SUJAN SARKER

Assistand Professor, Department of Robotics and Mechatronics Engineering
University of Dhaka, Dhaka, Bangladesh.
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Summary

- Assistant professor at the Department of Robotics and Mechatronics Engineering, University of Dhaka
- Former assistant professor at the Department of Computer Science and Engineering, Ahsanullah University of Science and Technology (AUST)
- Completed Bachelor of Science (B.Sc.) and Master of Science (M.S.) from the Department of Computer Science and Engineering, University of Dhaka
- Research experience in Sensor networks, Mobile crowdsensing, Resource optimization in 5G cellular networks, and Machine Learning Applications.

Education

University of Dhaka   **Dhaka, Bangladesh**
M.S. in Computer Science and Engineering (*CSE*)   *2016*
GPA: 3.92 on a scale of 4.00 (1st position out of 20 students)

University of Dhaka   **Dhaka, Bangladesh**
B.Sc. in Computer Science and Engineering (*CSE*)   *2013*
GPA: 3.82 on a scale of 4.00 (5th position out of 65 students)

Teaching Experience

Assistant Professor
Department of Robotics and Mechatronics Engineering   *October 2021 - Present*
University of Dhaka

Lecturer
Department of Robotics and Mechatronics Engineering   *November 2018 - September 2021*
University of Dhaka

Assistant Professor
Department of Computer Science and Engineering   *April 2018 - October 2018*
Ahsanullah University of Science and Technology (AUST)

Lecturer
Department of Computer Science and Engineering   *October 2014 - March 2018*
Ahsanullah University of Science and Technology (AUST)

Industrial Experience

Trainee Software Engineer
Therap Services, LLC, Dhaka   *April 2014 - June 2014*

Other Experiences

Adjudicator
Bangabandhu Innovation Grant (BIG)   *2021*
ICT Division, Government of the People's Republic of Bangladesh

Branch Counselor
IEEE Student Branch   *2021*
University of Dhaka

Publicity Coordinator
IEEE Computer Society Bangladesh Chapter   *2019*
University of Dhaka

Student Advisor
Department of Robotics and Mechatronics Engineering   *September 2019 - Present*
University of Dhaka

Student Activity Coordinator
IEEE Robotics and Automation Society Bangladesh Chapter   *2019*

Trainer
Information Technology Engineers Examination (ITEE), funded by JICA   *2019*

Mentor
IEEE Student Branch   *2019*
University of Dhaka

Research Interests

Mobile crowdsensing, Edge computing, Internet of Things (IoT), Multi-agent Systems, Cyber Physical Systems, Human Robot Interaction (HRI), and Machine Learning Applications.

Publications

Journals..

○ Pranjol Kumar Nandi, Md. Rejaul Islam Reaj, **Sujan Sarker**, Md. Abdur Razzaque, Md. Mamun-or-Rashid, **"Task Offloading to Edge Cloud Balancing Utility and Cost for Energy Harvesting IoT"**, *IEEE Transactions on Emerging Topics in Computing* (**Under first round review**).

○ Nawmi Nujhat, Fahmida Haque Shanta, **Sujan Sarker**, Polash Roy, Md. Abdur Razzaque, Md. Mamun-or-Rashid, Mohammad Mehedi Hasan, **"Task Execution Exploiting Grey Wolf Optimization in Collaborative Edge Computing"**, *IEEE Transactions on Services Computing* (**Under first round review**).

○ Pranjol Kumar Nandi, Md. Rejaul Islam Reaj, **Sujan Sarker**, Md. Abdur Razzaque, Md. Mamun-or-Rashid, **"Task Offloading to Edge Cloud Balancing Utility and Cost for Energy Harvesting IoT"**, *IEEE Transactions on Emerging Topics in Computing* (**Under first round review**).

○ **Sujan Sarker**, Lafifa Jamal, Syeda Faiza Ahmed, Niloy Irtisam, **"Robotics and artificial intelligence in healthcare during COVID-19 pandemic: A systematic review"**, *Robotics and Autonomous Systems*, Volume 146, 2021. (**IF: 3.120**) 🗎

○ Sifat Ahmed, Tonmoy Hossain, Oishee Bintey Hoque, Sujan Sarker, Sejuti Rahman, Faisal Muhammad Shah, "**Automated COVID-19 Detection from Chest X-Ray Images : A High Resolution Network (HRNet) Approach**", SN Computer Science 2, no. 4 (2021): 1-17. 🗎 , "",

