



EVENT CAMERA AI DEMONSTRATOR

Assignment

The video (on the bottom right hand side) shows a demonstration of an AI application which can recognize different gestures using event camera inputs.

Sioux wants to have a similar demonstrator for recognizing a hand sign language in real time on an FPGA SoC platform. For this project, Sioux will provide an existing neural network IP core. The FPGA receives inputs from an event camera through USB, and frames of the event camera together with the neural network's predictions should be displayed on a monitor. Image processing will be required to make the event camera outputs compatible with the existing IP core.

Activities

- Find out how to receive data from the event camera in the FPGA platform
- Determine which image processing techniques are required, research how they can be done efficiently on an FPGA, and implement it
- Show event camera frames together with real-time AI predictions
- Verify correctness and demonstrate the results

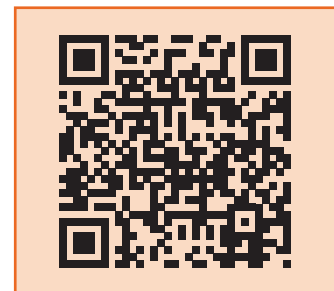
Internship overview

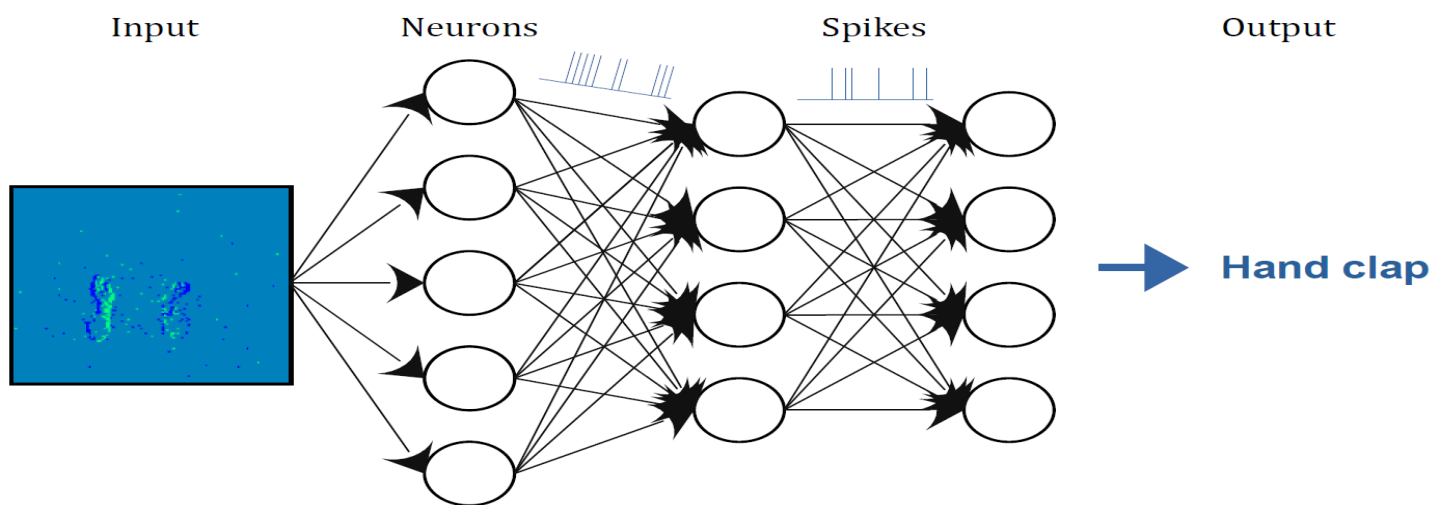
- Bachelor Student
- Graduation Assignment
- Electronics, Embedded Systems
- Location: Eindhoven

Technologies

- FPGA programming
- Image processing
- Virtual Testing
- Artificial neural networks

Informational video





Context

Both AI and edge computing devices have gained widespread popularity across various applications. Event cameras show only the difference between the current frame and previous frame, enabling a much higher frame rate than regular cameras (up to 1 million FPS) and additionally removing most of the noise and motion blur. This makes them suitable for AI applications which aim for low latency on edge devices such as FPGAs.

The development of an event camera interface on FPGA offers exciting prospects for future FPGA-based AI projects within Sioux.

Why choose Sioux?

- Working on innovative technology
- Challenging, dynamic and varied work
- A comfortable and personal work environment
- Plenty of opportunities for personal development
- Great career opportunities
- Contributing to a safe, healthy and sustainable society

Get in touch!

Would you like to know more about this student assignment?

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