

## PRESS RELEASE

### AGIMUS: Making Strides in Industrial Robotics

Our partners gathered on December 2023, at The Oceanological Observatory of Banyuls-sur-Mer, France, for our 3rd project meeting, delving into progress, accomplishments, and forthcoming advancements within the domain of industrial robotics. Our discussions encompassed diverse topics such as the AGIMUS system architecture, advancements in task and motion planner optimization, innovative offline training methodologies, the development of Model Predictive Control, the design of industrial pilot case studies, the pivotal role of TIAGo AGIMUS, and preparations for the upcoming Coding week.

AGIMUS, a Horizon Research & Innovation project, embarked on its journey in October 2022 with the support of the European Union under Grant Agreement No. 101070165. Setting to run 48 months, AGIMUS focuses on shaping a European vision for trustworthy, secure, and trustworthy AI, Data, and Robotics technologies, aligning seamlessly with EU values and regulations.

Notably, AGIMUS unveiled an initial version of a precise and efficient differentiable physics simulator, capable of simulating physical phenomena such as friction and contacts for complex shapes. Additionally, trajectory optimization software was introduced, capable of handling hard equality and inequality constraints, by incorporating contact invariance techniques.

The project also showcased a preliminary version of Multi-Contact Task and Motion Planning software, guided by video demonstrations for enhanced task-and-motion planning problem-solving. Moreover, a vision perception module was developed, ensuring accurate estimation of 6D pose of objects. This module remains consistent across temporal and spatial dimensions and accurately computes poses even for objects unseen during training.

A highlight of the project was the immersive visit to KLEEMANN Lift Manufacturing industrial pilot in Kilkis, Greece. AGIMUS partners gained insights into real-world applications of robotics, exploring processes such as gluing reinforcement parts and applying floor covering material. Discussions also revolved around integrating hardware components into the TIAGo AGIMUS robot to meet case study requirements.

Furthermore, the AGIMUS consortium presented [11 notable papers](#) covering a wide range of topics, showcasing the project's contribution to the robotics community. Remarkably, "MegaPose: 6D Pose Estimation of Novel Objects via Render & Compare" received the prestigious "Best Open-Source Method" award in the BOP Challenge 2023.

AGIMUS Winter School, held in December 2023, brought together students and experts in agile production, AI, and robotics, fostering knowledge exchange and skill development. Renowned speakers enriched the event with insights into simulation intricacies, optimal control, task and motion planning, and ROS2 control advancements.



Represented by PAL ROBOTICS at the recent sister projects meeting during ERF2024, AGIMUS explored potential synergies and collaborations with sister projects.

Looking ahead, we aim to further enhance trajectory optimization and task and motion planning solutions, focusing on quality, accuracy, and real-world applicability. We will also develop a whole-body Model Predictive Control system for dynamic response to environmental changes, ensuring precise task performance. Various robot upgrades are also in the pipeline, aimed at improving functionality and efficiency in real-world industrial settings.

You may find more information about the project and keep up to date with its progress and developments, by visiting the AGIMUS website ([www.agimus-project.eu](http://www.agimus-project.eu)), where you may also subscribe to the AGIMUS newsletter. Additionally you can follow AGIMUS' social media accounts on [LinkedIn](#), [Twitter](#), [Facebook](#) and [YouTube](#).