- Sejuti Rahman, **Sujan Sarker**, Md Abdullah Al Miraj, Ragib Amin Nihal, A. K. M. Nadimul Haque, Abdullah Al Noman, "**Deep Learning–Driven Automated Detection of COVID-19 from Radiography Images: a Comparative Analysis**",Cognitive Computation (2021). (**IF:4.307**) ⬚

- Md. Shahin Alom Shuvo, Md. Azad RahamanMunna, **Sujan Sarker**, Tamal Adhikary, Md. Abdur Razzaque, Mohammad Mehedi Hassan, Gianluca Aloi, Giancarlo Fortino, **"Energy-efficient scheduling of small cells in 5G: A meta-heuristic approach"**, *Journal of Network and Computer Applications, Volume 178, 2021.* (**IF:5.570**) ⬚

- Palash Roy, **Sujan Sarker**, Md. Abdur Razzaque, Md. Mamun-or-Rashid, Mohmmad Mehedi Hassan, Giancarlo Fortino, **"Distributed task allocation in Mobile Device Cloud exploiting federated learning and subjective logic"**, *Journal of Systems Architecture, Volume 113, 2021.* (*IF: 2.552*) ⬚

- Palash Roy, **Sujan Sarker**, Md. Abdur Razzaque, Mohammad Mehedi Hassan, Salman A. AlQahtani, Gianluca Aloi, Giancarlo Fortino, **"AI-enabled mobile multimedia service instance placement scheme in mobile edge computing"**, *Computer Networks, Volume 182, 2020.* (**IF: 3.111**) ⬚

- Palash Roy, Anika Tahsin, **Sujan Sarker**, Tamal Adhikary, Md. Abdur Razzaque, Mohammad Mehedi Hassan **"User mobility and Quality-of-Experience aware placement of Virtual Network Functions in 5G"**, *Computer Communications, Volume 150, 2020.* (**IF: 2.816**) ⬚

- **Sujan Sarker**, MA Razzaque, MM Hassan, A Almogren, G Fortino, M Zhou, **"Optimal Selection of Crowdsourcing Workers Balancing Their Utilities and Platform Profit"**, *IEEE Internet of Things Journal, vol. 6, no. 5, 2019.* (**IF: 9.936**) ⬚

- MMA Pritom, **Sujan Sarker**, MA Razzaque, MM Hassan, MA Hossain, **"A Multi-constrained QoS Aware MAC Protocol for Cluster-based Cognitive Radio Sensor Networks"**, *International Journal of Distributed Sensor Networks, vol. 11, no. 5, 2015.* (**IF: 1.151**) ⬚

Book Chapters

- Tonmoy Hossain, **Sujan Sarker**, Sejuti Rahman and Md Atiqur Rahman Ahad, **"Skeleton-Based Human Action Recognition on Large-Scale Datasets."**, *Vision, Sensing and Analytics: Integrative Approaches. Springer, Cham, 2021.* ⬚

- **Sujan Sarker**, Sejuti Rahman, Tonmoy Hossain, Syeda Faiza Ahmed, Lafifa Jamal, and Md. Atiqur Rahman Ahad, **"Skeleton-Based Activity Recognition: Preprocessing and Approaches"**, *Contactless Human Activity Analysis, Springer Nature Switzerland AG (2021).* ⬚

- Sejuti Rahman, **Sujan Sarker**, A. K. M. Nadimul Haque and Monisha Mushtary Uttsha, **"Deep Reinforcement Learning: A New Frontier in Computer Vision Research."**, *Vision, Sensing and Analytics: Integrative Approaches. Springer, Cham, 2021.* ⬚

Conferences

- Zahan Zib Sarowar Dhrubo, Md. Ashiful Islam Hridoy, Lafifa Jamal, **Sujan Sarker**, Mohammad Shidujaman, **"Development of a Sign Language for Total Paralysis and Interpretation using Deep Learning"**, *IEEE International Conference on Image Processing and Robotics (ICIPRoB), Negombo, Srilanka, March 2020.*

- N Irtisam, R Ahmed, MM Akash, R Abdullah, **S Sarker**, S Rahman, L Jamal, **"Pathfinder: A Fog Assisted Vision-Based System for Optimal Path Selection of Service Robots"**, *2020 9th International Conference on Informatics, Electronics & Vision (ICIEV), Kitakyushu, Japan. Aug 2020.*

- M. T. Abdullah, M. J. A. Sourov, S. Rahman and **S. Sarker**, **"Simulation of Pattern Formation of Swarm withMinimum Shape Parameters"**, *2020 Joint 9th International Conference on Informatics, Electronics & Vision (ICIEV) and 2020 4th International Conference on Imaging, Vision & Pattern*

Recognition (icIVPR), Kitakyushu, Japan, Aug 2020.

