## Gesture recognition at the edge through neuromorphic computing

enabling intuitive & natural human-machine interaction





Machines and electrical devices are increasingly part of our daily life. Contactless interfaces are increasingly implemented to enhance the natural feeling for humans to interact with such machines and devices. Gestures are considered as very intuitive for humans to interact with its surroundings. This demonstrator aims to enable the implementation of the latency-sensitive and compute-intensive gesture recognition processing near sensors. We investigate the implementation of spiking neuronal networks to realize this ambition.



Digital

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The activity in the TEMPO project aims to

- explore the applicability of the neuromorphic technology "Spiking Neuronal Networks" (SNN) to this application context
- benchmark and evaluate SNNs against the SOTA
- prove that the implemented SNNs can enhance the energy efficiency and reduce the computing latency compared to SOTA.

This activity considered the implementation of SNNs both in FPGA and ASIC. The demonstration setup is show below.





**Demonstrator partners** 



Infineon Technologies AG

Gathered radar data sets and the data consists of camera images and radar Doppler maps as shown below



The developed FPGA platform implementing the gesture recognition SNN is illustrated on the right



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