnali Gupta Banik, International Journal of Advanced Computer Science and Applications, Volume 13 Issue 5, 2022, DOI:10.14569/IJACSA.2022.0130533
3. An Empirical Study on Fake News Detection System using Deep and Machine Learning Ensemble Techniques By Divya T.V. and Barnali Gupta Banik, International Journal of Advanced Computer Science and Applications, Vol. 12, No. 12, 2021, <http://dx.doi.org/10.14569/IJACSA.2021.0121219>
4. "Robust, Imperceptible and Blind Video Steganography using RGB Secret, Maximum Likelihood Estimation and Fibonacci Encryption" by Barnali Gupta Banik and Abhinandan Banik, International Journal of Electronic Security and Digital Forensics, Publisher: Inderscience, Volume 12, Issue 2, pp: 174-199, March 2020, DOI: 10.1504/IJESDF.2020.106310
5. "Steganalysis Attacks Resilient, Imperceptible, Blind and Keyed Image Hiding in Ultra HD 4K Video" By Barnali Gupta Banik and Abhinandan Banik, Information Security Journal: A Global Perspective, Publisher: Taylor & Francis, Published Online 19th Oct. 2021, DOI: 10.1080/19393555.2021.1986178
6. "A Comprehensive Study of Blockchain Services: Future of Cryptography", by Sathya A.R. and Barnali Gupta Banik, International Journal of Advanced Computer Science and Applications, Volume 11, No. 10, October 2020, DOI: 10.14569/IJACSA.2020.0111037

Scopus and DBLP Indexed

1. "Attack Resistant Chaos-based Cryptosystem by Modified Baker Map and Logistic Map", by Debanjan Chatterjee, Barnali Gupta Banik and Abhinandan Banik, International Journal of Information and Computer Security, Publisher: Inderscience, DOI:10.1504/IJICS.2023.10052966
2. "Multi-Image Hiding Blind Robust RGB Steganography in Transform Domain" by Diptasree Debnath, Emlon Ghosh and Barnali Gupta Banik, International Journal of Web-Based Learning and Teaching Technologies, Publisher IGI Global, Volume 15 Issue 1, January-March 2020, DOI: 10.4018/IJWLTT.2020010102
3. "Detecting Fake News Over Job Posts Via Bi-Directional Long Short-Term Memory (BIDLSTM)" By Divya T.V. and Barnali Gupta Banik, International Journal of Web-Based Learning and Teaching Technologies, Volume 16, Issue 6, Article 17. DOI: 10.4018/IJWLTT.287096
4. "Transfer learning approach - an efficient method to predict Rainfall based on ground-based cloud images", by Geeta Mahadeo Ambildhuke and Barnali Gupta Banik, Ingénierie des Systèmes d'Information, Volume 26, No. 4, pp. 345-356, DOI: 10.18280/isi.260402



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5. “Classifications of Rigid and Non rigid objects using CNN” by Aparna Gullapelly and Barnali Gupta Banik, Revue d’Intelligence Artificielle, Volume 35, No. 4, pp. 341-347. DOI: 10.18280/ria.350409

Scopus Indexed

1. “An Integrated Cycle GAN and PEGASUS to Generate Synthetic Data for Detection of Fake News”, by T V Divya and Barnali Gupta Banik, International Journal of Engineering Trends and Technology, Volume 70 No. 8 pp: 57-70 DOI: <https://doi.org/10.14445/22315381/IJETT-V70I8P206>

2. “Implementation of A Secure Ride-Sharing DApp Using Smart Contracts on Ethereum Blockchain”, by Sathya A.R. and Barnali Gupta Banik, International Journal of Safety and Security Engineering, Volume 11 No. 2 pp: 167-173 DOI: 10.18280/ijssse.110205

3. ”A Novel Blockchain Framework for Digital Learning”, by J Bheemeswara Sastry and Barnali Gupta Banik, Indian Journal of Computer Science and Engineering, Volume 12 No. 3 pp: 728-734, DOI: 10.21817/indjcse/2021/v12i3/211203283

4. “Exploring the Techniques for Object Detection, Classification and Tracking in Video Surveillance for Crowd Analysis” by Aparna Gullapelly and Barnali Gupta Banik, Indian Journal of Computer Science and Engineering, Volume 11 Issue 4, pp: 321-326, Aug 2020, DOI: 10.21817/indjcse/2020/v11i4/201104064

