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| PhD Student  Ming Hsieh Department of Electrical and Computer Engineering  University of Southern California | **Email:** ferdoush@usc.edu[munia@eee.buet.ac.bd](mailto:munia@eee.buet.ac.bd) munia.f.mou@gmail.com **Mobile:** +1-2134797569 |

résumé of Munia Ferdoushi

**Education**

**University of Southern California**

* **Ph.D. in Electrical and Computer Engineering (on going)** Jan. 2023- Dec. 2026

Current GPA: **4.00/4.00**

**Bangladesh University of Engineering and Technology (BUET)**, Dhaka, Bangladesh  
• **M.Sc. in Electrical and Electronic Engineering** Dec. 2018- Dec. 15, 2021

• **B.Sc. in Electrical and Electronic Engineering** July 2014- October 2018  
 CGPA: **3.97/4.00** (Rank: **3rd among 194 students** in the Dept. of EEE, BUET)  
Major: Electronics.

Research Interests

Wearable Sensors | Flexible Electronics | Precision Psychiatry | AI for Health

**Professional Experience**

**Research Mentor**

Mentor in the Viterbi SURE program July 2023- Present

Viterbi School of Engineering, USC

**Assistant Professor (on Leave)** August 2022 – Present Department of EEE, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

**Lecturer** July 2019 –July 2022 Department of EEE, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

* **Instructed Theory Courses:** Power Electronics | Basic Electrical Engineering
* **Instructed Laboratory Courses:** Numerical Technique | Electronics I | Electrical Circuits I | Digital Communication | Power Electronics | Power System Protection

**Lecturer** January 2019- June 2019 Department of EEE, Islamic University of Technology, Gazipur, Bangladesh

* **Instructed Laboratory Courses:** Digital Communication | Microprocessor and

Interfacing | Embedded System Design

**Technical Skills**

**Programming Languages:** C, C++ | Assembly | Verilog | System Verilog | Python | Java  
**Engineering Software:** COMSOL Multiphysics | Lumerical | MATLAB | Arduino | Cadence EDA Tools (Virtuoso, Spectre, Assura) | Quartus | Proteus | PSpice | PSAF | 8086 Emulator| AutoCAD

**Document Preparation and Illustration**: MS Office | LaTex | GNU Plot | Origin Lab | Web Plot Digitizer

**Research Experience**

**Ph.D. Project:**

*“Wearable Electronic Device for Precision Psychiatry”*

Supervised By: *Prof. Yasser Khan*

* Design and development of wearable, flexible electronic sensor with multimodal sensing capabilities for physiological, chemical, and neural biomarkers sensing applicable to Precision Psychiatry

**M.Sc. Thesis:**

"*Optimization and Efficiency Enhancement of Axial Junction Nanowire Solar Cells Utilizing Forward Scattering Mechanism"*

Supervised By: *Prof. Dr. Mohammad Kawsar Alam*

* Design, modeling, and optimization of nanowire solar cells (CIGS, CdTe, and CZTS) and observing the effect of plasmonic Mie scatterers on these properties by using FDTD analysis method | Measurement of electrical properties of the solar cell by using drift-diffusion solver.

**B.Sc. Thesis:**

*"Performance enhancement of inverted planar perovskite solar cell through the incorporation of plasmonic nanoparticles."*

Supervised By: *Prof. Dr. Mohammad Kawsar Alam*

* Simulation and optimization of optical properties of Perovskite solar cells and observing the effect of Mie scatterers on these properties by using the FDTD analysis method | Observation of the effect of particle shape, size, position, and density on optical generation rate.

**Academic Research**

*"Low-Cost digital stethoscope for disease monitoring"*

Supervised By: *Prof. Dr. Shaikh Anowarul Fattah*

* Design and implementation of a very low-cost, low-power digital stethoscope that can easily collect phonocardiogram (PCG) signals, analyze and detect cardiac diseases.

**Publications**

**Published Articles**

**Journal Articles:**

* Charlton, Peter H., John Allen, Raquel Bailon, Stephanie Baker, Joachim A. Behar, Fei Chen, Gari D. Clifford et al. *"The 2023 wearable photoplethysmography roadmap."* Physiological Measurement, 2023.
* **M. Ferdoushi**, M.K. Alam, S. Wahid., " *Optimization and Efficiency Enhancement of Axial Junction Nanowire Solar Cells Utilizing Forward Scattering Mechanism,*" Solar Energy, 2023

**Conference Articles:**

* M. S. Akhter Rafi, M. T. Rahman, M. A. Rahman, S. S. Mondol, M. M. Islam and **M. Ferdoushi,** "Fault Detection Using Machine Learning in the Southwest Part of Bangladesh Power System," 2022 25th International Conference on Computer and Information Technology (ICCIT), Cox's Bazar, Bangladesh, 2022, pp. 839-843
* S. I. Ahmed, M. F. Rahman, S. Kundu, R. M. Chowdhury, A. O. Hussain and **M. Ferdoushi**, "Deep Neural Network Based Fault Classification and Location Detection in Power Transmission Line," 2022 12th International Conference on Electrical and Computer Engineering (ICECE), Dhaka, Bangladesh, 2022, pp. 252-255.
* M. S. Akhter Rafi, M. T. Rahman, M. A. Rahman, S. S. Mondol, M. M. Islam and **M. Ferdoushi,** "Fault Detection Using Machine Learning in the Southwest Part of Bangladesh Power System," 2022 25th International Conference on Computer and Information Technology (ICCIT), Cox's Bazar, Bangladesh, 2022, pp. 839-843
* **M. Ferdoushi,** M. Paul, and S. A. Fattah, "A Spectral Centroid Based Analysis of Heart sounds for Disease Detection Using Machine Learning," In *2019 IEEE International WIE Conference on Electrical and Computer Engineering (WIECON-ECE)*, Bangalore, India, pp. 1-6. IEEE, 2019
* D. Saha, **M. Ferdoushi**, M. T. Emrose, S. Das, S.M. Hasan. A. I. Khan, S. A. Fattah, and C. Shahnaz, "Deep Learning-Based Eye Gaze Controlled Robotic Car," In *2018 IEEE R10-HTC*, Malambe, Sri Lanka, pp. 1-6, IEEE, 2018

**Awards:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Awarded the Faculty for Future grant for the 2023-2024 academic year from Schlumberger Foundation.
* Awarded **Silver Medal** as a Faculty mentor in the 2021 International University Physics Competitions.
* Received **Dean's list** award (for securing a CGPA of 3.75>= in a year) from BUET in 1st, 2nd, 3rd, and 4th year of B.Sc.
* Obtained **University Merit Scholarship**, Academic Honor from BUET for achieving top 10% CGPA in 7 undergraduate semesters.