Europass
Curriculum Vitae

MD. NAFEEZ RAHMAN

PhD Candidate in Electrotechnical Systems | Electrical Engineer | Solar PV Specialist

Mobile: +8801345755132 | Email: nafeezrahman.du@gmail.com | IEEE Member: Since 2012 | Nationality: Bangladeshi

* PROFESSIONAL PROFILE

A highly accomplished Electrical Engineer and active PhD researcher at Ufa University of Science and Technology (Russia), specializing in solar PV system design, battery energy storage, EV infrastructure, and AI-driven energy management. Brings 8+ years of multi-national hands-on engineering experience spanning field installation, O&M, electronics design, and university-level research leadership. Designed and conducted techno-economic feasibility studies for a 150 kW solar PV fast-charging station at Ufa International Airport — demonstrating direct utility-scale PV design capability. Author of 22+ publications (IEEE, Scopus Q1, Springer Nature) and holder of 5 Russian software patents on AI-based battery management. Full-scholarship recipient of the Russian Government (twice), Skoltech ML diploma, and Skolkovo R&D Management diploma. Brings an international cross-cultural profile spanning Bangladesh, Sweden (Solarus Sunpower), and Russia, with deep alignment to the Construction Manager – PV Solar role, encompassing system sizing, grid integration, cabling, inverters, commissioning, and techno-economic optimisation.

* WORK EXPERIENCE

Dec 2023 – Jun 2025 (1 yr 6 mo 13 d)

Engineer I (Research & Teaching) | Head of Servo Motor Laboratory

Ufa University of Science and Technology — Advanced Engineering School: Motors for the Future

Ufa, Bashkortostan, Russian Federation | Government Institution

- Led research on AI-driven battery degradation classification (NeuroBatt suite) directly applicable to solar BESS commissioning and health monitoring.
- Designed and evaluated a 150 kW DC solar PV fast-charging infrastructure for Ufa International Airport — covering panel layout, inverter sizing, cabling, grid connection, and full techno-economic analysis (IEEE REPE 2024).
- Conducted feasibility analysis for three solar facility sizes (utility-scale comparative case study) at Ufa Airport, including CAPEX, OPEX, NPV, and payback period (IEEE ECAI 2024).
- Supervised laboratory engineers and coordinated with procurement and technical office teams.
- Delivered lectures in Advanced Numerical Analysis in MATLAB; seminars on electrical power distribution networks and PLC technology.
- Authored 10 IEEE/Scopus publications during this role; filed 4 Russian software patents (2024–2025).

May 2023 – Dec 2023 (6 mo 17 d)

Engineer II — Power Converter Research Department

Ufa University of Science and Technology — Department of Power Converter Research

Ufa, Bashkortostan, Russian Federation | Government Institution

- Researched multiphase DC-DC buck converter design and phase-current balancing — published in Scopus Q1 (Russian Electrical Engineering, Springer, Vol. 94, 2024).
- Developed variable-input multiphase converter designs presented at IEEE SIELMEN 2023 (Romania).
- Collaborated with cross-functional teams on EV power electronics and energy storage systems.

Dec 2022 – May 2023 (5 mo 19 d)

Engineer — Scientific Department of Electronic Design

Ufa University of Science and Technology — Faculty of Advanced Engineering School

Ufa, Bashkortostan, Russian Federation | Government Institution

- Conducted R&D on power line communication (PLC) technology for electric vehicle communication networks.
- Contributed to technical documentation, design reviews, and experimental validation of power

electronics prototypes.

Mar 2022 – Dec 2022 (8 mo 22 d)

Electronics Design Engineer

OOO ETK (Private Electronics Company)

Ufa, Russian Federation | Private Sector

Designed embedded electronics systems and power converter circuits for industrial applications.

Executed PCB layout, schematic design, prototyping, and testing of power electronics boards.

Coordinated with subcontractors and component suppliers to ensure design compliance and quality.

Sep 2019 – Apr 2020 (7 mo 21 d)

Assistant Engineer (Electrical)

Prokaushal Upodesta Limited (PUL)

Dhaka, Bangladesh | Private Sector

Managed electrical installations, power distribution systems, and renewable energy project coordination.

Performed site inspections, progress reporting, and technical compliance checks against project drawings.

Supported procurement coordination and subcontractor management for electrical works.

Mar 2018 – Sep 2019 (1 yr 5 mo 26 d)

Trainee Engineer (Electrical)

O&M Solutions Bangladesh Limited

Dhaka, Bangladesh | Private Sector

Gained comprehensive O&M field experience in electrical systems: inspection, fault-finding, preventive maintenance, and commissioning support.