Other Indexed Journals

1. “Review on Steganography in Digital Media” by Barnali Gupta Banik and Samir K Bandyopadhyay, International Journal of Science and Research, Volume 4 Issue 2, Pages: 265-274, DOI: 10.21275/SUB151127

2. ”A DWT Method for Image Steganography” by Barnali Gupta Banik and Prof. Samir K Bandyopadhyay, International Journal of Advanced Research in Computer Science and Software Engineering, Volume 3 Issue 6, Pages 983-989 ISSN: 2277 128X

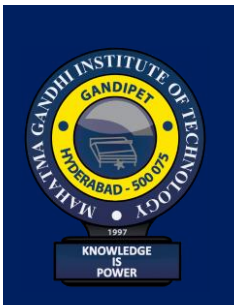
3. “Multi-Level Steganographic Algorithm for Audio Steganography using LSB Modification and Parity Encoding Technique” by Prof. S. K. Bandyopadhyay and Barnali Gupta Banik International Journal of Emerging Trends & Technology in Computer Science, Volume 1 Issue 2, Pages 71-74, ISSN: 2278-6856

4. “LSB Modification and Phase Encoding Technique of Audio Steganography Revisited” by Prof. Samir K Bandyopadhyay and Barnali Gupta Banik International Journal of Advanced Research in Computer and Communication Engineering Volume 1 Issue4, ISSN: 2278 – 1021

5. “An Image Steganography Method on Edge Detection Using Multiple LSB Modification Technique” by Barnali Gupta Banik and Samir Kumar Bandyopadhyay Journal of Basic and Applied Research International, Volume 9 Issue 2, Pages 75-80, ISSN: 2395-3438

6. “A Smart Move in Precision Agriculture using IoT”, by Geeta Mahadeo Ambildhuke and Barnali Gupta Banik, Solid State Technology, Volume 63 No. 2s (2020), pp: 3946-3971

7. “Object Detection and Recognition using Deep Learning” by Aparna Gullapelly and Barnali Gupta Banik, Solid State Technology, Volume: 63 Issue: 5 (2020)



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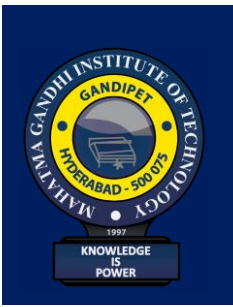
EVENTS:
• Organized - 2
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Conferences:

In International Conference Proceedings (Count: 17)

Scopus Indexed

1. "A blockchain-based Transparent Solution for Achieving Investment for Farming" By Ayushya Chitransh, Barnali Gupta Banik 2nd International Conference on Network Security and Blockchain Technology, Springer Proceedings (pp.525-534)Nov 2023, DOI: 10.1007/978-981-99-4433-0_44
2. H. S. Donepudi, M. Saxena, Y. X. Yun, P. Jansirani, S. S. Sethi and B. G. Banik, "A Comprehensive Study on Accident Detection Approaches," 2022 IEEE Delhi Section Conference (DELCON), 2022, pp. 1-9, doi: 10.1109/DELCON54057.2022.9753079.
3. Ambildhuke, Geeta Mahadeo, and Barnali Gupta Banik. "Fog Based Integrated Nutrient Management System for Macronutrients Recommendation." 2022 IEEE Fourth International Conference on Advances in Electronics, Computers and Communications (ICAECC), IEEE, 2022, pp. 1–6. (Crossref), <https://doi.org/10.1109/ICAECC54045.2022.9716639>.
4. "Telegram bot for emotion recognition using acoustic cues and prosody" by Ishita Nag, Salman Azeez Syed, Shreya Basu, Suvra Shaw and Barnali Gupta Banik, In: Mukhopadhyay, S., Sarkar, S., Dutta, P., Mandal, J.K., Roy, S. (eds) Computational Intelligence in Communications and Business Analytics. CICBA 2022. Communications in Computer and Information Science, vol 1579. Springer, Cham. https://doi.org/10.1007/978-3-031-10766-5_31
5. "Comprehensive Study of Video Steganography using convolutional neural networks using Temporal Redundancy", by Gnana Prasunamba Daggumati and Barnali Gupta Banik, International Conference on Industrial Electronics, Mechatronics, Electrical & Mechanical Power, 2021 to be published in American Institute of Physics (AIP) Conference Proceedings, <https://doi.org/10.1063/5.0110085>
6. "A generic Blockchain-based Remote Clinical Monitoring Framework through Wearable devices to mitigate the COVID-19 pandemic" by Sathya A.R. and Barnali Gupta Banik, 2021 International Conference on Smart Computing and Informatics, to be published in Smart Innovation, Systems and Technologies Series, Springer https://doi.org/10.1007/978-981-16-9705-0_42
7. "An approach of Trustworthy Supply Chain Management of Ventilator and PPE in Covid-19 pandemic through Blockchain Technology", by Sathya A.R. and Barnali Gupta Banik, In: Tavares J.M.R.S., Dutta P., Dutta S., Samanta D. (eds) Cyber Intelligence and Information Retrieval. Lecture Notes in Networks and Systems, Volume 291. Springer, Singapore. DOI:10.1007/978-981-16-4284-5_39
8. "Recent Trends in Blockchain Technology" by J Bheemeswara Sastry and Barnali Gupta Banik, 2021 International Conference on Computational Intelligence in Pattern Recognition, in Advances in Intelligent Systems and Computing, Springer Volume



