This project is co-financed by the European Union
and the Republic of Türkiye

ICTürkiye2025
10 April, İstanbul

PRESENTER FULL NAME: **Ocan ŞAHİN**

ORGANIZATION: **TUPRAS - Turkish Petroleum Refineries Corp**

WORKSHOP NAME: **Twin Green and Digital Transition of Industry**

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Turkish Petroleum Refineries Corp.
TÜPRAŞ

Europe’s 7th Largest Refinery Company

Leader Among Turkey's Top 500 Industrial Enterprises

World’s 30th Largest Refinery Company

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R&D Digital Solutions' Expertise

- Data Science
- Data Engineering
- Process Optimization and Operations Research
- Chemometric Modelling
- Process Control and Modelling

As the Digital Solutions Team at Tüpraş R&D, we develop integrated and cognitive solutions to enhance efficiency and profitability while ensuring **safe**, **sustainable**, and **responsible production**.

Our Focus Areas

- Environment
- Efficiency and Safety
- Digital Solutions / AI
- Operational Readiness / Excellence

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TÜPRAŞ Research Fields

Sustainable Refining

As part of our strategic roadmap, we are utilizing our existing resources to fuel our transformation while pursuing sustainability in our refining operations by investing in energy efficiency, increased productivity, and value-added products.

Biofuels

By focusing on SAF, we will continue to be the biggest supporter and business partner of the world-class Turkish aviation industry. Our activities in this area will also contribute significantly to reducing industrial emissions.

Zero-Carbon Electricity

Endeavoring to be the leading zero-carbon electricity producer in Türkiye, we took over shares of Entek, which has eight hydropower plants, two wind power plant and 380 MW of zero-carbon electricity capacity.

Green Hydrogen

As Türkiye's leading hydrogen producer, we aim to create a green value chain for hydrogen. To this end, we began transforming our current hydrogen production from gray to green, using different electrolysis technologies and zero-carbon electricity.

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R&D Digital Solutions Research Fields

Data Engineering: Data preparation, model deployment, and library management.
Data Science: Modeling with process, maintenance, and simulation-generated synthetic data.

Process Control and Modelling
Development of basic & advanced control systems and performance-enhancing applications.

Chemometric Modelling
Developing chemometric models for crude oil and its products using spectroscopy-based data.

Process Optimization and Operations Research
Applying process resource optimization and decision-making techniques.

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Our On-going Projects

HORIZON 2020 & HORIZON EUROPE

CitInES City and Industry Energy Strategy
safeAST
iPerm
FUDIPO
Indus3Es
INTEGROIL
BAMBOO
EBIO
BiZeolCat
CO2MOS
Hydroptics
FACTLOG
EPC-EqTech
ACHIEF
MACBETH Membranes And Catalysts Beyond Economic and Technological Hurdles
MOF4AIR

16 COMPLETED

9 ONGOING

CORALIS
AquaSPICE
FuelUp
Eastern Lights
Industrial Symbiosis² Hubs 4 Cicularity
FLEX INDUSTRIES
HERMES HYDROGEN EFFICIENT PURIFICATION USING MEMBRANES IN INDUSTRIAL GAS STREAMS
ICO2NIC
SUN FUSION

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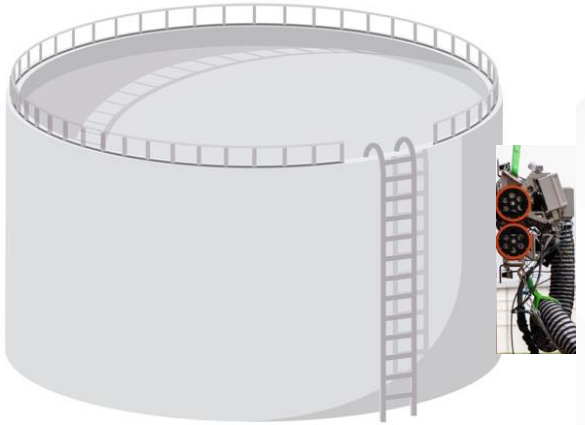

Project Idea

Call Topic: HORIZON-CL4-INDUSTRY-2025-01-TWIN-TRANSITION-02 Physical and cognitive augmentation in advanced manufacturing

Deadline Dates:

- **Objectives:** The purpose of robotic studies in refineries is to optimize refinery processes, reduce costs, and increase operational efficiency. These studies automate manual processes, saving time and resources while also enhancing safety. For example, coating robots help industrial users increase competitiveness, product quality, and worker safety, while reducing the environmental impact of spraying coating materials.
- **Expected Results:** These robots perform coating tasks with high accuracy, minimize material waste, and operate in hazardous environments to protect human workers. Additionally, they streamline operations, leading to faster and more consistent results.

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COUNTRY: Turkiye