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## Profile Summary

Experienced Artificial Intelligence Professional with a strong foundation in Chemical Engineering, boasting over 7 years of expertise across Development & Digital Teams, Advanced Process Control (APC), and Plant Operations. A certified professional with a track record of contributing to in-house ML projects geared towards achieving Operational Excellence.

## Relevant Skills

- Machine Learning
- Proficient in using Python
- Web development using HTML, CSS, JS, php and MySQL
- Analytical dashboard development
- Oil Refinery Process understanding
- Proficient in working with Django frameworks
- Process model development using Aspen Hysys and DWSim
- Fluent in English, Hindi and Bengali

## Education

### Master of Science (University of San Diego | Online)

Applied Artificial Intelligence *Ongoing* *Expected 2026*

### Bachelor of Technology (NIT Durgapur)

Chemical Engineering *8.62 CGPA* *2012-2016*

## Certifications

### Artificial Intelligence Professional (Defence Institute of Advanced Technologies, Pune)

AI & ML Professional Certification *78.6%* *2023*

### Django Web Framework Certification (Meta)

Django Web Framework *87.5%* *2024*

### Cybersecurity Certification (Google)

Foundation of Cybersecurity *95.11%* *2024*

### Machine learning Certification (Stanford Online | DeepLearning.AI)

Supervised Machine Learning: Regression and Classification *99.83%* *2024*

## Fellowships

### Headstarter AI

Software Engineering Fellow *Ongoing* *2024*

## Work Experience

### Manager- PRCC, HPCL

*2024 - Present*

- Developed a Fire and Smoke detection model for live footage monitoring with computer vision
- Developed several in-house ML and DL models for process units such as CDUs, ARUs predicting events like flooding and foaming:
  - Developed an ML model using Logistic regression for prediction of probability of Atmospheric distillation column and Naphtha Stabilizer flooding in two different CDUs
  - Developed a 4-hidden layer perceptron for prediction of foaming in Amine regeneration unit

## **Assistant Manager- APC, Development & Digital Team, HPCL**

2021-2024

- Propelled Operator Training Simulator development project for DHT, DHT-SRU and NHT-CCR
- Developed property prediction models in-house for process units using Deep Learning
- Developed plant historical data extractor for MS Excel using VBA and VB.NET
- Developed in-house ML model builder using pyscript
- Propelled green energy projects like Green Hydrogen electrolyzer plant and CCU for HGU
- Propelled APC implementation project for CDUs, FCCUs and PRU
- Developed Visual basic based refinery-wide yield accounting application

## **Officer/Assistant Manager- Operations (Crude Distillation Unit), HPCL**

2017-2021

- Developed excellent management skills as Shift Supervisor
- Proficient in process understanding of CDUs, FCCUs and hydrotreating units
- Developed a hybrid model for prediction of real-time Diesel D95 property

## **Open Source Projects**

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- Developed an inventory management system application in Nextjs and firebase
- Developed a Deep Learning algorithm using Librosa and KerasCV for classification of endangered species of birds of the Western Ghats
- Developed a chatbot for solving AI Mathematical Olympiad using Gemma Casual LM fine-tuned through LoRA approach
- Developed an algorithm which converts colour images into music, using OpenCV. This helps as an accessibility tool for persons with achromatopsia (complete colour blindness)