1349, Springer, Singapore. DOI: 10.1007/978-981-16-2543-5_12

9. “A Blockchain Framework for Counterfeit Medicines Detection”, by Tejaswini Sirisha Mangu and Barnali Gupta Banik, 2020 International Conference on Advances & Applications of AI and ML, in Lecture Notes in Electrical Engineering Series, Springer Volume 778. Springer, Singapore. DOI: 10.1007/978-981-16-3067-5_40

10. “A Walk-through Various Paradigm for Fake News Detection on Social Media” by Divya T.V. and Barnali Gupta Banik, In: Chaki N., Pejas J., Devarakonda N., Rao Kovvur R.M. (eds) Proceedings of International Conference on Computational Intelligence and Data Engineering. Lecture Notes on Data Engineering and Communications Technologies, vol 56. Page 173-183 Springer, Singapore. DOI: 10.1007/978-981-15-8767-2_16

11. “Image Steganography using Edge Detection by Kirsch Operator and Flexible Replacement Technique” by Barnali Gupta Banik, Manish Kumar Poddar and Samir Kumar Bandyopadhyay, Proceedings of International Conference on Emerging Technologies in Data Mining and Information Security Vis. Advances in Intelligent Systems and Computing, Edited by A. Abraham et al., Volume 814, pp: 175-187, Springer, Singapore, DOI: 10.1007/978-981-13-1501-5_15

12. “Multiple RGB Image Steganography using Arnold and Discrete Cosine Transformation” by Diptasree Debnath, Emlon Ghosh and Barnali Gupta Banik, Proceedings of International Ethical Hacking Conference 2018 Vis. Advances in Intelligent Systems and Computing, Edited by M. Chakraborty et al., Volume 811, pp: 151-161, Springer Nature, Singapore, DOI: 10.1007/978-981-13-1544-2_13

13. “Blind RGB Image Steganography using Discrete Cosine Transformation” by Emlon Ghosh, Diptasree Debnath and Barnali Gupta Banik, Proceedings of International Conference on Emerging Technologies in Data Mining and Information Security, Vis. Advances in Intelligent Systems and Computing, Edited by A. Abraham et al., Volume 814, pp: 189-201, Springer, Singapore, DOI: 10.1007/978-981-13-1501-5_16

14. “Image steganography using a histogram of discrete cosine transform” by Barnali Gupta Banik, Manish Kumar Poddar and Samir Kumar Bandyopadhyay, Proceedings of International Conference on Advancement of Computer, Communication and Electrical Technology Vis. Computer, Communication and Electrical Technology, Edited by D. Guha, B. Chakraborty and H. S. Dutta, Taylor & Francis Group, CRC Press, Pages 19–25, DOI: 10.1201/9781315400624-5

15. “Image Steganography Using Bit Plane Complexity Segmentation and Hessenberg QR Method” by Barnali Gupta Banik and Samir Kumar Bandyopadhyay, Proceedings of International Conference on Intelligent Computing and Communication Vis. Advances in Intelligent Systems and Computing, Edited by J. Mandal, S. Satapathy, M. Sanyal, V. Bhateja, Volume 458, pp 623-633, Springer, Singapore DOI: 10.1007/978-981-10-2035-3_63

