europass Curriculum vitae

PERSONAL INFORMATION

Dewan Mahnaaz Mahmud

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Date of birth 6 August 1998 | Nationality Bangladeshi

EDUCATION

2022–Ongoing

Erasmus Mundus Joint Master in Dynamics of Renewables-Based Power Systems (DREAM)

École Centrale de Nantes (France), Universitat Politècnica de Catalunya (UPC), Universitatea Politehnica din București (Romania)

– **Enrolled in 30 ECTS courses at Universitat Politècnica de Catalunya (UPC) (second semester)** included courses: Analysis of modern converter-based power systems, Application of power electronics and electrical machines for renewable generation, DC technology and systems, Spanish language course.
  - **Project**: Design of Grid-forming Converter for Modern Power Systems with High Penetration of Power Electronics.

  Degree to be awarded: Master in Energy Engineering.
– **Earned 30 ECTS at École Centrale de Nantes (France) (first semester)** included courses: Mathematical modeling and identification, Optimization, Control of electrical drive systems, Nonlinear and switching dynamics, Power systems dynamics, Course and Project: Dynamic components of a power system, French language course.
  - **Project**: Active and reactive power control of a grid connected solar photovoltaic farm.

  Degree to be awarded: Master in Automatic, robotics.

2017–2021

Bachelor of Science in Electrical and Electronics Engineering

American International University Bangladesh (AIUB), Dhaka, Bangladesh

– **Number of credits earned:** 145 (equivalent to 215.4 ECTS) included electives in "Renewable Energy Technology" and “Power System Protection”.
– **Capstone project:** Design and Simulation of Modern Electric Vehicle with Wireless Charging Capability.

TECHNICAL SKILLS

MATLAB, MATLAB-Simulink, PSAT, Ansys maxwell, HOMER, NI circuit design suite, AutoCAD, PSIM, PCBExpress, Proteus design suite, Python, C++, Microsoft office suite, Latex.

LANGUAGE SKILLS

Mother tongue: Bengali

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C2	C2	C2	C2
French	A1	A2	A1	A1	A1
Spanish	A1	A1	A1	A1	A1

Levels: A1 and A2: Basic user – B1 and B2: Independent user – C1 and C2: Proficient user
Common European Framework of Reference for Languages

DISTINCTION

- **Erasmus+ Erasmus Mundus Joint Master (EMJM) Scholarship** for *Master's in Dynamics of Renewables-based Power Systems (DREAM)*, covering full tuition fees and monthly stipend (33,600 EUR).
- **"High-Impact Research Category/Collection for H1 2022", "Featured Article", "Cover Page of the issue" and "Editor's Choice"** of the journal Clean Energy, for the article *'Grid-connected microgrid: design and feasibility analysis for a local community in Bangladesh'* Volume 6 Issue 3, June 2022, Oxford University Press.
- **Best Paper (Article)** for the paper entitled *'Grid-connected microgrid: design and feasibility analysis for a local community in Bangladesh'* during the year 2022, issued by Energy and Technology Research Division of Advanced Bioinformatics, Computational Biology and Data Science Laboratory, Bangladesh (ABCD Laboratory, Bangladesh).
- **Young Researcher Award** for *'Outstanding Contribution in Research'* during the year 2021, issued by Energy and Technology Research Division of Advanced Bioinformatics, Computational Biology and Data Science Laboratory, Bangladesh (ABCD Laboratory, Bangladesh).
- **Fast Learner Award** for *'Fast Learner and Improver in Research Activities'* during the year 2021, issued by Energy and Technology Research Division of Advanced Bioinformatics, Computational Biology and Data Science Laboratory, Bangladesh (ABCD Laboratory, Bangladesh).
- **Dean's List Honor** for *'Academic Excellence'* with a GPA 3.89 out of 4.00 scale in Spring 2017-2018 semester, issued by Faculty of Electrical and Electronics Engineering (EEE), American International University-Bangladesh (AIUB).

