Safia Aktar Dipa

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Research Interests

Biophysics, Biomedical Imaging, Biomedical Signal processing, Biophotonics, Biomedical Engineering.

Education

University of Dhaka — Dhaka, Bangladesh
- *Master of Science in Biomedical Physics and Technology* — *March 2023*

Rajshahi University of Engineering & Technology — Rajshahi, Bangladesh
- *Bachelor of Science in Electrical and Electronic Engineering* — *December 2018*

Chuadanga Govt. College — Chuadanga, Bangladesh
- *Higher Secondary School Certificate Examination; GPA: 5.00/5.00* — *July 2013*

Chuadanga Govt. Girls' High School — Chuadanga, Bangladesh
- *Secondary School Certificate Examination; GPA: 5.00/5.00* — *March 2011*

Professional Experience

Gopalganj Science and Technology University (GSTU) — Gopalganj, Bangladesh
***Lecturer**, Department of Electrical and Electronic Engineering* — *October 2023 – Present*

Conducted Courses: Electrical Circuits, Microprocessor, Interfacing and System Design, Power System Protection, High Voltage Engineering, Electrical Circuit Laboratory, Microprocessor, Interfacing and System Design Laboratory, Power System Laboratory, Power System Protection Laboratory.

Noakhali Science and Technology University (NSTU) — Noakhali, Bangladesh
***Lecturer**, Department of Electrical and Electronic Engineering* — *June 2023 – October 2023*

Conducted Courses: VLSI, Biomedical Measurement and Signal Processing, Measurement and Instrumentation, Biomedical Measurement and Signal Processing Laboratory, Research Methodology.

City University — Dhaka, Bangladesh
***Lecturer**, Department of Electrical and Electronic Engineering* — *April 2019 – June 2023*

Publications

Journals

(1) **Safia Aktar Dipa**, Muralee Monohara Pramanik, Mamun Rabbani and Muhammad Abdul Kadir. "Effects of temperature on electrical impedance of biological tissues: ex-vivo measurements". Journal of Electrical Bioimpedance Sciendo, 15, no. 1 (2024): 116-124. https://doi.org/10.2478/joeb-2024-0013.

(2) Asadul Islam Shimul, A.T.M.Saiful Islam, Avijit Ghosh, Md Maruf Hossain, **Safia Aktar Dipa**, R.Jothi Ramalingam, Investigating charge transport layer flexibility for boosted performance in Lead-Free CsSnBr3-based perovskite solar cells, Computational Materials Science, Volume 250, 2025, 113701, ISSN 0927-0256, https://doi.org/10.1016/j.commatsci.2025.113701.

(3) Asadul Islam Shimul, Md Maruf Hossain, **Safia Aktar Dipa**,"Investigating the effectiveness of Ca3AsCl3-based Perovskite Solar Cells with optimal hole transport layer selection through numerical optimization and machine learning.", *Optics Communications*, Volume 586, 2025, 131916, ISSN 0030-4018, doi: https://doi.org/10.1016/j.optcom.2025.131916.

(4) T. Roy, T. H. Milon, A. I. Zamee, **S. A. Dipa**, and M. I. A. Imran, "In Silico Molecular Docking Studies and Pharmacokinetic Property Analysis of Phytocompounds from Camellia sinensis Targeting MCM2 Protein as Anti-Cancer Agent", *Dhaka Univ. J. Sci*., vol. 73, no. 1, pp. 67–76, Apr. 2025, doi: https://doi.org/10.3329/dujs.v73i1.81287.

(5) S. Dewanjee, H. Ahmed, M. A. Tanvir, M. B. Ali, **S. A. Dipa**, and M. I. A. Imran, "Development of Chitosan-Based Hydrogel Containing Polyvinyl Alcohol, Cellulose and ZnO Nanoparticles for Potential Biomedical Applications", *Dhaka Univ. J. Sci.*, vol. 73, no. 1, pp. 43–49, Apr. 2025, doi: https://doi.org/10.3329/dujs.v73i1.81284.

Conferences

(1) G. Taylor, M. M. Hossain, S. Singha, A. I. Shimul, **S. A. Dipa** and S. Eliza, "Performance Optimization and Bandgap Tuning of Ba(Zr(1-x)Tix)S3 Perovskite Solar Cells Via Titanium Alloying for High-Efficiency Photovoltaic Systems," 2025 IEEE Green Technologies Conference (GreenTech), Wichita, KS, USA, 2025, pp. 51-55, doi: 10.1109/GreenTech62170.2025.10977599.

