AI@EDGE

The AI@EDGE consortium commits to **achieve an EU-wide impact on industry-relevant aspects of the AI-for-networks and networks-for-AI paradigms in Beyond 5G systems**, deploying the developed solutions in four high impact use cases scenarios: cooperative perception for vehicular networks, secure, multi-stakeholder AI for IIoT, aerial infrastructure inspections, and in-flight entertainment.

The AI@EDGE consortium is a partnership of 20 organizations from 8 countries.

PROJECT FACTS

Duration
01/01/2021 to 31/12/2023

Programme
Horizon2020
ICT-52-2020
Research and Innovation Action (RIA)

Reference
101015922

CONTACT US

AIatEDGE-Contact@5g-ppp.eu

Project Coordinator:
Marco Pistore
(Fondazione Bruno Kessler)

Technical Manager:
Roberto Riggio
(Marche Polytechnic University)

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5G PPP
The 5G Infrastructure Public Private Partnership

aiatedge.eu

A Secure and Reusable Artificial Intelligence Platform for Edge Computing in Beyond 5G Networks

aiatedge.eu

AI@EDGE brings Intelligence to the Edge of the Mobile network following the paradigms of AI-for-networks and networks-for-AI in Beyond 5G systems.

PROJECT GOALS

FRAMEWORK

Develop a **general-purpose framework for closed-loop network automation** capable of supporting flexible and programmable pipelines for the creation, utilization, and adaptation of the secure, reusable, and trustworthy AI/ML models.

PLATFORM

Integrating a **converged connect-compute platform** for creating and managing resilient, elastic, and secure end-to-end slices capable of supporting a diverse range of AI-enabled network applications.

AI@EDGE PILLARS

The AI@EDGE project will focus on **6 main breakthroughs**:

AI/ML for closed loop automation

A platform for the automated roll-out of AI/ML compute infrastructure across MEC nodes.

Cross-layer, multi-connectivity and disaggregated radio access investigation

In an evolutionary path from current dual-connectivity solutions towards future multi-node connectivity approaches.

Privacy preserving, machine learning for multi-stakeholder environments

Intrusion detection algorithmic frameworks following a distributed paradigm focused on cooperation and privacy aspects in multi-stakeholder environments.

Hardware-accelerated serverless platform for AI/ML

To allow multiple stakeholders deploying sensitive and computing intensive workloads.

Distributed and decentralized single connect-compute platform

To exploit the new capabilities offered by 5G using well established cloud-native paradigms.

Provisioning of AI-enabled applications

Over a distributed computing platform where applications and services are dynamically orchestrated.

AI@EDGE USE CASES

AI@EDGE will be validated in the context of four high-impact use cases whose requirements cannot be satisfied by the current 5G systems. The validation methodology will reflect close-to-real scenarios, with conditions like production.
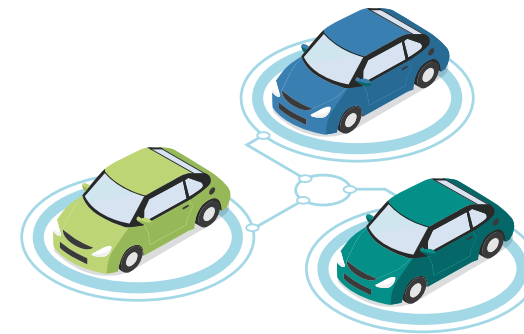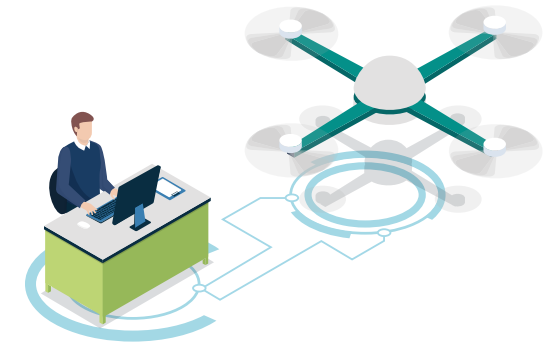
VIRTUAL VALIDATION OF VEHICLE COOPERATIVE PERCEPTION

AI@EDGE edge resources orchestration features can be used to support an Industry 4.0 digital twinning use case of a mix of real and emulated vehicles and to recreate the network-level data exchange required to build a cooperative perception between emulated and human-driven vehicles to effectively support autonomous driving.

EDGE AI ASSISTED MONITORING OF LINEAR INFRASTRUCTURES USING DRONES IN BVLOS OPERATION

Combining advanced edge capabilities with AI algorithms and powerful computing, drone usage in BVLOS operations will improve. Extra range will be reached, while detecting incidents and generating faster response actions.

SECURE AND RESILIENT ORCHESTRATION OF LARGE IIoT NETWORKS

With the deployment of AI for network security (intrusion detection) for device level and 5G-level segments and a secure deployment of AI (adversarial machine learning), security in smart factory 5G environments will be increased.

SMART CONTENT & DATA CURATION FOR IN-FLIGHT ENTERTAINMENT SERVICES

AI@EDGE will deliver curated content to airline passengers thanks to the development of an on-board edge cloud infrastructure through the deploy of 5G Connectivity in the aircraft cabin.