



Techno College of Engineering Agartala

An Engineering College affiliated to Tripura University (A Central University),

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Website: www.tiaedu.org

Name of the faculty: Dr. Priyanka Majumder

Designation: Associate Professor

Education: PhD from National Institute of Technology Agartala (NITA)

Contact: 8131959128

Address: Department of Basic Science and Humanities, Techno College of Engineering Agartala, Maheshkhola-799004, Tripura, INDIA

Mobile: 9366574036

Email: majumder.priyanka@tiaedu.org



Research Interest:

- Fuzzy Decision Making
- Soft Computing
- Computational Intelligence
- Energy Study
- Biotechnology

Membership of professional bodies:

- Member of International Society on MCDM
- Life time member of Tripura Mathematical Society
- An active member of the International Society of Fuzzy Set Extensions and Applications (ISFSEA)

Professional Experience:

- Associate Professor, Department of Basic Science and Humanities (Mathematics), Techno College of Engineering Agartala, Tripura, December 2022 - present.
- Assistant Professor, Department of Basic Science and Humanities (Mathematics), Techno College of Engineering Agartala, Tripura, December 2016 - December 2022.
- Guest lecturer for two semester at TIA Tripura 2016.
- B Tech. teaching at NIT Agartala during the PhD period (2012-2014).

Patents:

- Dr. Sanjoy Mitra, Ankit Kishore Sen, Dr. Parijata Majumdar, Deeptanu Choudhury, **Dr. Priyanka Majumder**, “WEARABLE HEALTH MONITORING DEVICE”, Indian Patent, March 2024, Patent Number 410543-001.
- **Dr. Priyanka Majumder**, Dr. Parijata Majumdar, Dr. Amrit Das, Pragnaleena Debroy, “RESOURCES ALLOCATION DECISION MANAGING APPARATUS”, Indian Patent, March 2024, Patent Number 411697-001.
- **Dr. Priyanka Majumder**, Dr. Parijata MajumdarDr., Susmita Paul, Dr Subhendu Banik, “WEARABLE DISASTER EMERGENCY COMMUNICATION DEVICE” Indian Patent, March 2024, Patent Number413045-001



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- Ankit Kishore Sen, Dr. Parijata Majumdar, Deeptanu Choudhury, **Dr. Priyanka Majumder**, Mehali Sen, Suman Chakraborty, “PORTABLE ECG MONITORING DEVICE”, Indian Patent, April 2024, Patent Number 413366-001
- Dr. Parijata Majumdar, Dr. Bharat Bhushan, Mr. Jayanta Das, **Dr. Priyanka Majumder**, Dr. Susmita Paul, “AI-DRIVEN QUANTUM-RESIST HUB FOR SECURE COMMUNICATION IN CONNECTED MEDICAL DEVICES” Indian Patent, 15, November 2024

Publications:

Publishes Journal:

