The International Workshop on Edge Artificial Intelligence for Industrial Applications (EAI4IA)

ANDANT

ECSEL JU

TEMPO

Vienna, Austria 25-26 July 2022

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Motivation

- Today, the exponential growth of the size of AI models is putting pressure on traditional compute architectures (CPU/GPU/TPU)
- Deep learning approaches based on training models in the cloud on massive datasets are reaching their limits, models should be trained on-line for system that need to operate on unpredictable scenarios (e.g. automotive)
- AI hardware market is today dominated by US-based companies (e.g. NVIDIA)
- Breakthroughs are needed on the **technology**, **architecture** and **algorithm** level for sustainable growth
- Neuromorphic technologies and algorithms are key enablers to reduce power consumption and allow on-line learning
- TEMPO leverages the EU's unique position in neuromorphic technology to prepare an EU industrial ecosystem for a sustainable AI future



TEMPO key objectives



Neuromorphic landscape



Hardware demonstrators



Application demonstrators

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	Health		Digital life		Digital industry		Automotive	
	Demo 1	Demo 2	Demo 3	Demo 4	Demo 5	Demo 6	Demo 7	Demo 8
	X-Ray image denoising	Real-time nutrition assessment	Human movement data analysis	Pattern recognition (gestures & keywords)	Vibration monitoring, human movements	Lidar-based object localization	Radar-based object localization	Object (video) and sound localization
Domain	Health	Health	Health, Digital life	Digital life	Digital industry Digital life	Automotive	Automotive	Automotive
NN approach	SNN	DNN/SNN	DNN/SNN	SNN	SNN	DNN/SNN	DNN	DNN
Technology	FPGA	FPGA	FPGA	FPGA, ASIC, RRAM	FPGA, ASIC	SRAM (DNN), OxRAM (SNN)	FeFET (analog), SRAM (digital)	FPGA/GPU, FeFET
	<mark>PHILIPS</mark> ່ເກາຍc	<mark>PHILIPS</mark> ່ ເກາຍc	ATOGEAR ເມາງອຸດ	Infineon	University of Zurich ^{wa} Syn Sense	Valeo	wideantis	BOSCH Fraunhofor
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Project information



	https://tempo-ecsel.eu
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Project facts & figures









Event Organisers









authorities. www.ai4di.eu

to the ECSEL JU programme. <u>www.kdt-ju.europa.eu</u> The AI4DI project has received funding from the ECSEL Joint Undertaking (JU) under grant agreement No 826060. The JU receives support from the European Union's Horizon 2020 research and innovation programme and the national

competitive leadership in the era of the digital economy. KDT JU is the successor

The Key Digital Technologies Joint Undertaking - the Public-Private Partnership for research, development and innovation – funds projects for assuring worldclass expertise in these key enabling technologies, essential for Europe's



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Thank You For your attention

