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Associate Professor

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Biography

Dr. Sifat Momen received his PhD degree in 2011 from the University of Sheffield, UK. In September 2017, Dr. Momen joined as an Assistant Professor in the department of Electrical and Computer Engineering (ECE) of North South University (NSU). He is currently employed in the same department as an Associate Professor. Prior to joining NSU, Dr. Momen worked as an Assistant Professor for nearly six years in the Department of Computer Science and Engineering at the University of Liberal Arts Bangladesh (ULAB). He also served as the acting Head of the Department at ULAB, for some time. His PhD research was at the crossroads of biology and engineering, and was heavily influenced by the behavior of eusocial insects, which are well-known for their self-organizing abilities. He was involved as an RA (Research Associate) within the ANTLab of the School of Biological Sciences at the University of Bristol, UK. His current research interests center around complex systems, machine learning, and information systems. He is an active researcher and regularly reviews numerous conference papers and journal articles.

Research Areas

- Artificial Intelligence & Robotics

Research Interests

Machine learning, Swarm intelligence, Social behavior

Teaching

- CSE 373 Design and Analysis of Algorithms
- CSE 445 Machine Learning

- CSE499A/EEE499A/ETE499A – Senior Design I
- CSE499B/EEE499B/ETE499B – Senior Design II

Selected Publications

Journals

- Md Shawmoon Azad, Shakirul Islam Leon, Riasat Khan, Nabeel Mohammed, Sifat Momen, “SAD: Self-assessment of depression for Bangladeshi university students using machine learning and NLP,” Array, 2024
- Mritunjoy Chakraborty, Nishat Naowal, Sifat Momen, Nabeel Mohammed, “ANALYZE-AD: A comparative analysis of novel AI approaches for early Alzheimer’s detection,” Array, 2024
- Alif Elham Khan, Mohammad Junayed Hasan, Humayra Anjum, Nabeel Mohammed, Sifat Momen, “Predicting life satisfaction using machine learning and explainable AI,” Heliyon, 2024
- Mehedi Hasan Bijoy, Nirob Hasan, Mithun Biswas, Suvodeep Mazumdar, Andrea Jimenez, Faisal Ahmed, Mirza Rasheduzzaman, Sifat Momen, “Towards Sustainable Agriculture: A Novel Approach for Rice Leaf Disease Detection using dCNN and Enhanced Dataset,” IEEE Access, 2024
- Md. Shawmoon Azad, Shadman Sakib Khan, Rezwan Hossain, Raiyan Rahman, Sifat Momen, “Predictive modeling of consumer purchase behavior on social media: Integrating theory of planned behavior and machine learning for actionable insights,” PLoS ONE, 2023
- Rokeya Siddiqua, Nusrat Islam, Jarba Farnaz Bolaka, Riasat Khan, Sifat Momen, “AIDA: Artificial intelligence based depression assessment applied to Bangladeshi students,” Array, 2023
- Kazi Rafat, Sadia Islam, Abdullah Al Mahfug, Md. Ismail Hossain, Fuad Rahman, Sifat Momen, Shafin Rahman, Nabeel Mohammed, “Mitigating carbon footprint for knowledge distillation based deep learning model compression,” PLoS ONE, 2023
- Md. Saiful Islam, Shuvo Jyoti Das, Md. Riajul Alam Khan, Sifat Momen, Nabeel Mohammed, “Detection of COVID-19 and Pneumonia Using Deep Convolutional