- **Majumder, P.** (2023). An integrated trapezoidal fuzzy FUCOM with single-valued neutrosophic fuzzy MARCOS and GMDH method to determine the alternatives weight and its applications in efficiency analysis of water treatment plant. *Expert Systems with Applications*, 225, 120087. (SCIE)
- **Majumder, P.** (2023). An integrated trapezoidal fuzzy FUCOM-TOPSIS method to determine alternatives' ranking and utilization in the water treatment plant. *Environmental Progress & Sustainable Energy*, e14096. (SCIE)
- **Majumder, P.**, Bhowmik, P., Das, A., Senapati, T., Simic, V., & Pamucar, D. (2023). An intuitionistic fuzzy based hybrid decision-making approach to determine the priority value of indicators and its application to solar energy feasibility analysis. *Optik*, 295, 171492. (SCIE)
- Alshamrani, A., **Majumder, P.**, Das, A., Hezam, I. M., & Božanić, D. (2023). An integrated BWM-TOPSIS-I approach to determine the ranking of alternatives and application of sustainability analysis of renewable energy. *Axioms*, 12(2), 159. (SCIE)
- Podder, T., Bhattacharya, D., **Majumder, P.**, & Balas, V. E. (2023). A feature boosted deep learning method for automatic facial expression recognition. *PeerJ Computer Science*, 9, e1216. (SCIE)
- **Majumder, P.**, Paul, A., & Pramanik, S., (2023). Single-valued pentapartitioned neutrosophic weighted hyperbolic tangent similarity measure to determine the most significant environmental risks during the COVID-19 pandemic. *Neutrosophic Sets and Systems*, 57, 57-75. (SCOPUS)
- Debroy, P., **Majumder, P.**, Das, A., & Seban, L. (2024). Model-based predictive greenhouse parameter control of aquaponic system. *Environmental Science and Pollution Research*, 1-27. (SCIE)
- **Majumder, P.**, & Salomon, V. A. P. (2024). Intuitionistic Fuzzy Ordinal Priority Approach with Grey Relational Analysis. *Mathematics*, 12(19), 1-15. (SCIE)
- **Majumder, P.**, Paul, A., Saha, P., Majumder, M., Baidya, D., & Saha, D. (2023). Trapezoidal fuzzy BWM-TOPSIS approach and application on water resources. *Environment, Development and Sustainability*, 25(3), 2648-2669. (SCIE)
- Garg, H., **Majumder, P.**, & Nath, M. (2022). A hybrid trapezoidal fuzzy FUCOM-AHP approach and their application to identification of monkeypox risk factors. *Computational and Applied Mathematics*, 41(8), 379. (SCIE)
- Paul, A., Ghosh, S., & **Majumder, P.** (2025). An integrated trapezoidal neutrosophic-based decision-making approach and its application to seismic hazard analysis. *Sādhanā*, 50(3), 1-29. (SCIE)
- Debroy, P., **Majumder, P.**, Majumdar, P., Das, A., & Seban, L. (2025). Analysis of opportunities and challenges of smart aquaponic system: a summary of research trends and future research avenues. *Sustainable Environment Research*, 35(1), 18. (SCIE)
- Debroy, P., **Majumder, P.**, Das, A., Božanić, D., Hezam, I. M., & Seban, L. (2025). OPA-IF-SVNF-MARCOS decision framework and its application to determine the optimal fish species for integration into an aquaponic system. *Environmental Progress & Sustainable Energy*, e70037. (SCIE)
- Paul, A., Ghosh, S., Smarandache, F., & **Majumder, P.** (2025). Integrating Trapezoidal Neutrosophic FUCOM-TOPSIS in SVNS for Enhanced Seismic Hazard Evaluation of Northeast India. *Informatica*, 1-49. (SCIE)



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- Paul, A., Ghosh, S., **Majumder, P.**, Pramanik, S., & Smarandache, F. (2025). Identification of influential parameters in soil liquefaction under seismic risk using a hybrid neutrosophic decision framework. *Journal of applied research on industrial engineering*, 12(1), 144-175. (SCOPUS)
- Debroy, P., Smarandache, F., **Majumder, P.**, Majumdar, P., & Seban, L. (2025). OPA-IF-Neutrosophic-TOPSIS Strategy under SVNS Environment Approach and Its Application to Select the Most Effective Control Strategy for Aquaponic System. *Informatica*, 36(1), 1-32. (SCIE)
- Debroy, P., **Majumder, P.**, & Seban, L. (2025). A simulation based water quality parameter control of aquaponic system employing model predictive control strategy incorporation with optimization technique. *Environmental Progress & Sustainable Energy*, 44(1), e14530. (SCIE)
- Dey, S., Smarandache, F., Debbarma, R., & **Majumder, P.** (2022). A Hybrid IF-FUCOM-GRA Approach and its Application to Determine Optimal Bacterial Concentrations on Mortar at Optimal Curing Day. *Informatica*, 1-26. (SCIE)
- Saha, P., **Majumder, P.**, Das, S., Das, P. K., & Tripathy, B. C. (2022). Single-Valued Pentapartitioned Neutrosophic Dice Similarity Measure and Its Application in the Selection of Suitable Metal Oxide Nano-Additive for Biodiesel Blend on Environmental Aspect. *Neutrosophic Sets and Systems*, 48, 154-171. (SCOPUS)
- **Majumder, P.** (2022). Analyses of polynomial neural networks for prediction of the prevalence of monkeypox infections in Asia and around the world. *Electron J Gen Med.* 2022; 19 (6): em410. (SCOPUS, ESCI).
- Dey, S., Debbarma, R., Tripathy, B. C., Das, S., & **Majumder, P.** (2022). Single-Valued Pentapartitioned Neutrosophic Exponential Similarity Measure under SVPNS Environment and Its Application in the Selection of Bacteria. *Neutrosophic Sets and Systems*, vol. 51/2022. (SCOPUS)
- **Majumder, P.** & Smarandache, F. (2022) Analyzing the Sustainability of Industry Affected in COVID-19 Pandemic Scenario Using Cosine Similarity Measure under SVPNS and PNN Model, *International Journal of Neutrosophic Science* (SCOPUS).
- **Majumder, P.**, Baidya, D., & Majumder, M. (2021). Application of novel intuitionistic fuzzy BWAHP process for analysing the efficiency of water treatment plant. *Neural Computing and Applications*, 33(24), 17389-17405. (SCIE)
- Saha, A., **Majumder, P.**, Dutta, D., & Debnath, B. K. (2021). Multi-attribute decision making using q-rung orthopair fuzzy weighted fairly aggregation operators. *Journal of Ambient Intelligence and Humanized Computing*, 12(7), 8149-8171. (SCIE)
- **Majumder, P.**, Das, S., Das, R., & Tripathy, B. C. (2021). Identification of the most significant risk factor of COVID-19 in economy using cosine similarity measure under SVPNS-environment. *Neutrosophic Sets and Systems*, 46, 112-127. (SCOPUS)
- **Majumder, P.**, Balas, V. E., Paul, A., & Baidya, D. (2021). Application of improved fuzzy best worst analytic hierarchy process on renewable energy. *PeerJ Computer Science*, 7, e453. (SCIE)
- **Majumder, P.**, Kar, S., & Majumder, M. (2021). Real-time vulnerability analysis of hydropower projects under changed climatic scenarios. *International Journal of Global Warming*, 24(3-4), 383-399. (SCIE)
- **Majumder, P.**, Biswas, P., & Majumder, S. (2020). Application of New TOPSIS Approach to Identify the Most Significant Risk Factor and Continuous Monitoring of Death of COVID-19. *Electronic Journal of General Medicine*, 17(6). (SCOPUS, ESCI)
- **Majumder, P.**, Majumder, M., Saha, A. K., & Nath, S. (2020). Selection of features for analysis of reliability of performance in hydropower plants: a multi-criteria decision making approach. *Environment, Development and Sustainability*, 22(4), 3239-3265. (SCIE)
- **Majumder, P.**, Majumder, M., & Saha, A. K. (2020). Real-time monitoring of power production in modular hydropower plant: most significant parameter approach. *Environment, Development and Sustainability*, 22(5), 4025-4042. (SCIE)