(2) A. I. Shimul, M. M. Hossain, S. R. Sarker, A. Shahriare, S. Alam and **S. A. Dipa**, "Numerical Optimization and Performance Evaluation of Lead-Free BaZrS3-Based Perovskite Solar Cells with Consideration of Structural and Operating Parameters," 2025 4th International Conference on Robotics, Electrical and Signal Processing Techniques (ICREST), Dhaka, Bangladesh, 2025, pp. 244-248, doi: 10.1109/ICREST63960.2025.10914390.

(3) A. I. Shimul, M. M. Hossain and **S. A. Dipa**, "Advanced Dual-Axis Solar Tracking System with IoT-Driven Real-Time Monitoring for Optimized Efficiency," 2024 IEEE 3rd International Conference on Robotics, Automation, Artificial-Intelligence and Internet-of-Things (RAAICON), Dhaka, Bangladesh, 2024, pp. 230-233, doi: 10.1109/RAAICON64172.2024.10928355.

(4) M. T. Islam, M. F. Rahman, **S. A. Dipa** and M. Rahman Kiran, "Advanced Switching Technique based High Frequency Magnetic Linked Asymmetric Multistring Inverter with Reduced THDs," 2020 2nd International Conference on Sustainable Technologies for Industry 4.0 (STI), Dhaka, Bangladesh, 2020, pp. 1-6, doi: 10.1109/STI50764.2020.9350456.

(5) "Effects of Temperature on Electrical Bioimpedance of Biological Tissues"

- Abstract published on 1st International Dhaka Science Conference for Women-WSTC 2023.

Poster Presentation

- Participated on oral poster presentation on "1st International Dhaka Science Conference for Women-WSTC 2023".

Graduate Research Experience

"**Effects of Temperature on Electrical Impedance of Biological Tissues**"

- Electrical impedivity and transfer impedance of biological tissues were measured over the frequency range 1Hz to 10MHz using an impedance spectrometer (Sciospec ISX-5, Germany). Freshly excised animal tissues (lamb, cow, chicken), fish, fruits, vegetables were considered as biological tissues.It was observed that the impedivity and transfer impedance values decreased with increased temperature at all frequencies.

Undergraduate Research Experience

"**Design of a Photonic Crystal Fiber for Nearly Zero Flat Dispersion with Low Confinement Loss**"

- Designed six rings of air holes hexagonally arranged in the cladding region and a two rings of microstructure core which is also hexagonally arranged using Comsol. The air holes are filled with different liquids.

Project Experience

Undergraduate Projects

- Speed measurement of vehicle
- Designing and operating an FM Transmitter.
- Light Intensity Control to Reduce Power Consumption

Supervised Projects

- A Gesture controller Wheelchair to Monitor the Health of Disabled Person.
- IoT Based Automatic Hand Sanitization System & Social Distance Maintaining Protocol Due to Covid-19 Situation.
- IoT Based Three Phase Transmission Line Fault Detection.
- Smart Water Spraying Robot with Video Monitoring and Fire Detection System.
- Solar Powered Remotely Operated Robot for Seed Implementation, Watering and Fertilizing.
- Design and Construction of GSM Based Electricity Theft Identification System.
- Automatic Transfer Switch by Using Programmable Logic Controller (PLC).

Computer Skills

- **Programming Languages:** C, PLC Ladder diagram, MATLAB, 8086 Assembly language.
- **Numerical Analysis:** Matlab, Microsoft Excel
- **Circuit Simulation and Design:** COMSOL**,** Matlab Simulink**,** Proteus, Microwind, AutoCAD.
- **Document Preparation Systems:** Microsoft Word, PowerPoint.

Language

- **English**
- **Bengali** (Mother Language)

Awards

- "Team SPECTRA" received 50K BDT in the competition while securing the 3rd position at UIHP, GSTU.
- Received "Khandakar Lutfi Rabbani-Nazmunnesa Memorial Scholarship, 2021-2022" at University of Dhaka.
- Received "Book Award 2020" from the University of Dhaka.

Keynote Sessions

- Keynote speaker on**" How to Write and Publish a Scientific Paper**" organized by GSTU Research & Higher Studies Society, GSTU.
- Keynote speaker on "**Emerging Fields and Scopes on Biomedical Engineering**", organized by IEEE Student Branch, GSTU.
- Keynote speaker on "**Existing Scopes and Opportunities in Power Sector: Prospects on Research**" organized by Ohomic Research Club, GSTU

Leadership and Management Skills

- Organized the "Rag Program-2024" and "EEE Alumni Association Reunion Program-2024" at GSTU.
- Advisor and president of "Programming and Soft Skills development club" of GSTU.
- Organized "EEE Olympiad-2023" at NSTU.
- Acted as president and organizing member of "English Language Club" of City University.