RESEARCH EXPERIENCE

- **Universitat Politècnica de Catalunya (UPC)**
  Project: Design of Grid-forming Converter for Modern Power Systems with High Penetration of Power Electronics.
  - Designing a grid-forming control strategy for the application of renewable dominant power systems.
  - Validating the control strategies with different power synchronization loops.
  - Designed a transfer function model of the system with validation.
    Outcomes: 1 Conference Proceedings (ongoing)
- **École Centrale de Nantes**
  Project: Active and Reactive power control of a grid connected solar photovoltaic farm.
  - Designed a grid-following (GFL) control strategy for active and reactive power control of 1 MW grid-connected solar PV.
  - Validated the components in MATLAB-Simulink and studied the dynamics of the grid with a solar photovoltaic power plant.
  - 4 cases were studied to validate the control strategy.
    Outcomes: 1 Journal Article (ongoing)
- **Advanced Bioinformatics, Computational Biology and Data Science Laboratory, Bangladesh (ABCD Laboratory, Bangladesh)**
  Project: Microgrid Design for Rural and Urban Locations in Bangladesh [Technical, Economical, Optimization Analysis].
  - Study the potential for utilizing renewable sources in different locations across Bangladesh.
  - Investigate the most optimal and distinct Renewable Energy System (RES) design for various locations based on resources, demographic, and other factors.
  - Identifying the cost of energy, emission reduction, and contribution of renewable.
  - Propose the decision makers a feasible solution in the future planning and integration of renewables into the main electricity grid.

  Outcomes: 3 Journal Articles (1 in press, 1 ongoing), 1 Conference Proceedings
  Project: Smart Poultry Farming for Developing Countries [Technical, Realtime Experiment, Demand Side Management, Economical, Optimization Analysis].
  - Asses the potentiality of renewable energy sources (solar, wind, geothermal, water) contributes to decrease in energy needed from the primary grid.

  Outcomes: 1 Journal Article (under review), 1 Conference Proceedings

– **American International University-Bangladesh (AIUB)**
Project: Design and Simulation of Modern Electric Vehicle with Wireless Charging Capability (Capstone Project)].

- Designed and simulated static wireless charging system for the electric vehicle.
- Proposed a dynamic charging system for the vehicle to charge up and discharge simultaneously while remaining in motion.
- Surveyed and analyzed feedback post regarding dynamic wireless charging system.

Outcomes: 1 Conference Proceedings
Project: A Proposed Design of Regenerative Braking System for Hybrid Electric Vehicle with Thermoelectric Generator and Current Controller Approach.

- Proposed design of a TEG (Thermoelectric Generator) analyzing the relation between current and temperature for storing the electrical output in the battery for proliferating the driving range of the Hybrid Electrical Vehicles.
- Concept of the regenerative braking system, the wasted heat energy generated from the kinetic energy of the vehicles is converted into electrical energy in this process.

Outcomes: 1 Conference Proceedings
Project: Industrial Revolution 4.0.

- Monitoring and controlling individual loads, energy meter monitoring, forecast analysis depending on industrial electricity consumption, and a digital billing system.
- Designed a user-friendly system for controlling the highest energy-consuming load during peak hours and helping to reduce peak hour demand as well as the energy cost of the user.

Outcomes: 1 Conference Proceedings

PUBLICATIONS

[1] **Dewan Mahnaaz Mahmud**, SM Masum Ahmed, Mohammad Zeyad, and Sayeed Hasan. “Community microgrid: an approach toward positive energy community in an urban area of Dhaka, Bangladesh”. In: *Clean Energy* (In press).

[2] Pretty Mitra, SM Masum Ahmed, **Dewan Mahnaaz Mahmud**, and Mohammad Zeyad. “An Overview of the Progress of CO_2 Capture Technologies”. In: *2022 11th International Conference on Power Science and Engineering (ICPSE)*. IEEE. 2022, pp. 142–147.

[3] Md Ibrahim Hasan, Mohammad Zeyad, SM Masum Ahmed, Md Sadik Tasrif Anubhove, Eftakhar Hossain, Sayeed Hasan, and **Dewan Mahnaaz Mahmud**. “Scheme and Construction of a Smart Vacuum Cleaner Robot”. In: *2023 Third International Conference on Advances in Electrical, Computing, Communication and Sustainable Technologies (ICAECT)*. IEEE. 2023, pp. 1–6.

[4] Kaushik Ahmed, Mayeen Uddin Emon, Md Yeasib Bin Hassan, Md Shamim Hossen, and **Dewan Mahnaaz Mahmud**. “Industrial Revolution 4.0: Energy Monitoring and Load Control System”. In: *2022 International Conference on Intelligent Controller and Computing for Smart Power (ICICCSP)*. IEEE. 2022, pp. 1–5.

[5] **Dewan Mahnaaz Mahmud**, SM Masum Ahmed, Sayeed Hasan, and Mohammad Zeyad. “Grid-connected microgrid: design and feasibility analysis for a local community in Bangladesh”. In: *Clean Energy* 6.3 (2022), pp. 447–459.