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- **Majumder, P.**, Majumder, M., Saha, A. K., Sarkar, K., & Nath, S. (2019). Real time reliability monitoring of hydro-power plant by combined cognitive decision-making technique. *International Journal of Energy Research*, 43(9), 4912-4939. (SCIE)
- **Majumder, P.**, & Saha, A. K. (2019). Ranking of indicators for estimation of plant efficiency in hydropower plants by a bootstrap MCDM approach. *International Journal of Energy Optimization and Engineering (IJE OE)*, 8(3), 69-92. (ESCI)
- **Majumder, P.**, & Saha, A. K. (2019). Identification of most significant parameter of impact of climate change and urbanization on operational efficiency of hydropower plant. *International Journal of Energy Optimization and Engineering (IJE OE)*, 8(3), 43-68. (ESCI)
- **Majumder, P.**, Majumder, M., & Saha, A. K. (2018). Climate change and urbanization impact on hydropower plant by neural network-based decision-making methods: identification of the most significant parameter. *Water Conservation Science and Engineering*, 3(3), 169-179. (ESCI)
- **Majumder, P.**, Saha, A. K., & Majumder, M. (2018). A mathematical approach of exploration towards extreme risk factor in cancer of optimal condition. *International Journal of Pharmaceutical Sciences and Research*, 9(9), 3732-42. (SCOPUS)
- **Majumder, P.**, & Saha, A. K. (2018). Efficiency assignment of hydropower plants by DEMATEL-MAPPAC approach. *Water Conservation Science and Engineering*, 3(2), 91-97. (ESCI)
- Debroy, P., **Majumder, P.**, Pramanik, S., & Seban, L. (2024). TrF-BWM-Neutrosophic-TOPSIS Strategy under SVNS Environment Approach and Its Application to Select the Most Effective Water Quality Parameter of Aquaponic System. *Neutrosophic Sets and Systems*, 70(1), 13. (SCOPUS)
- **MAJUMDER, P.**, SAHA, A. K., & MAJUMDER, M. (2018). MACBETH-GMDH based efficiency assessment indicator development for performance optimization of hydro power plants. *Journal of Basic and Applied Research International*, 106-121.
- **Majumder, P.**, Saha, A. K., & Majumder, M. (2018). Application of DEMATEL-TOPSIS method to analyze operational efficiency of hydropower plants. *J Civil ConstrEng*, 17(2).
- **Majumder, P.**, & Saha, A. K. (2017). Identification of most important parameter for efficiency performance of hydro power plant by harmonic mean hierarchy process (HMHP).
- **Majumder, P.**, Saha, A. K., & Majumder, M. (2017). Selection of significant lifestyle risk factor of cancer by hybrid X-Bar-DEMATEL-TOPSIS method. *Journal of Pharmaceutical Sciences and Research*, 9(6), 878. (ESCI)
- **Majumder, P.**, Majumder, M., & Saha, A. K. (2017). Selection of Important Parameter for Financial Performance of Hydro Power Plant. *Journal of Engineering and Applied Sciences*, 12: 8809-8812. (SCOPUS)
- Das, B., Roy, S., Rai, R. N., Saha, S. C., & **Majumder, P.** (2016). Effect of in-situ processing parameters on microstructure and mechanical properties of TiC particulate reinforced Al-4.5 Cu alloy MMC fabricated by stir-casting technique—Optimization using grey based differential evolution algorithm. *Measurement*, 93, 397-408. (SCIE)
- **Majumder, P.**, Majumder, M., & Saha, A. K. (2016). Application of decision making for optimal condition method to analyze operational efficiency of hydropower plants. *International Journal of Control Theory and Applications*, 9(42), 79-94. (SCOPUS)
- **Majumder, P.**, Majumder, M., & Saha, A. K. (2016). An optimization-MCDM approach of multi criteria decision analysis. *International Journal of Control Theory and Applications*, 9(40), 417-423. (SCOPUS)
- **Majumder, P.**, Saha, A. K., & Majumder, M. (2016). Evaluation of hydropower plants with respect to cost incurred by fuzzy decision making. *Journal of civil and construction Engineering*, 2(3).
- Paul, A. & **Majumder, P.** (2025). Identification of Most Critical Site for Soil Liquefaction Vulnerability: Using Fuzzy Logic Based Decision Making Process. *Discover Applied Sciences*. (Accepted) (SCOPUS)