Neural Network,” Computer Systems Science and Engineering, 2023

- Suvodeep Mazumdar, Sukaina Ehdeed, Andrea Jimenez, Faisal Ahmed, Sifat Momen, Mirza Rasheduzzaman , “Understanding the information landscape in agricultural communities in rural Bangladesh,” The Electronic Journal of Information Systems in Developing Countries (EJISDC), 2022
- Jaynab Sultana, Sheikh Elhum Uddin Quadery, Fahad Rahman Amik, Tushar Basak, Sifat Momen, “A Data-Driven Approach to Understanding the Impact of Covid-19 On Dietary Habits Amongst Bangladeshi Students,” Journal of Positive School Psychology, 2022
- Fahad Rahman Amik, Akash Lanard, Ahnaf Ismat, Sifat Momen, “Application of Machine Learning Techniques to Predict the Price of Pre-Owned Cars in Bangladesh,” Information, 2021
- Badiuzzaman Pranto, Sk. Maliha Mehnaz, Esha Bintee Mahid, Imran Mahmud Sadman, Ahsanur Rahman, Sifat Momen, “Evaluating Machine Learning Methods for Predicting Diabetes among Female Patients in Bangladesh,” Information, 2020
- K.M. Faizullah Fuhad, Jannat Ferdousey Tuba, Md. Rabiul Ali Sarker, Sifat Momen, Nabeel Mohammed, Tanzilur Rahman, “Deep Learning Based Automatic Malaria Parasite Detection from Blood Smear and its Smartphone Based Application,” Diagnostics, 2020
- Imranul Ashrafi, Muntasir Mohammad, Arani Shawkat Mauree, Galib Md. Azraf Nijhum, Redwanul Karim, Nabeel Mohammed, Sifat Momen, “Banner: A Cost-Sensitive Contextualized Model for Bangla Named Entity Recognition,” IEEE Access, 2020
- Matiur Rahman, Nabeel Mohammed, Nafees Mansoor, Sifat Momen, “Chittron: An Automatic Bangla Image Captioning System,” Procedia Computer Science, 2019
- Umme Habiba Maliha, Syeda Benazir Hossain, Samsul Arefin Riffat, Sifat Momen, Shakhawat Hossain Mahi, “To dine or not to dine: Can machine learning help?,” TIU Transaction on Intelligent Computing, 2019
- Md. Riftabin Kabir, Nazmus Sakib Borson, Sifat Momen, Md. Sazzad Hossain, “Forecasting sea level rise using machine learning techniques,” TIU

Transaction on Intelligent Computing, 2019

- Mithun Biswas, Gautam Kumar Shom, Rafiqul Islam, Md. Shopon, Nabeel Mohammed, Sifat

Momen, Anowarul Abedin, “BanglaLekha-Isolated: A multi-purpose comprehensive dataset of Handwritten Bangla Isolated characters,” Data in Brief, 2017

- Tasnim Sami, Nabeel Mohammed, Sifat Momen, “Learning “initial feature weights” for CBIR using query augmentation,” International Journal of Multimedia Information Retrieval, 2016

- Sifat Momen, Kazi Tanjila Tabassum, “Group Performance in a Swarm of Simulated Mobile Robots,” ULAB Journal of Science and Engineering, 2015

- Sifat Momen, “Ant-Inspired Decentralised Task Allocation Strategy in groups of Mobile Agents,” Procedia Computer Science, 2013

- Sifat Momen , Khaled Mahmud, Mahbubul Alam Joarder, “Performance Analysis of Task Allocation Strategies in Groups of Mobile Agents,” Journal of Electronics and Computer Science, 2013

Conference Papers

- Shakirul Islam Leeon, Fahrin Hossain Sunaira, Shanila Nehlin, S.A.M. Zahin Abdal, Sifat Momen, “A Machine Learning Approach for Early Detection of Learning Disorders in Pediatrics,” 2024 International Conference on Advances in Computing, Communication, Electrical, and Smart Systems (iCACCESS), 2024
- Sadia Sultana, Israka Jahir, Mabeesan Suukyi, Md. Mohibur Rahman Nabil, Afsara Waziha, Sifat Momen , “Advancing Recidivism Prediction for Male Juvenile Offenders: A Machine Learning Approach Applied to Prisoners in Hunan Province,” Data Analytics in System Engineering, 2024
- Md. Tareq Mahmud, Shayam Imtiaz Shuvo, Nafis Iqbal, Sifat Momen , “Leveraging Deep Object Detection Models for Early Detection of Cancerous Lung Nodules in Chest X Rays,” Data Analytics in System Engineering, 2024
- Md. Farabi Mahbub, Warsi Omrao Khan Shuvo, Sifat Momen , “Prediction of Glycemic

Control in Diabetes Mellitus Patients Using Machine Learning,” Data Analytics in System Engineering, 2024