[6] Md Zilan Uddin Saif, **Dewan Mahnaaz Mahmud**, Farhan Tasnim, Md Abu Hanif, Md Rasel Ahmed, and Chowdhury Akram Hossain. “Current and Temperature Analysis of Thermoelectric Generator for Regenerative Breaking of the Hybrid Electric Vehicle”. In: *2021 IEEE 6th International Conference on Computing, Communication and Automation (ICCCA)*. IEEE. 2021, pp. 504–508.

[7] Md Sadik Tasrif Anubhove, Sayeed Hasan, **Dewan Mahnaaz Mahmud**, Eftakhar Hossain, Mohammad Zeyad, SM Masum Ahmed, and Sanjid Islam. “Solar Energy Home Systems for Rural Areas Communities in Bangladesh”. In: *2021 International Conference on Computational Performance Evaluation (ComPE)*. IEEE. 2021, pp. 996–001.

[8] Sayeed Hasan, **Dewan Mahnaaz Mahmud**, Sanjid Islam, Eftakhar Hossain, SM Masum Ahmed, Mohammad Zeyad, and Md Sadik Tasrif Anubhove. “Centralized Microgrid: Agricultural Load in Rural Areas of Bangladesh”. In: *2021 International Conference on Computational Performance Evaluation (ComPE)*. IEEE. 2021, pp. 939–943.

[9] Mohammad Zeyad, SM Masum Ahmed, Eftakhar Hossain, Md Sadik Tasrif Anubhove, Sayeed Hasan, **Dewan Mahnaaz Mahmud**, and Sanjid Islam. “Optimization of a Solar PV Power Plant with Poultry Demand Side Management (PoDSM) for Poultry Farm”. In: *2021 International Conference on Computational Performance Evaluation (ComPE)*. IEEE. 2021, pp. 073–078.

[10] Sanjid Islam, SM Masum Ahmed, Mohammad Zeyad, Md Sadik Tasrif Anubhove, Sayeed Hasan, **Dewan Mahnaaz Mahmud**, and Eftakhar Hossain. “Potential Reduction in CO2 Emission by Heat Pump System in Bangladesh”. In: *2021 International Conference on Computational Performance Evaluation (ComPE)*. IEEE. 2021, pp. 121–127.

[11] **Dewan Mahnaaz Mahmud**, Sayeed Hasan, SM Masum Ahmed, and Mohammad Zeyad. “Techno economic feasibility analysis of grid-connected microgrid by using solar PV for residential usage”. In: *2021 IEEE 9th Region 10 Humanitarian Technology Conference (R10-HTC)*. IEEE. 2021, pp. 1–6.

[12] **Dewan Mahnaaz Mahmud**, Farhan Tasnim, Fardeen Mahbub, Md Zilan Uddin Saif, and Siam Hasan Khan. “Tentative Prospects and Overview of General Awareness Towards Sustainable Energy in Bangladesh”. In: *2021 International Conference on Science & Contemporary Technologies (ICSCT)*. IEEE. 2021, pp. 1–6.

[13] Md Hasin Mahtab Moon, **Dewan Mahnaaz Mahmud**, Istiaque Ahamed, Shad Bin Kabir, and Mohammad Abdul Mannan. “Static and Dynamic Charging System for a Four-Wheeler Electric Vehicle by Inductive Coupling Wireless Power Transmission System”. In: *2021 International Conference on Green Energy, Computing and Sustainable Technology (GECOST)*. IEEE. 2021, pp. 1–6.

[14] **Dewan Mahnaaz Mahmud**, Fardeen Mahbub, Farhan Tasnim, MD Zilan Uddin Saif, and Siam Hasan Khan. “A Review on Solar and Biomass Energy for Overcoming the Energy Scarcity of Bangladesh and its Prospects”. In: *2021 International Conference on Electrical, Communication, and Computer Engineering (ICECCE)*. IEEE. 2021, pp. 1–6.

INVITED POSITION

- **Reviewer** || IEEE AFRICON 2023
- **Reviewer** || 14th Annual Energy Conversion Congress and Exposition (IEEE-ECCE 2023)
- **Reviewer** || 2022 IEEE/AIAA Transportation Electrification Conference and Electric Aircraft Technologies Symposium (ITEC+EATS)
- **Reviewer** || IEEE International Conference on Flexible, Printable Sensors and Systems (FLEPS 2022)
- **Reviewer** || IEEE Global Humanitarian Technology Conference (GHTC) 2022
- **Reviewer** || 13th Annual Energy Conversion Congress and Exposition (IEEE-ECCE 2022)
- **Reviewer** || International Conference on Distributed Computing and Electrical Circuits and Electronics (ICDCECE-2022)
- **Reviewer** || 3rd IEEE Bombay Section Signature Conference (IBSSC-2021)
- **Reviewer** || 2nd IEEE IAS International Conference on Computational Performance

AFFILIATIONS

- IEEE Young Professionals | 2020-Present.
- IEEE Student Member | 2018-Present.
- Remians Language Club | Advisor and Life Member from 2018.