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- **Majumder, P. & Pramanik, P** (2025). Spherical Fuzzy BW-AHP Strategy and its Applications in Renewable Energy. *Boletim da Sociedade Paranaense de Matemática*. (Accepted) (SCOPUS)

Conference papers:

- **P. Majumder, A. K. Saha, M. Majumder**, “An Optimization-MCDM approach of Multi Criteria Decision Analysis”, 2nd International Conference on Sustainable Computing Techniques in Engineering, Science and Management (SCESM), Jain College of Engineering, Belagavi, 27-28th January, 2017

Book:

- **P. Majumder, A.K. Saha, M. Majumder**, “A Study of Mathematical Tools on Cancer”, Lambert Academic Publishing, (2018). ISBN:978-6139928804
- Saha, D. Datta, S. Kar, **P. Majumder, A. Paul**’, “GATE Engineering Mathematic”, khanna publishers (2020). ISBN: 9387394972
- F. Smarandache, **P. Majumder**, “Modern SuperHyperSoft Computing Trends in Science and Technology” IGI Global publishers (2025). ISBN13: 9798369368756
- P. Majumdar, P. Majumder, A. Nag, S. Banik, S. Paul. Comprehensive Research Methods: Frameworks, Techniques and Real-World Applications. EBH Publishers; 1st edition

Book Chapters:

- **Majumder, P., & Smarandache, F.** (2023). Using Similarity Measures to Identify Significant Rejection Risk Factors After Technical Screening of Research Articles. In *Handbook of Research on the Applications of Neutrosophic Sets Theory and Their Extensions in Education* (pp. 310-321). IGI Global. ISBN13: 9781668478363. DOI: 10.4018/978-1-6684-7836-3
- **Majumder, P.** (2021). Daily confirmed cases and deaths prediction of novel coronavirus in Asian continent Polynomial Neural Network. In *Biomedical Engineering Tools for Management for Patients with COVID-19* (pp. 163-172). Academic Press.
- **Majumder, P., & Saha, A.** (2021). Optimal Trade-Off Between the Energy—Economy of a Hydropower Plant for Better Management of the Renewable Energy Resources. *Water and Energy Management in India* (pp. 181-198). Springer, Cham.
- **Majumder, P., & Saha, A. K.** (2021). A new TOPSIS-based approach to evaluate the economic indicators in the healthcare system and the impact of biotechnology. In *Translational Biotechnology* (pp. 407-419). Academic Press.
- **Majumder, P., & Saha, A. K.** (2018). Development of financial liability index for hydropower plant with MCDM and neuro-genetic models. *Application of geographical information systems and soft computation techniques in water and water based renewable energy problems* (pp. 71-105). Springer, Singapore.

Hobbies:

- **Cricket Playing**
- **Food Cooking**