PARTNERS CORNER

Name and position

Ioannis Pitas, Professor in the Department of Informatics at Aristotle University of Thessaloniki and the Director of the AI and Information Analysis (AIIA) Laboratory at the same university.

Role and functions in the project

Professor Pitas has the leading role of researcher for the project. His responsibilities include managing AUTH's contributions and acting as the scientific supervisor for the project's research activities.

What is the next milestone you are working on?

As of July 2024, work package 4, focused on the intelligent support of workers, is progressing on schedule. Specifically, AUTH leads task 4.1, which involves developing an AI system to analyze data captured by SIMAR robotic systems, aiming to reduce inspector workload and stress. The research and development for the AI system is planned to conclude in October, and we are currently finalizing the AI models to ensure they meet project goals and perform effectively in the harsh environment of a petrochemical refinery. Our next milestone is to integrate these technologies into an efficient system ready to assist inspectors in their work. Progress has already been made toward this milestone, with the visual inspection module currently in the testing phase.

In your opinion, what is the differential value of this project?

During the R&D phase of the project, we discovered that there is limited research on using artificial intelligence for inspecting industrial infrastructure, particularly pipeline systems. Therefore, we believe the differential value of this project lies in expanding research on industrial inspection with AI and developing an AI module capable of handling various types of inspection data, while assisting in the inspection process quickly and efficiently.

What would you highlight?

To ensure that the AI module is a valuable assistant to inspectors, we must evaluate the performance of the models using real-world data. So far, evaluations and tests on data collected by our industrial partners have yielded results that exceed the desired key performance indicators (KPIs). These KPIs were established at the project's outset and represent the performance benchmarks the developed algorithms must meet to be deemed suitable for inspection scenarios and to provide effective support to human inspectors. Therefore, it is a significant achievement that functionalities such as pipeline segmentation, damage detection, and XR corrosion level detection have met or exceeded these KPIs.