○ S. Saha, M. A. Habib, **S. Sarkar**, M. A. Razzaque and M. M. Rahman, **"Minimizing Execution Cost of User Application Codes in Mobile Device Cloud"**, *2019 International Conference on Sustainable Technologies for Industry 4.0 (STI), Dhaka, Bangladesh, 2019* (**Best Paper Award**).

○ F. Huq, N. Sultana, **S. Sarkar**, M. A. Razzaque and M. H. Kamal Tushar, **"Optimal Worker Selection for Maximizing Quality-of-Service of Online Food Delivery System"**, *2019 International Conference on Sustainable Technologies for Industry 4.0 (STI), Dhaka, Bangladesh, 2019.*

○ B Sultana, JF Katha, **S Sarker**, MA Razzaque, **"Multi-Mode Project Scheduling with Limited Resource and Budget Constraints"**, *2018 International Conference on Innovation in Engineering and Technology (ICIET), Bangladesh. Dec 2018* (**Best Paper Award**).

○ MS Hossain, SMH Reza, **S Sarker**, MA Razzaque, **"Optimizing Deployment Period of Service Replication in 5G Edge Network"**, *2018 International Conference on Innovation in Engineering and Technology (ICIET), Bangladesh. Dec 2018.*

○ **S Sarker**, AK Nath, A Razzaque, **"Tradeoffs between sensing quality and energy efficiency for context monitoring applications"**, *2016 International Conference on Networking Systems and Security (NSysS), Bangladesh, Jan 2016.*

Projects

Project Title: IHABOT: Intelligent Hospital Assistance Robot to Fight Contagion by Reducing Doctor-Patient Interaction
Funding Agency: Centennial Research Grant, University of Dhaka
Status: Ongoing
Role: Co-Principal Investigator
Duration: Jan 2021 – Dec 2021

Awards & Achievements

○ **Innovative Asia Short-term Scholarship** for *Short-term Program of Innovative Asia: Cutting-edge technologies on Robotics and AI* organized by Japan International Cooperation Agency (JICA) in collaboration with Shibaura Institute of Technology, February 24, 2020 to March 7, 2020.
○ **Best Paper Award** in 2018 International Conference on Innovation in Engineering and Technology (ICIET), 23-24 December 2018
○ **ICT Fellowship** given by ICT Division, Government of the People's Republic of Bangladesh for MSc. Study in Computer Science and Engineering, January 2015 – June 2016
○ Bangladesh Government Board Scholarship for HSC Examination, Dhaka Board (Science Group), 2008
○ Bangladesh Government Board Scholarship for SSC Examination, Dhaka Board (Science Group)
○ Bangladesh Government General Scholarship in Junior Scholarship Examination, 2003
○ Bangladesh Government Talent Pool Scholarship in Primary Scholarship Examination, 2000

Technical Skills

Languages: Python, C, C++, C#, JAVA, HTML5, PHP, XML, JavaScript, .net, 80x86 Assembly
Framework: CSS, OpenGL
Database: MySQL, SQLite, Oracle
Design Tools: NetBeans, Microsoft Visual Studio, PyCharm

Operating System: Windows, LINUX, Android
Hardware: ATMEL (AVR Programming)
Deep Learning Tools: Keras, PyTorch, TensorFlow
Others: PL/SQL, LaTeX

Professional Services

Program Committee/Reviewer
STI (2021), **NSysS (2021)**, **STI (2020)**, **ICIET (2019)**

Journal Reviewer
- IEEE Internet of Things Journal
- IEEE Access

Talk, Seminar & Workshop

- Invited Talk on – "IEEE highlighting the motto and benefits of IEEE membership" Host: IEEE Student Branch, University of Dhaka October 19, 2019
- Invited Talk on – "Membership Benefits and Formation Requirements of IEEE CS SBC" Host: IEEE Student Branch, University of Asia Pacific October 26, 2019
- Seminar on – "Research Methodology" August 02, 2019 Host: IEEE Computer Society SBC, RUET
- Seminar on – "Introduction to Optimization" June 19, 2019 Host: Department of Computer Science and Engineering, Green University of Bangladesh
- Workshop on – "Python Programming" March 20, 2019 Host: Department of Computer Science and Engineering, Green University of Bangladesh