- Fahad Bin Gias, Fahmida Alam, Sifat Momen, “Anxiety Mining from Socioeconomic Data,” Artificial Intelligence Application in Networks and Systems, 2023
- Abu Tareq, Abdullah Al Mahfug, Mohammad Imtiaz Faisal, Tanvir Al Mahmud, Riasat Khan, Sifat Momen, “Evaluation of Artificial Intelligence-Based Models for the Diagnosis of Chronic Diseases,” Artificial Intelligence Application in Networks and Systems, 2023
- Raisa Nusrat Chowdhury, Mohammad Fahim Hassan, Md. Arshaduzzaman Fahim, Sifat Momen, “Stress Mining from Sleep-Related Parameters,” Proceedings of the Computational Methods in Systems and Software, 2023
- S.M. Shahriar Ferdous Shovon, Md. Mahir Absar Bin Mohsin, Kanij Tamema Jahan Tama, Jannatul Ferdaous, Sifat Momen, “CVR: An Automated CV Recommender System Using Machine Learning Techniques,” Proceedings of the Computational Methods in Systems and Software, 2023
- Sadia Jahan Shanta, Anik Aich, Foyez Ullah Kabir, Sifat Momen, “Predicting the Health Status of Cows Using Machine Learning,” Proceedings of the Computational Methods in Systems and Software, 2023
- Sunjare Zulfiker, Ankur Chowdhury, Dip Roy, Shukdev Datta, Sifat Momen, “Bangla E Commerce Sentiment Analysis Using Machine Learning Approach,” 4th International Conference on Sustainable Technologies for Industry 4.0 (STI), 2022
- Nusrat Islam, Rokeya Siddiqua, Sifat Momen, “Machine Learning Techniques Applied To Bangla Crime News Classification,” 2022 IEEE 2nd Conference on Information Technology and Data Science (CITDS), 2022
- Ferdous Zeaul Islam, Rifat Islam, Sifat Momen, “Evaluation of Machine Learning Methods for Predicting Rainfall in Bangladesh,” 2022 IEEE 2nd Conference on Information Technology and Data Science (CITDS), 2022
- Anika Mehjabin Oishi, Md. Tawfiq-Uz-Zaman, Mohammad Billal Hossain Emon, Sifat Momen, “A Deep Learning Approach to Diabetic Retinopathy Classification,” In Cybernetics Perspectives in Systems – Proceedings of 11th Computer Science On-line

Conference 2022, vol. 3, 2022

- Sudipta Bhatta, Isfah Uz Zaman, Nuzhat Raisa, Shazzadul Islam Fahim, Sifat Momen , “Machine Learning Approach to Predicting Attrition Among Employees at Work,” In Artificial Intelligence Trends in Systems – Proceedings of 11th Computer Science On-line Conference, vol. 2, 2002, 2022
- Kazi Rafat Haa Meem, Sadia Islam, Ahmed Omar Salim Adnan, Sifat Momen , “Premature Birth Prediction Using Machine Learning Techniques,” In Artificial Intelligence Trends in Systems – Proceedings of 11th Computer Science On-line Conference, vol. 2, 2002, 2022
- Mian Ahmed Jamiul Bari, Mohammad Imtiaz Faisal, Mahmud Hasan, Labiba Islam, Md Hossain, Sifat Momen, “Preterm Birth Prediction of Pregnant Women in Post Conization Period Using Machine Learning Techniques,” In Artificial Intelligence Trends in Systems – Proceedings of 11th Computer Science On-line Conference, vol. 2, 2002, 2022
- Ferdous Zeaul Islam, Ashfaq Jamil, Sifat Momen, “Evaluation of Machine Learning Methods for Android Malware Detection using Static Features,” 2021 IEEE International Conference on Artificial Intelligence in Engineering and Technology (IICAET), 2021
- Hasin Shahed Shad, Zeeshan Jamal, S. M. Ahmed, Sifat Momen, Nafees Mansoor, “Early Prediction of Chronic Kidney Disease Using Data Mining Techniques,” In Proceedings of the Computational Methods in Systems and Software, 2021
- Mikhail Skorikov, Muhammad Abrar Hussain, Mahfujur Rhaman Khan, Mohammad Kaosain Akbar, Sifat Momen, Nabeel Mohammed, Taniya Nashin, “Prediction of Absenteeism at Work using Data Mining Techniques,” 2020 5th International Conference on Information Technology Research (ICITR), 2020
- Badiuzzaman Pranto, Sk Maliha Mehnaz, Sifat Momen, Syed Maruful Huq, “Prediction of diabetes using cost sensitive learning and oversampling techniques on Bangladeshi and Indian female patients,” 2020 5th International Conference on Information Technology Research (ICITR), 2020
- Shayekh Mohiuddin Ahmed Navid, Umme Kulsum Ritu, Nabiul Hoque Khandakar, Ishrat Jahan Ananya, Shawan Shurid, Nabeel Mohammed, Sifat Momen, “Fingerprint

