

Abu Huzaifah

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SENIOR PROCESS ENGINEER

Bachelor in Chemical Engineering, an experienced process control engineer specializing in the design and optimization of hydroprocessing units, with a strong focus on operational efficiency. As a Senior Operation Engineer, I developed MEGAT, a virtual assistant that leverages Power BI and Python to streamline reporting and optimize unit operations. I have successfully managed complex projects, including the commissioning of new plants, ensuring adherence to safety protocols as the Resident Engineer for a Group III+ base oil plant. My expertise extends to safety governance, where I implemented critical procedures to enhance safety culture. Proficient in data analysis and process simulations, I excel in troubleshooting high-pressure situations and leading multidisciplinary teams. With advanced technical skills in programming and engineering software, I am dedicated to driving innovation and achieving project success in fast-paced environments.

CORE COMPETENCIES AND ACHIEVEMENTS

- **Process Engineering and Optimization:** Demonstrated expertise in process engineering, particularly in the design and optimization of hydroprocessing units. For example, in the role of Senior Operation Engineer, developed and implemented MEGAT, a virtual assistant leveraging Power BI and Python, which streamlined reporting and provided data-driven insights for optimizing unit operations, significantly enhancing operational efficiency.
- **Project Management and Coordination:** Skilled in managing complex projects, including overseeing the commissioning of new plants. As the Resident Engineer for the Group III+ base oil plant project, collaborated with multiple stakeholders to validate Design Feasibility Studies and ensure adherence to safety protocols, successfully driving the project from conception to execution.
- **Safety and Compliance Governance:** Expert in developing and enforcing safety protocols and governance procedures. In the role of Process Governance Executive, led initiatives to implement Safety Critical Bypass and Lockout/Tagout (LOTO) Procedures, ensuring compliance across the refinery and enhancing the overall safety culture.
- **Data Analysis and Simulation:** Proficient in conducting data analysis and process simulations to inform technical decision-making. In the recent project with Chevron Lummus Global, performed extensive process simulations and sensitivity analyses that contributed to optimizing design parameters, thereby ensuring the feasibility and safety of the design.
- **Cross-Disciplinary Collaboration:** Adept at working in multidisciplinary teams to achieve project goals. Engaged in numerous technical discussions with geoscientists, production engineers, and other stakeholders during the project lifecycle, facilitating effective communication and integration of diverse insights.
- **Troubleshooting and Problem Solving:** Strong troubleshooting skills in high-pressure environments. During the commissioning of a new distillate hydrotreater, utilized advanced troubleshooting techniques to stabilize the unit, achieving full operational capacity even under challenging conditions.
- **Leadership and Team Management:** Experience in leading teams through complex operational challenges. As an Assistant Turnaround Coordinator, effectively managed turnaround planning and execution, ensuring team adherence to safety protocols and minimizing operational downtime.
- Proficient in using Windows and Mac operating systems and well-versed in the MS Office Suite (Word, Excel, PowerPoint), with advanced knowledge of Python, intermediate skills in SQL and C, and experience with libraries and frameworks such as Pandas, Scikit-learn, TensorFlow, Hugging Face, PyTorch, XGBoost, Streamlit, and Tkinter, along with expertise in design and editing software (Photoshop, Premiere, Figma, Canva, DaVinci Resolve, After Effects), engineering software (Aspen HYSYS, PetroSim), and version control using GitHub.
- **Lead Developer, MEGAT (MG3 General Purpose Automated Assistance):** Spearheaded the creation of a virtual assistant to automate reporting and deliver data-driven recommendations using Python and Power BI, while integrating a Large Language Model (LLM) into MEGAT to enhance its capability in

optimizing unit operations through advanced data interpretation.

- **Assistant Turnaround Coordinator:** Managed and coordinated major turnaround activities for the Group III+ Base Oil Plant and the distillate hydrotreater unit, ensuring safe, efficient, and timely completions.
- **Developer, Safety Critical Bypass Web Application:** Contributed to the development of a web-based Safety Critical Bypass application that improved safety compliance within the refinery, leading to participation in the ICQCC Japan 2019 competition.
- **Top 10 Finalist, Citizen Analytics Hackathon:** Developed ORACLE (Operational Anomaly Detection Through Continuous Learning and Evaluation), an LSTM AutoEncoder model for detecting process anomalies, achieving a top 10 placement in a competitive hackathon.
- **Top 3 Finalist, CA AI Ideathon:** Integrated an LLM into MEGAT during the CA AI Ideathon, securing a top 3 position by showcasing innovative AI applications for operational optimization.
- **Writer for Patriots Asia Website:** Contributed several articles to the Engineering and Technology section of the Patriots Asia website, sharing insights and advancements in the field.
- **Published Author:** Authored the science fiction novel Azrahel si Penjejak Kubur, published in 2019 in Bahasa Melayu, demonstrating creative storytelling and a strong engagement with speculative fiction.

PROFESSIONAL EXPERIENCE

Senior Process Engineer

PETRONAS (Petroliam Nasional Berhad)

Oct 2023 – Current

Project Armaya - Joint Study with Pertamina Indonesia for a new hydroprocessing plant. Collaborated on a joint study between PETRONAS Malaysia and PERTAMINA Indonesia to establish a new hydroprocessing plant in Cilacap, Indonesia. Served as the Resident Engineer at Chevron Lummus Global, overseeing the review and validation of Design Feasibility Studies (DFS) deliverables, including Process Flow Diagrams (PFDs), Heat and Material Balances (HMBs), Utility Summaries, and Block Diagrams. Played a key role in the HAZID session to ensure safety and feasibility, and conducted extensive process simulations and sensitivity analyses to optimize design parameters and support technical decision-making.

Senior Operation Engineer

PETRONAS Penapisan Melaka Sdn Bhd

Jan 2019 – Sept 2023

Group III+ Lube Base Oil Plant & Distillate Hydrotreater Unit. Managed and optimized the daily operations of two hydroprocessing units, ensuring production targets for capacity and quality were met. Played a pivotal role in commissioning a new distillate hydrotreater, applying advanced troubleshooting techniques. Developed and implemented MEGAT, a virtual assistant using Power BI and Python, to streamline reporting and provide data-driven recommendations. Engineered Python algorithms and machine learning models to enhance operational efficiency, predictive maintenance, and early anomaly detection.

Process Governance Executive

PETRONAS Penapisan Melaka Sdn Bhd

Jan 2015 – Dec 2018

Led the monitoring and enforcement of process governance across the refinery, ensuring adherence to safety and operational protocols. Developed key governance procedures such as Safety Critical Bypass Procedures and Lockout/Tagout (LOTO) Procedures. Instrumental in digitalizing safety critical procedures for enhanced operational transparency. Oversaw major turnaround activities as the Turnaround Coordinator for PSR-1, ensuring minimal downtime and compliance with safety protocols.

Assistant Operation Engineer

PETRONAS Penapisan Melaka Sdn Bhd

Oct 2012 – Dec 2014

Group III+ Lube Base Oil Plant. Assisted Operation Engineers in managing daily activities for the Group III+ Base Oil Plant, contributing to production targets and operational efficiency. Supported operational troubleshooting and process monitoring, ensuring plant stability and quality standards were met. Played a crucial role in planning and executing safe turnaround activities for the base oil plant, adhering to safety protocols and minimizing risks.

EDUCATION AND TRAINING

University Technology Petronas, Malaysia (2012)

Bachelor Degree Chemical Engineering

CITIZEN ANALYTICS: LEVEL 3 - Analytics Practitioner

Members of PETRONAS Citizen Analytics COP CaValry