Participated in HSE compliance audits and safety standard enforcement on electrical projects.

Prepared site daily reports, material usage logs, and progress updates to project management.

Jul 2017 – Dec 2017 (6 mo)

Trainee Engineer (Electrical)

Prokaushal Upodesta Limited (PUL)

Dhaka, Bangladesh | Private Sector

Supported electrical engineering operations on infrastructure projects; acquired site coordination and documentation skills.

Apr 2016 – Sep 2016 (6 mo)

Trainee Engineer — Hybrid Solar Energy Systems

Solarus Sunpower AB

Gavle, Sweden | Private Sector (Certified B Corp, Blue Economy)

Trained on Solarus hybrid PV-thermal (PVT) collector technology using MaReCo, ACC (Active Cell Cooling), and WBT (Winter Boost Technology) systems.

Gained hands-on international exposure to solar PV system installation, performance analysis, and sustainable energy solutions.

Participated in site commissioning and system monitoring of solar installations in Sweden.

Total Experience: 6 years 4 months 28 days (spanning Bangladesh, Sweden, Russia)

* EDUCATION & QUALIFICATIONS

2024 – 2028 (Ongoing, Remote)

PhD in Electrotechnical Complexes and Systems

Ufa University of Science and Technology (UUST)

Ufa, Bashkortostan, Russian Federation | Russian Government Full Scholarship

Grade: Excellent / 5 (100%). Thesis focus: AI-based real-time second life EV battery degradation assessment, classification, and reuse potential in stationary loads (i.e. grid battery, solar battery, UAV battery, Robotic complex battery etc.)

4 Russian Algorithm Patents filed on PhD thesis topics: NeuroBatt Classifier (#2025662313), NeuroBatt Predictor (#2025663309), NeuroBatt Swarm-UAV (#2025664643), NeuroBatt Swarm-Robotic (#2025664801).

Supervisor: Prof. Viacheslav E. Vavilov, UUST (vavilov.ve@ugatu.su).

Multiple IEEE conference publications directly based on PhD research (2025–2026).

2022 – 2024

MSc in Electrical and Power Engineering — RED DIPLOM (Distinction)

Ufa University of Science and Technology (UUST)

Ufa, Bashkortostan, Russian Federation | Russian Government Full Scholarship

Grade: Excellent / 5 — RED DIPLOM (97%). Awarded Red Diploma (top distinction in Russian academic system).

Thesis focus: Hybrid electric aircraft power supply optimization and Multi phase Buck Converter Design with Efficient Phase Current Balancing — 1 Russian Algorithm Patent (#2024611224) and Scopus Q1 journal publication.

Supervisor: Assist. Prof. Danis R. Farrakhov, UUST (d.farrakhov@yandex.ru).

2010 – 2014

BSc in Electrical and Electronic Engineering (EEE)

American International University Bangladesh (AIUB)

Dhaka, Bangladesh

CGPA: 3.51 / 4.00. Focus areas: Power Systems, Power Electronics, Renewable Energy, Circuit Design.

2007 – 2009

Higher Secondary Certificate (HSC) — Science

BNM Rifles Public College, Pilkhana

Dhaka, Bangladesh

Result: 4.80 / 5.00 GPA. Board of Secondary & Higher Education, Dhaka.

2005 – 2007

Secondary School Certificate (SSC) — Science

Dhanmondi Government Boys' High School

Dhaka, Bangladesh

Result: 5.00 / 5.00 GPA (Full Marks). Board of Secondary Education, Dhaka.

* SKILLS

Solar PV Technical Skills

PV System Design & Sizing	Utility-scale & C&I solar plant design; system sizing, energy yield analysis, layout optimisation; 150 kW PV solar station designed at Ufa International Airport (IEEE 2024)
Inverter & Converter Engineering	Power electronics for PV/BESS: multiphase DC-DC buck converters, grid-tie inverters, bidirectional converters; Scopus Q1 published methodology
Battery Storage (BESS)	Battery management systems, SoC/SoH prediction (ML-based), second-life EV battery integration, reinforcement learning dispatch; 5 patents issued
EV Charging Infrastructure	Designed 150 kW DC fast-charging station (solar-powered); comparative techno-economic analysis of 3 facility sizes (IEEE ECAI 2024)
Grid Connection & Integration	Grid integration of PV+BESS, smart grid energy management, ARIMA price forecasting + SLSQP optimisation for real-time dispatch (IEEE icSmartGrid 2025)
Techno-economic Analysis	CAPEX/OPEX/NPV/IRR/payback modelling for solar PV projects; rural solar power plant viability analysis (Bangladesh context)
Cabling & Electrical Works	Power distribution network design, PLC (Power Line Communication) in EV networks, multiphase DC cabling and phase-current balancing
Simulation & Modelling Tools	MATLAB/Simulink, Python (ML libraries: scikit-learn, TensorFlow), numerical analysis; HOMER