Alteration Classification Using Convolutional Neural Network,” Proceedings of the Computational Methods in Systems and Software, 2020

- Fahim Ahmed Shakil, Abu Hasnat Abdullah, Sifat Momen, Nabeel

Mohammed, “Predicting the Result of a Cricket Match by Applying Data Mining Techniques,” Proceedings of the Computational Methods in Systems and Software, 2020

- Mikhail Skorikov, Sifat Momen, “Machine learning approach to predicting the acceptance of academic papers,” 2020 IEEE International Conference on Industry 4.0, Artificial Intelligence, and Communications Technology (IAICT), 2020

- Kawcher Ahmed, Tasmia Rahman Shahidi, Syed Md. Irfanul Alam, Sifat Momen, “Rice leaf disease detection using machine learning techniques,” International Conference on Sustainable Technologies for Industry 4.0 (STI, 2019, IEEE), 2019

- Taskin Fatema, Alif Elahi Khan, Mithi Shams, Md Golam Saklain Hossain, Sifat Momen, “Bazaar Mind: A virtual shopping assistant,” International Conference of Computer Science and Renewable Energies (ICCSRE), 2019

- Turzo Ahsan Sami, Sifat Momen, “Optimization of energy consumption in swarms of robots,” International Conference of Computer Science and Renewable Energies (ICCSRE), 2019

- Sifat Momen, Shahed Khan, Nabeel Mohammed, Nafees Mansoor, “Evolutionary search in the parameter spaces of the honeybee house-hunting model,” International Conference on Intelligent Autonomous Systems (ICoIAS 2018, IEEE), 2018

- Shahed Khan, Sifat Momen, Nabeel Mohammed, Nafees Mansoor, “Patterns of Flocking in Autonomous Agents,” International Conference on Intelligent Autonomous Systems (ICoIAS 2018, IEEE), 2018

- Hasib Zunair, Nabeel Mohammed, Sifat Momen, “Unconventional wisdom: a new transfer learning approach applied to Bengali numeral classification,” International Conference on Bangla Speech and Language Processing (ICBSLP), 2018

- Shakil Ahmed Sumon, Joydip Chowdhury, Sujit Debnath, Nabeel Mohammed, Sifat Momen, “Bangla short speech commands recognition using convolutional neural networks,” International Conference on Bangla Speech and Language Processing

(ICBSLP), 2018

- Mithun Biswas, Rafiqul Islam, Gautam Kumar Shom, Nabeel Mohammed, Sifat Momen, Nafees Mansoor, Anowarul Abedin, "Application of image retrieval for aesthetic evaluation and improvement suggestion of isolated Bangla handwritten characters," IEEE International Conference on Signal and Image Processing Applications (ICSIPA), 2017 , 2017
- Iftekharul Mobin, Nabeel Mohammed, Sifat Momen, "Optimal range estimation for energy efficient dynamic packet size," International Conference on Electrical, Computer and Communication Engineering (ECCE 2017, IEEE), 2017
- A Z M Shamsuddin, Turzo Ahsan, Ifrat Rahman, Sifat Momen, "Trophallaxis and energy optimization in swarms of robots," 19th International Conference on Computer and Information Technology, 2016
- Sifat Momen, Tamanna Islam Lima, Rian Siddika, "Group decision by house-hunting agents in multi-robot systems," 2nd International Symposium on Agents, Multi-Agent Systems and Robotics (ISAMSR-2016, IEEE), 2016
- Shimul Hassan, Nabeel Mohammed, Sifat Momen, "Learning from Tagore," International Workshop on Computational Intelligence (IWCI-2016, IEEE), 2016
- Nusrat Jahan Farin, Nafees Mansoor, Sifat Momen, Iftekharul Mobin, Nabeel Mohammed, "Sequence Classification: A regression based generalization of two stage clustering," International Workshop on Computational Intelligence (IWCI-2016, IEEE), 2016
- Nusrat Jahan Farin, Md. Nur Ahsan Ali Rimon, Sifat Momen, Mohammad Shorif Uddin, Nafees Mansoor, "A framework for dynamic vehicle pooling and ride-sharing system," International Workshop on Computational Intelligence (IWCI-2016, IEEE), 2016
- S.M.A. Sharif, Nabeel Mohammed, Nafees Mansoor, Sifat Momen, "A hybrid deep model with HOG features for Bangla handwritten numeral classification," 9th International Conference on Electrical and Computer Engineering (ICECE-2016, IEEE), 2016
- Iftekharul Mobin, Sifat Momen, Nabeel Mohammed, "A packet level simulation study of adhoc network with Network Simulator-2 (NS-2)," 3rd International Conference on