CERTIFICATIONS

- **Becoming a Peer Reviewer** Instructed by Jaap van Harten, Bert Blocken, Verity J Brown and issued by *Elsevier Researcher Academy* in December 2021.
- **Fundamentals of Manuscript Preparation** Instructed by Anthony Newman, Anthony Newman, Daniel Christe and issued by *Elsevier Researcher Academy* in November 2021.
- **Research Collaborations** Instructed by Mustapha Belkhouja, Hyungseok (David) Yoon, Dr. Aijaz A. Shaikh, David Noble, Robyn Keast, Michael B. Charles and issued by *Elsevier Researcher Academy* in October 2021.
- **Research Data Management** Instructed by Katarzyna Biernacka, Timothy Clark, Helena Cousijn and issued by *Elsevier Researcher Academy* in October 2021.
- **Energy Production, Distribution Safety Specialization** Instructed by Dr Ilya Grinberg, Tom Russo, Richard A Stempniak Martin K Casstevens and issued by The State University of New York University at Buffalo,*Coursera* in April 2020.
- **Energy Production, Distribution Safety Specialization** Instructed by Dr Ilya Grinberg, Tom Russo, Richard A Stempniak Martin K Casstevens and issued by The State University of New York University at Buffalo,*Coursera* in June 2020.
- **Leadership Development for Engineers** Instructed by David Van Kleeck and issued by Rice University,*Coursera* in April 2020.

CONFERENCE AND WORKSHOPS

- **Attended winter school** of Master's in Dynamics of Renewables-based Power Systems (DREAM), organized by École Centrale de Nantes.
- **Conducted webinar** as a speaker titled *"AIUBians on Erasmus"* organized by IEEE AIUB Student Branch.
- **Attended workshop** in interconnections of renewables and energy storage to electric grid.
- **Attended webminar** in energy efficiency and optimization in buildings and energy-intensive consumers.
- **Attended conference** in 2021 Zero Emissions Solutions Conferences.
- **Attended and organized workshop** IEEE Student Professional Awareness Venture (SPAVe) 3.0
- **Attended and organized workshop** in IEEE Student Professional Awareness Workshop (SPAW).
- **Attended and organized workshop** IEEE Student Transition and Elevation Partnership (STEP) 2020.
- **Attended Distinguished Lecture Session** "New Energy Technologies: Research and Innovation in Power and Energy."
- **Attended** International Conference on Electrical, Communication and Computer Engineering (ICECCE 2021).
- **Attended** International Conference on Green Energy, Computing and Sustainable Technology (GECOST 2021).
- **Attended** IEEE Region 10 Humanitarian Technology Conference 2021.
- **Attended** Technologies and Intelligence for Smart Buildings.
- **Attended** Smart City Expo World Congress and Tomorrow. Mobility World Congress 2021.

VOLUNTEERING EXPERIENCE

- **Treasurer, IEEE AIUB Student Branch**
  17.02.2020-12.06.2021
  - Preparing the final Financial Statement for inclusion in the Student Branch Annual Plants.
  - Maintaining the appropriate financial account.
- **Chairperson, IEEE MTT-S AIUB Student Branch Chapter**
  17.02.2020-12.06.2021
  - Organized a "Distinguished Lecture Series" titled "Wonders of Electromagnets"
  - Ensuring chapter activities focused on member engagement and satisfaction.
- **Section Ambassador, IEEE Day 2019**
  10.07.2019 -17.02.2020
  - Contacted with organizational unit chairs and informed them about IEEE Day.
  - Communicated with Ambassador Lead on progress of planning events.
- **Event and Registration Chair, IEEE SPAVe 4.0**
  29.09.2019-29.09.2020
  - Prepared attendance and distribution list of attendees for each event.
  - Communicated with Ambassador Lead on progress of planning events.
  - Prepared activity report.
- **Event Designer, IEEE AIUB Student Branch**
  10.02.2019-17.02.2020
  - Acted as Event and Registration Chair in the Flagship Events.
  - Organized 30+ events and prepared activity report.