

## VEDLIOT PROJECT

The goal of VEDLIoT (Very Efficient Deep Learning in IoT) is to build a next-generation IoT architecture and software framework to meet the increasing demand for efficient AIoT (Artificial Intelligence of Things) platforms.

We optimise selected use cases from key sectors like Smart Home, Automotive and Industrial IoT. In VEDLIoT, we use Artificial Intelligence (AI) and Deep Learning (DL) to transform complex traditional algorithms into optimised energy-efficient solutions.

We harden IoT systems as they are often cyber security attack targets, possibly revealing sensible personal information. For this, we use a security-by-design methodology, state-of-the-art hardware encryption, remote attestation and easily manageable VPN technology.

### Requirements



### Security, Privacy and Trust, Robustness and Safety

 VEDLIoT Project

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# VEDLIoT

Very Efficient Deep Learning in IoT



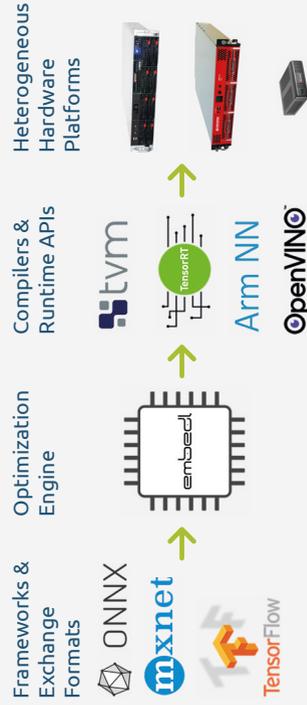
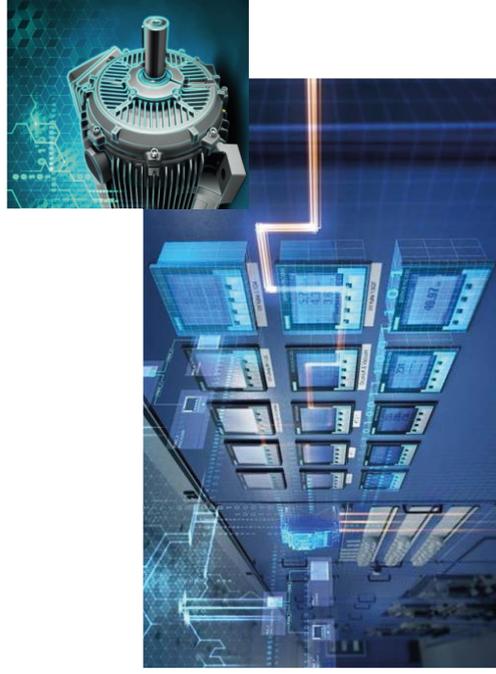
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## USE CASES

**Smart Home:** Cognitive edge architectures for AI-assisted living, increasing DL efficiency (Smart Mirror Demonstrator)

**Automotive:** Increased processing efficiency of DL tasks, live distribution and recognition of data at edge and cloud resources (Autonomous Emergency Braking for Pedestrians)

**Industrial IoT:** Fast and reliable detection of local and complex states of industrial components (Motor Condition Monitoring, Arc Detection in DC Distribution Cabinets)

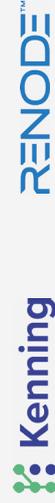


## OUR TOOLCHAIN

The primary goal of the VEDIoT toolchain is the optimisation of existing Deep Neural Networks towards specific target hardware using the EmbeDL optimiser technology.

The Kenning framework aims to create easy-to-use deployment flows and runtimes for DNN applications for various IoT hardware.

Another strong focus is on realising hardened IoT platforms with built-in security features, which can significantly enhance applications' security trustworthiness and safety.



## HARDWARE PLATFORM

VEDIoT aims to provide a harmonised, scalable hardware platform for the next generation of AIoT devices, covering the full spectrum from the cloud via near edge to far edge and embedded applications.

Based on a modular approach, the platform provides a flexible and scalable architecture supporting the full spectrum of state-of-the-art heterogeneous processing technology and supports regular CPU technology based on x86, ARM, RISC-V and specialised ML accelerators.

### Far Edge Computing



u.RECS

### Near Edge Computing



t.RECS

### Cloud Computing



RECS|Box Durin



RECS|Box Deneb