21st May 2024

CLEVER PROJECT: Efficiency and Optimization for Industrial Edge Transition

European joint project CLEVER sponsored by KDT JU[1] Started in January 2023

Golfe Engineering Denmark (G.E.D) performs a key project management role in the first phase of the EU project CLEVER.

Edge AIoT (Artificial Intelligence integrated on IoT) is not only a trend, but also increasingly necessary for our industry. More often, small devices need to process huge amounts of data close to the point of origin with low latency, while efficiently running AI algorithms. For this, solutions that process the data in the sensors themselves are already on the rise, but these require a comprehensive and innovative approach to minimize costs and power consumption. Therefore, in the context of industrial applications, continuous improvement of hardware for computing AI algorithms is needed. This challenge is addressed by 19 companies and universities in the context of the research project CLEVER[2]. Their common goal is the development of an energy-efficient hardware accelerator for AI algorithms.

G.E.D has been a task leader entity and deputy leading project management organization within the creation of fundamental work packages deliverables with essential content for the continuity of the project ensuring cointegration of different technologies and solutions.

As part of the project, now almost halfway since its start, the partners work on various innovations to realize an efficient operation of hardware for processing AI.

The benefits of optimized software and hardware would be reflected in a wide range of applications, where the consortium will focus on the following use cases in the CLEVER project:

1) Digital twins for in-factory optimization.

2) Augmented Reality (AR) for shopping malls.

3) Smart agriculture for high-yield eco-farms.

For example, in the field of agriculture, battery-powered and camera-based systems could analyse images on site and send an alarm if necessary to precisely adjust the cultivation of fields with the resources used. The accelerator designed in the research project would

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[1] KDT JU: Key Digital Technologies Joint Undertaking
[2] CLEVER is an acronym for: Collaborative edge cLoud continuum and Embedded AI for a Visionary industry of thE futuRe. The project is funded by the European Union under 101097560 - CLEVER - HORIZON-KDT-JU-2021-2-RIA and co-financed by the

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contribute to more efficient analysis of data. By saving resources and optimizing cultivation in general, it would promote higher yielding as well as more sustainable agriculture.

Cooperating institutions:

The CLEVER research project involves a consortium consisting of the following institutions: Sant'Anna School of Advanced Studies, Dell Technologies, Synopsys, Eccenca, Eindhoven University of Technology, Agricolus, Aalborg University, Gottfried Wilhelm-Leibniz University of Hanover, Cnit, BMW, Nvidia, Cortus, Golfe Engineering Denmark, Dresden University of Applied Sciences and Arts, National Technical University of Athens, Italtel, University College Cork, Innatera, Fraunhofer IMS.

Link to project website: https://www.cleverproject.eu/

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