(PV-BESS hybrid simulation)

Technical Office Coordination Technical documentation, method statements, design review, compliance checks against specifications and project drawings

Construction & Site Management Skills

Site Coordination Multi-stakeholder coordination (subcontractors, suppliers, technical office, procurement) during lab construction, instrument setup, and commissioning at UUST

HSE Compliance Enforced safety standards during O&M field operations (O&M Solutions Bangladesh); familiar with IEEE and IEC electrical safety standards

QA/QC Compliance Technical specification compliance verification; peer review and editorial board member (Elsevier Unconventional Resources, Dec 2025–present)

Progress Reporting Regular progress, risk, and issue reporting to project management (O&M Solutions, Prokaushal Upodesta experience)

Material & Resource Management Component procurement coordination (OOO ETK electronics design); laboratory equipment and resources management (UUST Servo Motor Lab)

Digital, AI & Data Tools

Machine Learning / AI Random Forest, Gradient Boosting, CNN-LSTM, Deep Neural Networks, Reinforcement Learning — applied to battery SoC/SoH prediction and energy dispatch (IEEE publications 2024–2026)

Data Analysis & Forecasting ARIMA price forecasting, XGBoost, time-series analysis; applied to real-time microgrid energy management (IEEE icSmartGrid 2025)

Software & Patents 5 Russian Federal IP software patents (2024–2025): NeuroBatt Classifier, Predictor, Swarm-UAV, Swarm-Robotic; energy storage optimisation software

Microsoft Office & Reporting Technical report writing, documentation, presentation; experience with project progress reporting and academic manuscript preparation

* LANGUAGE SKILLS

Language	Listening	Reading	Spoken Interaction	Spoken Production	Writing
English	C1	C1	C1	C1	C1
Bengali	C2	C2	C2	C2	C2
Russian	B2	B2	B2	B2	B2
Arabic	A1	A1	A1	A1	A1

** CEFR levels (Common European Framework of Reference for Languages). C2 = Mastery; C1 = Advanced; B2 = Upper-Intermediate; A1 = Elementary.*

* PUBLICATIONS & INTELLECTUAL PROPERTY

A. Peer-Reviewed IEEE / Scopus / Springer Publications

[1] **Deep Neural Networks for Real-Time Battery Degradation Assessment and Classification**
IEEE ICECIE 2026, Thailand [2026] **IEEE Conference**

[2] **Adaptive Battery Control in PV Systems using Deep Learning and Swarm Intelligence Algorithms**
IEEE REPE 2026, China [2026] **IEEE Conference**

[3] **Artificial Intelligence in Solar Energy Integration for the Smart Grid: Progress, Possibilities, and Challenges**
SPIE IVPAI 2025, Thailand [2025] **SPIE Conference**

[4] **Dynamic Battery Storage Sizing for Solar Smart Grids: A Machine Learning Framework for Seasonal Demand Adaptation**
IEEE ECAI 2025, Romania [2025] **IEEE Conference**

[5] **Real-Time Energy Management in Microgrids Using ARIMA Price Forecasting and SLSQP Optimization**
IEEE icSmartGrid 2025, UK [2025] **IEEE Conference**

[6] **Dynamic Grid Buffering with Second-Life EV Batteries: A Reinforcement Learning Optimization Approach**
IEEE GPECOM 2025, Germany [2025] **IEEE Conference**

[7] **Evaluation of the Potential Grid Integration System for City Electric Buses at Ufa International Airport**
Springer Nature — HEREM 2024 Proceedings, Singapore [2025] **Book Chapter**

[8] **Designing of Solar Photovoltaic Parking Infrastructure at Ufa International Airport — A Case Study on EV Charging Potential**
IEEE REPE 2024, China [2024] **IEEE Conference**

[9] **Transition to Electric Vehicle Charging Station Market — A Review in Russian Context**
IEEE ICAIGE 2024, Tunisia [2024] **IEEE Conference**

[10] **Techno-economic Feasibility Analysis for Electric Vehicle Solar Charging Station at Ufa International Airport — A Comparative Case Study**
IEEE ECAI 2024, Romania [2024] **IEEE Conference**

[11] **Methods of Balancing Phase Currents in Multiphase Step-Down DC Converters**
Russian Electrical Engineering, Springer Nature, Vol. 94, pp. 906-912 [2024] **Scopus Journal**

