BASEL ELSAYED

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ABOUT ME

Skilled electrical operations engineer with a strong background in load forecasting, power systems optimization, Virtual Power Plants, Vehicle-to-Grid applications, digitalization, AI automation, and data analytics. Focused on aggregating renewable energy sources and small-scale energy prosumers to develop a low-carbon society, achieve energy efficiency, enhance the decentralization of energy, and highlight the active role of prosumers.

EDUCATION AND TRAINING

Bachelor of Engineering - Electric Power and Machines

Port Said University [20/09/2012 – 16/07/2017]

City: Portsaid | **Country:** Egypt | **Website:** https://psu.edu.eg | **Field(s) of study:** Engineering, manufacturing and construction: • Electricity and energy | **Final grade:** Very Good with Honours (81.12%), Ranked 9th | **Thesis:** Demand Side Management Using Programmable Logic Controllers

WORK EXPERIENCE

Canal Electricity Distribution Company – Port Said, Egypt

Website: https://eehc.gov.eg/CMSEehc | **Email address:** info@eehc.gov.eg | **Name of unit or department:** Operation - **Business or sector:** Electricity, gas, steam and air conditioning supply

Electrical Operations Engineer

[01/07/2025 – Current]

- Operate and monitor the distribution network's performance, including loads, voltages, and switching operations.
- Perform load forecasting, monitor peak demand, and balance loads.
- Conduct expansion planning for the distribution network using analytical techniques.
- Detect, locate, and respond to faults, coordinating with field teams to minimize outage duration.
- Plan and execute switching operations, isolations, and restorations to maintain service continuity.
- Coordinate predictive and emergency maintenance work while ensuring minimal service interruptions.
- Prepare technical reports on outages, loads, equipment failures, and overall network performance.
- Perform low-voltage and medium-voltage cable joints and terminations.
- Calculated and tracked SAIFI and SAIDI reliability indices, supporting outage analysis, fault management, and service quality improvement.

Freelance – Portsaid, Egypt

Website: https://baselm11.github.io/ | **Email address:** basel.mokhtar@icloud.com | **Business or sector:** Information and communication

Data Analyst

[12/04/2022 – Current]

- Develop interactive dashboards in Power BI and Excel using Power Query, DAX, and advanced functions.
- Specialize in forecasting techniques and AI-driven data analytics using Python.
- Provide AI-automation and digitalization solutions using n8n.
- Query, clean, and analyze datasets using SQL to support reporting and decision-making.
- Deliver in-company training sessions on data analytics, visualization tools, and AI-driven solutions.

El-Sewedy Technical Academy – Portsaid, Egypt

Website: https://www.sta.edu.eg/ | **Email address:** basel.mokhtar@sta.edu.eg | **Name of unit or department:** Technical Training - **Business or sector:** Education

Link https://github.com/BaselM11/Files/blob/main/Innovative_Technician_Competition_Certificate.pdf

Electrical Technical Trainer

[15/09/2023 – 01/07/2025]

- Delivered in-depth training on power distribution systems, electrical machines, and control systems.
- Conducted practical sessions in the electrical laboratory, mentoring students in operating electrical machines.
- Enhanced students' industry preparedness through job-based learning and engagement in real industrial processes.
- Led students in national entrepreneurship competitions on energy efficiency, green energy, and sustainable energy systems

General Organization for Export and Import Control (GOEIC) – Portsaid, Egypt

Website: https://www.goeic.gov.eg/en

Electrical Test Engineer

[30/06/2020 – 15/09/2023]

- Executed comprehensive electrical testing on imported batteries using a 256-channel system.
- Performed charge/discharge cycle analysis and capacity evaluation under controlled environmental conditions.
- Tested multiple battery types, including Li-ion, Ni-Cd, and Ni-MH batteries.
- Collected imported battery samples and coordinated laboratory testing to ensure compliance with IEC 61951/2017.

PUBLICATIONS

[2023]

A Novel Short Electric Load Forecasting Approach Using a Multivariate Transformer Neural Network and CEEMDAN

- Preprocessed and cleaned data by removing outliers and performed feature extraction through correlation analysis.
- Implemented a decomposition technique combined with deep learning to enhance prediction accuracy.
- Decomposed load demand data into intrinsic mode functions and clustered them using K-means into three Co-IMFs.
- Forecasted each Co-IMF individually and aggregated the results to obtain the final load forecast.
- Validated the model's performance using statistical and machine learning models.

DOI: 10.1109/MEPCON58725.2023.10462386

Journal Name: 2023 24th International Middle East Power System Conference (MEPCON) | **Publisher**: IEEE

Link: https://ieeexplore.ieee.org/document/10462386

CONFERENCES AND SEMINARS

[19/12/2023 – 21/12/2023] Mansoura, Egypt

2023 24th International Middle East Power System Conference (MEPCON)

- Presented the paper "A Novel Short Electric Load Forecasting Approach Using a Multivariate Transformer Neural Network and CEEMDAN" at the 24th International Middle East Power Systems Conference (MEPCON), 2023.
- The paper was included in the conference proceedings published by IEEE Xplore.

Link: https://ieeexplore.ieee.org/xpl/conhome/10462248/proceeding

PROJECTS

[15/08/2023 – Current]

Performance Improvement of Utilities Power Grids with Virtual Power Plant Integration

- Designed, sized, and optimized a grid-connected Virtual Power Plant (VPP) incorporating PV generation, a battery energy storage system (BESS), and electric vehicles (EVs).
- Addressed renewable generation intermittency by leveraging BESS and EV batteries along with robust forecasting techniques.
- Forecasted day-ahead PV generation, load demand, electricity price, and EV arrival/departure times using deep learning and decomposition techniques.
- Applied mixed-integer nonlinear programming within a smart energy management system to optimize day-ahead power profiles, enhancing self-sufficiency, self-consumption, and load factor while providing cost savings for prosumers.
- Analyzed EV mobility patterns and plug-in behavior based on state of charge and daily traveled distance.
- Assessed the impact of uncontrolled EV charging on the utility grid using mathematical simulations.
- Implemented time-of-use pricing to incentivize EV owners to support peak shaving via Vehicle-to-Grid services.
- Minimized imported grid power and applied a peak shaving constraint, reducing reliance on peaking plants and lowering CO_2 emissions.
- Minimized BESS degradation and optimized its lifespan by implementing operational constraints.
- Addressed social acceptance through financial incentives and by studying EV mobility patterns and parking behaviors.

Link: https://github.com/BaselM11/Files/blob/main/Ongoing_Research_Sample.pdf

SKILLS

Data Analytics & AI

Forecasting Methods / AI, Deep Learning / Machine Learning / Mathematical Modelling / SQL / Microsoft Excel / Auto mation / Python / Power BI / Data Analysis

Electrical Power and Machines

Load Forecasting / Power System Optimization / Electric Power System Operations and Planning / Load and outage data analysis for operational improvements / Electrical equipment testing (transformers, cables, circuit breakers) / Tr ansformer operation and maintenance / Switchgear and circuit breaker operation

CERTIFICATIONS

[German Society for International Cooperation (GIZ), 23/11/2024]

Trainer of Trainers (TOT) Certified in the Egyptian Model of In-Company Trainer Training (Competence-Based Education), enhancing professional, pedagogical, and occupational competencies per GIZ – Egypt standards.

Link: https://github.com/BaselM11/Files/blob/main/TOT_certificate.pdf