16. “Secret sharing using 3 level DWT method of image steganography based on Lorenz chaotic encryption and visual cryptography” by Barnali Gupta Banik and Samir Kumar Bandyopadhyay, Proceedings of International Conference on Computational Intelligence and Communication Networks, Pages 1147-1152, Published in IEEE Xplore, DOI: 10.1109/CICN.2015.223

17. “Implementation of Image Steganography Algorithm using Scrambled Image and

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EXPERIENCE - 18 Years

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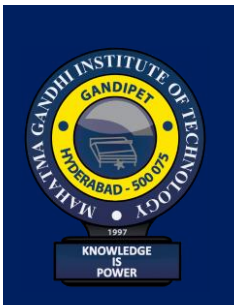
PROFESSIONAL CERTIFICATE- 3

SUMMARY:

- Patents- 3
- Publications - 47
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EVENTS:

- Organized - 2
- Attended - 20



Quantization Coefficient Modification in DCT” by Barnali Gupta Banik and Samir Kumar Bandyopadhyay, Proceedings of International Conference on Research in Computational Intelligence and Communication Networks, Pages 400 – 405, Published in IEEE Xplore, DOI: 10.1109/ICRCICN.2015.7434272

Patents:

National (Count: 1)

1. “A Decentralized Consensus Blockchain Framework for Poverty Alleviation in Rural India” Inventors: J Bheemeswara Sastry and Barnali Gupta Banik, Patent Application Number: 202141010700, Patent Authority: Government of India, Status: Published, Date of Filing: 14th March 2021, Date of Publication: 26th March 2021 (Selected for incubation with C3ihub IITK)

International (Count: 2)

1. “Decentralized Training and Recruitment Model for Mitigating Unemployment using Blockchain Technology”, Inventors: J Bheemeswara Sastry and Barnali Gupta Banik, Patent Application No.: 2020103001, Patent Authority: Government of Australia, Status: Published in Australian Official Journal of Patents Volume: 34, No: 46, Date of Filing: 24th October 2020, Date of Publication: 19th November 2020

2. “A Portable IoT Device to predict rainfall based on current weather parameters and sky /cloud status at any location”, Inventors: Geeta Ambildhuke and Barnali Gupta Banik, Patent Application No.: 2021103535, Patent Authority: Government of Australia, Status: Published in Australian Official Journal of Patents Volume: 36, No: 14, Date of Filing: 7th April 2021, Date of Publication: 23rd March 2022

Research & Consultancy:

1. Selected in C3ihub IIT Kanpur Cohort-2 Startup Incubation program for Cyber Security - entitled to receive grant of INR 25,00,000/- (Twenty Five Lakhs) for developing prototype for one of my patents (National Patent #2, Application Number 202141010700) [discontinued]

No. of Books/Chapter Published with details:

1. “Imposing Security and Privacy in the Healthcare Industry using Blockchain Technology” by J Bheemeswara Sastry and Barnali Gupta Banik, In Intelligent Interactive Multimedia Systems for e-Healthcare Applications, Edited by Tyagi A.K., Abraham A., Kaklauskas A., Published by Springer, Singapore, 2021. DOI: 10.1007/978-981-16-6542-4_13

2. “Exploring Recent Advances in Digital Video Steganography and Future Scope” by Barnali Gupta Banik, In Intelligent Innovations in Multimedia Data Engineering and Management, Edited by Siddhartha Bhattacharyya, Publisher IGI Global, 2019, DOI: 10.4018/978-1-5225-7107-0.ch004 ISBN13: 9781522571070, EISBN13: 978152257108

Events Organized:

FDPs/STTPs:

1. Two

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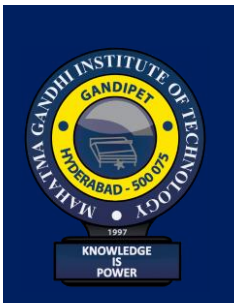
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Events Attended

FDPs/STTPs:

1. One Week -1

Refresher Courses/ Workshops/ Webinars/ Seminars/Guest Lecture:

1. One -1

Online Certifications:

- | | |
|---|------|
| 1. Oracle Cloud Infrastructure Generative AI Certified Professional | 2024 |
| 2. Blockchain Training Alliance Certified Blockchain Developer | 2023 |
| - Ethereum (CBDE) | |
| 3. VSkill Certified Learning and Development Manager (CLDM) | 2022 |
| 4. Blockchain Council Certified Blockchain Expert (CBE) | 2021 |

Any Other Contribution:

1. One
2. Two

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