[12] **Methods of Balancing Phase Currents in Multiphase DC Converters (in Russian)**
Elektrotekhnika — Scopus Q1 Journal [2024] **Scopus Q1 Journal**

[13] **Designing of Variable Input Multiphase Buck Converter with Efficient Phase Current Balancing Technique**
IEEE SIELMEN 2023, Romania [2023] **IEEE Conference**

[14] **A Study on Electrochemical Characterizations of Bryophyllum pinnatum Leaf Electricity**
Springer Nature — Advances in Medical Physics & Healthcare Engineering, Singapore [2021] **Book Chapter**

[15] **Design of a Power System (Solar-Diesel Generator) for a Garment Industry and Load Optimization**
International Journal of Engineering Applied Sciences and Technology, India [2019] **Journal Article**

[16] **Experimental Investigations in pH Behavior and Cell Potential of Bryophyllum pinnatum Solution**
J-STAGE (Japan Council for Renewable Energy) — Grand Renewable Energy 2018 [2019] **Conference**

[17] **Sustainability Analysis of Net Zero Emission Smart Renewable Hybrid System Solution in Bangladesh Rural Context**
Springer Nature — Transition Towards 100% Renewable Energy, Switzerland [2018] **Book Chapter**

[18] **Designing of an Optimised Building Integrated Hybrid Energy Generation System**
IEEE ICDRET 2016, Bangladesh [2016] **IEEE Conference**

B. Software Patents (Russian Federal Service for Intellectual Property)

#2024611224 **Software for Optimizing Energy Storage Systems in Electric Aircraft**
Federal Service for Intellectual Property, Russia [2024] **Patent | Masters Thesis**

#2025662313 **NeuroBatt Classifier — AI-based battery classification system**
Federal Service for Intellectual Property, Russia [2025] **Patent | PhD Thesis**

#2025663309 **NeuroBatt Predictor — AI-based battery life prediction system**
Federal Service for Intellectual Property, Russia [2025] **Patent | PhD Thesis**

#2025664643 **NeuroBatt Swarm — UAV Battery Management System**
Federal Service for Intellectual Property, Russia [2025] **Patent | PhD Thesis**

#2025664801 **NeuroBatt Swarm — Robotic Complex Battery Management System**
Federal Service for Intellectual Property, Russia [2025] **Patent | PhD Thesis**

* PROFESSIONAL TRAINING, CERTIFICATIONS & MEMBERSHIPS

Diploma — Machine Learning & Data Analysis	Skoltech (Skolkovo Institute of Science and Technology), Moscow, Russia [Online Diploma]
Diploma — Management of R&D Work in Electromechanics	Skolkovo School of Management, Moscow, Russia [Offline Diploma]
Russian Government Scholarship (MSc)	Ufa University of Science and Technology, Russia [2022–2024 (Full Free Study)]
Russian Government Scholarship (PhD)	Ufa University of Science and Technology, Russia [2024–2028 (Full Free Study)]

Professional Memberships

- IEEE Graduate Student Member — Since January 2012 (Active)
- Associate Member — Institution of Engineers Bangladesh (IEB)
- Editorial Board Member & Reviewer — Unconventional Resources Journal, Elsevier (December 2025 – Present)

* DIGITAL COMPETENCES

Programming Languages	Python (NumPy, Pandas, Scikit-learn, TensorFlow, Keras), MATLAB, C (embedded)
AI / ML Frameworks	Random Forest, Gradient Boosting, CNN-LSTM, Deep Neural Networks, Reinforcement Learning, ARIMA
Power Simulation Tools	MATLAB/Simulink, HOMER (PV-BESS hybrid microgrid simulation)
Engineering Software	CAD tools for power electronics; PCB schematic & layout design; technical drawing review
Data & Reporting	Microsoft Office Suite (Word, Excel, PowerPoint), LaTeX (academic publications), project progress documentation

Version Control & Cloud	Basic Git; cloud-based research data management

* PERSONAL INFORMATION

Date of Birth:	17 November 1991
Age:	34 years, 4 months, 14 days (as of application date)
Nationality:	Bangladeshi
Gender:	Male
Permanent Address:	Village: Moharajpur, Post: Golapnagar, Upazilla: Bheramara, District: Kushtia, Bangladesh
Present Address:	Flat 1004, Building 14, Japan Garden City, Ring Road, Mohammadpur, Dhaka-1207, Bangladesh
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Research Profile:	ResearchGate — Md. Nafeez RAHMAN | Ufa University of Science and Technology

* REFEREES

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I hereby declare that the information provided in this Europass CV is accurate and truthful to the best of my knowledge.

Md. Nafeez Rahman | 15 March 2026