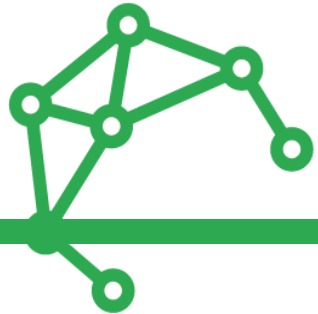




NEUROCPS4MAINTENANCE



DIH4CPS is funded by the European
Commission under contract 872548

OBJECTIVE

The **main objective** of **NeuroCPS4Maintenance** is to develop and demonstrate a neuromorphic anomaly detector in the edge that is robust against concept drift, alerts of failures beforehand and provides a fast and real-time response for predictive maintenance applications in high demanding industrial scenarios (industrial stamp press).

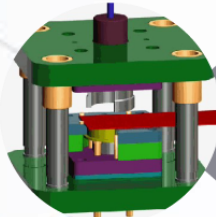


CONCEPT

- NeuroCPS4Maintenance will develop a **neuromorphic anomaly detector**, deploy and evaluate it in a relevant scenario to achieve and demonstrate this objective.
- It will be use **novel approaches** to develop this neuromorphic anomaly detector
- The development and demonstration of the neuromorphic processor will make **extensive usage of CPES technologies**.
- It will be develop the **LSTM-drift algorithm** and the **hardware accelerators** to implement it in real time and deploy the prototype in an industrial press (relevant environment), where its components can be validated.
- The innovation capacity of this neuromorphic anomaly detector prototype will favour enabling further technical solutions in **predictive maintenance in high demanding industrial environments**.



ABSTRACT



TEST

Tested in column press
Industrial stamp press

SOC

Ultrascale U96
Xilinx



PROTOCOLS

OPC UA
MQTT

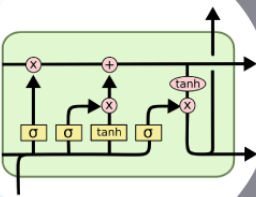
SOC
System On Chip

COMUNICATION

Communication with
web APP

MODELS

LSTM
Concept drift



Keras +
Vitis and FINN
for FPGAs

SENSORS

Magnitudes of
the process



TEAM

Who are we?

Technological Centre dedicated to **promoting and fostering advances for industrial companies.**

Where are we?

We are where our customers need us. We carry out projects throughout the Spanish geography, as well as projects beyond our borders.

Our headquarters is located in **Burgos** and we also have commercial delegation in **Madrid**.

Main Business Areas

ITCL is a **multisectorial centre** with experience in the development of projects in different sectors: Agri-food, Automotive, components and equipment, Health and quality of life, Heritage, Energy and Habitat.

Our objective is **through the development of R + D + i projects**, making companies more competitive and improving their industrial positioning in the global market.

Our reason for being

More than 30 years of experience, being the technological partner of hundreds of companies. We are a private non-profit foundation.

One of our biggest assets is the **50 plus direct employees**, composed mostly of senior graduates, medical researchers and technology experts.

ITCL is accredited as a Technological Centre by the Ministry of Science and Innovation, forming part of the **main national and international knowledge networks.**



Electronics and
Artificial intelligence

Energy
Technologies

Simulation, Virtual and
Augmented Reality

100

More than 100 annual
projects in R & D and
advanced technological
development.



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TEAM

• **DIHBU**

Digital Innovation Hub Industry 4.0



Full operational DIH since 2018. Non-Profit Association
Burgos, Spain. Focused on Industry 4.0 solutions
TRL > 5

Know more about us...

dihbu40.es



Members

Manufacturing Industry (13)

Knowledge Centers (3)

Technological Companies (7)

Startups (supported 20)

Other agents (3)

Technology Testers & Receptors

Developers & Solutions
Providers

Technology Brokers & Support
Services



Key Technologies

Artificial Intelligence

IoT

Cyber-physical Systems

Robotics

Big Data



How we do it?

- Working hard “with and for” our members
- Collaborating with stakeholders
- Billing for advanced services to third parties
- Obtaining direct funding from local government for specific activities



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TEAM



intigia is a Spanish startup that develops **Edge AI** systems and **IP Cores** for **safety critical** applications in **aerospace**, **automotive** and **industrial** domains based on our experience in:

- High speed IP cores for FPGAs, SoCs and ASICs: **signal processing, computer vision, Artificial Intelligence (AI)**
- Functional safety in aeronautical (**DO-254/DO-178C**), space (**ECSS**), automotive (**ISO 26262**) and **industrial** domains

Our target applications are **predictive maintenance, IIoT, machinery automation** and **retrofit, mobile robotics, computer vision** and **ADAS**



TEAM AND PEOPLE IN CHARGE



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