

Demo title: *Smart vision-based presence detection at mW power*

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We will demonstrate our event-driven asynchronous CNN architecture applied to a presence detection use case. Event-based vision is used to detect a person approaching a location, and ignore other people walking by. The network architecture is a six-layer CNN (four convolutional and two dense layers), implemented in a software emulation of our asynchronous event-based CNN architecture.

This application is designed for our new low-power machine vision SoC “Speck”. Speck combines μ W vision sensing with mW vision processing in a single die. Speck provides a 128x128 pixel array, and supports convolutional networks for up to nine convolutional layers and one dense layer. Development for Speck is performed using an open-source toolkit coupled with industry-standard packages for CNN development.

Speck is designed specifically for integration in mobile, wearable and IoT devices. Due to the fully asynchronous design of Speck, it operates with extreme power efficiency for CNN inference. Speck is ideal for power-constrained situations, and avoids the need for image stream transmission and cloud processing.