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## Professional Summary

Refinery Process Engineer with over 17 years of experience working in UOP-based units including Naphtha hydrotreating, reforming (platformer/CCR), isomerization (Penex), Merox and LPG recovery. Solid record of managing process performance, leading revamp projects and expansions, and delivering energy optimization initiatives. Adept at troubleshooting, catalyst management and technical training. Experienced in digital tools, data analysis and developing AI-powered applications for refinery operations. Certified Carbon footprint Auditor

## Key Skills & Technologies

- Units: NHT, CCR Platformer, Penex, Merox, LPG recovery and light ends treatment
- Licensors: UOP, TPIT
- Process software: Aspen HYSYS (Certified user), PRO II, HTRI, COMSOL.
- Digital tools: Python (pandas, scikit-learn), Streamlit/Dash, SQL, Tableau, Excel/VBA
- Optimization & KPIs: Energy Intensity Index (EII), hydrogen and mass balances, equipment performance
- Languages: Arabic (native), English (fluent), French (fair)

## Work Experience

### Senior Process Engineer – Technical Service Department

EPRM / MIDOR Refinery, Alexandria, Egypt – Aug 2008 to Present

- Monitor and evaluate operating conditions of Naphtha hydrotreating, splitter, CCR reformer, Penex, Merox and LPG recovery units to maximize profitability and maintain product specifications.
- Lead process troubleshooting and root-cause analysis for chronic issues (e.g., Penex catalyst deactivation, CCR corrosion) and implement corrective actions.
- Develop and review design packages and test runs for refinery expansion projects, including the MIDOR revamp that increased capacity by ~60%; serve as process representative with licensors UOP and TPIT.

- Supervise catalyst loading, skimming and replacements (hydrotreating, platformer/CCR, Penex) and manage performance monitoring and vendor liaison.
- Recommend and execute process changes to improve efficiency, reduce losses and enhance safety; prepare PFCPs and feasibility studies for new installations or modifications.
- Deliver technical training and mentoring for junior engineers and operators; update operating manuals and training materials.
- Coordinate energy management program implementation, identifying high-consumption equipment and proposing optimization initiatives.
- Develop digital dashboards, machine-learning models and specialized GPTs for unit performance monitoring and decision support; led the development and deployment of the Smart Engine AI platform ([ese.eprom.com.eg](http://ese.eprom.com.eg)), a secure multi-module web portal for refinery engineering tools.

## Selected Achievements

- Served as process representative for MIDOR Refinery Expansion project, reviewing and approving UOP/TPIT design documents and commissioning new Penex train, NHT revamp and LPG recovery upgrades.
- Successfully increased platformer unit throughput to 118% by performing a detailed capacity test run, identifying heater, compressor and cooler bottlenecks and implementing debottlenecking actions.
- Introduced a nitrogen optimization procedure during turnarounds that cut nitrogen usage by ~50%, reducing costs and updating refinery standard procedures.
- Developed a simplified Excel-based hydrogen and mass balance tool enabling daily refinery balance calculations post-revamp.
- Designed “Refinery Expert” AI assistant and a suite of GPT-based tools (GPSA Expert, API PSV design, LPG Merox Expert) to support process engineering decisions, along with ML models to predict H<sub>2</sub> composition in recycle gas and integration with Excel/Flask API.
- Conceived and delivered the Smart Engine AI platform ([ese.eprom.com.eg](http://ese.eprom.com.eg)) — a company-wide engineering portal replacing fragmented Excel-based tools with AI-driven calculations across 6 process engineering modules; demonstrated live at EGYPS to the Chairman and Ministry officials as EPROM’s flagship digital transformation initiative.

## Education

- Master of Business Administration (MBA), Alexandria University – Currently enrolled
- B.Sc. Petrochemicals & Petroleum Refining Engineering, Suez Canal University – 2007
- Nano degree for data analysis and machine learning from Udacity

## Certifications

- Advanced Data Analysis, Udacity – Apr 2022
- Machine Learning Cross Skilling, Udacity – Jun 2022
- Aspen HYSYS Certified User, AspenTech – May 2024 (ID 00013335)
- PHA/HAZOP Leader (TÜV NORD) – Jan 2025
- Certified Carbon Footprint Auditor – Nov 2025

## Additional Training

- Gas Compressors Operation & Troubleshooting – OGS
- Pump Technology – OGS
- Tower Internals and Heat Transfer Process – OGS
- Process Fired Heaters and Control Valve Engineering – OGS
- Process Measurement, PLC and DCS Fundamentals – OGS
- Aspen Plus Distillation Design (ENG104) – AspenTech
- Callidus Combustion School – UOP/Callidus
- Hazard Identification & HAZOP Basics – ENPPI
- Data Analysis & Machine Learning (Basic/Professional/Advanced) – Udacity