Electrical Engineering and Information & Communication Technology (ICEEICT-2016, IEEE), 2016

- Rabiul Islam Jony, Nabeel Mohammed, Ahsan Habib, Sifat Momen, Rakibul Islam Rony, “An Evaluation of Data Processing Solutions Considering Preprocessing and “Special” Features,” 11th International Conference on Signal Image Technology & Internet Based Systems (SITIS-2015, IEEE), 2015
- Farhan Quadir, Mahmudul Faisal Al Ameen, Sifat Momen, “Visualization and Queuing Analysis of Spatio-Temporal Traffic Data,” 17th International Conference on Computer and Information Technology – 2014 (ICCIT-2014, IEEE), 2014
- Sifat Momen, Amanda J.C. Sharkey, “From Ants to Robots: A Decentralised Task Allocation Model for A Swarm of Robots,” In the proceedings of the Swarm Intelligence Algorithms and Applications Symposium, Cyrille Bertelle, Gerard H.E. Duchamp and Rawan Ghnemat (Eds) at the AISB 2010 convention, 2010
- Sifat Momen, Amanda J.C. Sharkey, “Strategies of Division of Labour for Improving Task Efficiency in Multi-Robot Systems,” IEEE World Congress on Nature and Biologically Inspired Computing (NABIC-09), 2009
- Sifat Momen, Amanda J.C. Sharkey, “An Ant-like Task Allocation Model For A Swarm of Heterogeneous Robots,” The 2nd Swarm Intelligence Algorithms and Applications Symposium (SIAAS 2009), AISB 2009 convention, 2009
- Sifat Momen, Bala P. Amavasai, M.N.H. Siddique, “Mixed Species Flocking for Heterogeneous Robotic Swarms,” IEEE Eurocon 2007: The International Conference on Computer as a Tool, 2007

Book Chapters

- Fahim Ahmed Shakil, Sayed Muddashir Hossain, Rifat Hossain, Sifat Momen, “Prediction of Road Accidents Using Data Mining Techniques,” In Proceedings of International Conference on Computational Intelligence and Emerging Power System, 2022
- Pias Paul, Moh Anwar-Ul-Azim Bhuiya, Md Ayat Ullah, Molla Nazmus Saqib, Nabeel Mohammed, Sifat Momen, “A Modern Approach for Sign Language Interpretation Using Convolutional Neural Network,” Pacific Rim International Conference on Artificial

Intelligence, 2019

- S.M.A. Sharif, Nabeel Mohammed, Sifat Momen and Nafees Mansoor, "Classification of Bangla compound characters using a HOG-CNN hybrid model," Second International Conference on Computing and Communication Systems (I3CS – 2016, Springer), 2016
- Others
- Sifat Momen and Amanda J.C. Sharkey, "Design and Analysis of a Decentralised Task Allocation Model for a Swarm of Simulated Mobile Robots," Amorphous Computing and Complex Biological Networks, 2010
- Sifat Momen, Amanda J.C. Sharkey, "An Ant-like Task Allocation Model For Heterogeneous Groups of Robots," 4th European Meeting of the International Union for the study of Social Insects, 2008

Research Projects & Grants

- "Advancing depression diagnoses and personalized feedback for youths using machine learning and eXplainable AI", Funded by CTRG (2023 – 2024)
- "An inclusive investigation of the cognitive purchase behavior of the consumers on social media using machine learning tools", Funded by CTRG (2023 – 2024)
- "Understanding indigenous and exogenous knowledge interactions within the agricultural communities in rural Bangladesh", Funded by X/161099 GCRF QR Project (University of Sheffield, UK) (2019 – 2021)
- "A teaching aid for Bangla handwriting", Funded by ICT Division, Ministry of ICT, Bangladesh (2016 – 2017)
- "Poor utilization of road networks & variable vehicular speed: An empirical and modelling study of the factors to traffic congestion", Funded by the ULAB Research Grant Committee (2013 – 2014)