AI Technology for Edge applications

The future products in the Edge IoT domain stand on efficient Neuromorphic solutions

ANDANTE

ANDANTE aims to leverage innovative IC designs to build powerful HW&SW platforms for artificial and spiking neural networks (ANN/SNN) as a basis for future products in the Edge IoT domain, combining extreme power efficiency with robust neuromorphic computing capabilities and demonstrate them in key application areas.

ANDANTE main focus

Emerging eNVM memories

- OxRAM,
- PCM
- FeFET,
- SOT-MRAM

Tools & Methodologies

- SW-HW co-design
- Training, profiling and mapping a neural network on a HW target

Neuromorphic ASICs & FPGAs

- SNN and ANN architectures
- Digital, mixed-design strategies

AI Platforms & Applications

- Validate, and evaluate performance
- Solutions pertinence

"ANDANTE targets the development of innovative solutions in the Edge with strong market impact"

Validation and evaluation of neuromorphic technologies applicability for five application domains, essentials for the future of European competitiveness

Digital Industry

Digital Farming

Transport & Smart Mobility

Healthcare

Digital Life

14 Use cases

Use Case 1.1: Indoor Positioning Recognition and People Counting

Digital Industry

Use Case 1.2: Color Classification at the Edge for Quality Control

Digital Industry

Use Case 2.1: Autonomous Weeding System

Digital Farming

Use Case 2.2: Tomato pests and diseases forecast

Digital Farming

Use Case 3.1: Drones/USV

Transport and Smart Mobility

Use Case 3.2: Underwater Acoustic Signal Classification

Transport and Smart Mobility

Use Case 3.3: 3D Object Detection and Classification of Road Users based on LiDAR and camera

Transport and Smart Mobility

Use Case 3.4: Robust Autonomous Landing

Transport and Smart Mobility

Use Case 3.5: Path planning for autonomous steering

Transport and Smart Mobility

Use Case 4.1: Multi-modal image processing and device tracking in medical X-ray and ultrasound images

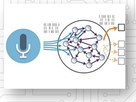
Healthcare

Use Case 4.2: Ultrasound acquisition or processing

Healthcare

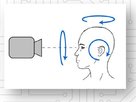
Use Case 4.3: Glucose Monitoring

Healthcare



Use Case 5.1: Consumer Auditory Processing

Digital Life



UC 5.2 Vision -based human computer interaction application

Digital Life

Project facts and figures

Start
June 2020

End
Feb 2024

Duration
45 Months

Budget
40 €M

Partners
30

Countries
7

ANDANTE's activities are based on collaborative research between large and small industrial enterprises, world-leading research centers, and universities.

ANDANTE

AI for New Devices And Technologies at the Edge

andante-ai.edu | linkedin.com/company/andante-ai | mario.diaznava@st.com (coordinator)

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ECSEL Joint Undertaking

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