Synective Labs

Image Processing
&
Machine Learning
on
FPGA & ASIC

The leading FPGA & ASIC consultant company

The Company

Synective Labs is the leading consulting company within FPGA and ASIC design in the Nordic region with offices in Stockholm, Linköping and Gothenburg. We specialize in high performance systems, creating optimized hardware and software designs where FPGA technology in many cases play a key role to achieve efficient solutions.

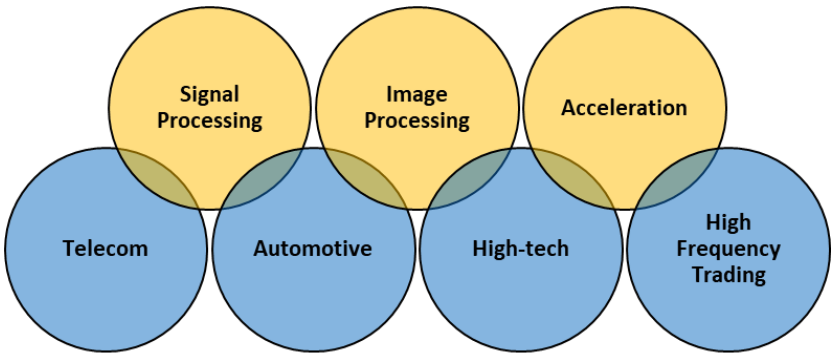
Customers

Synective's customers are market leaders within the Telecom, Automotive and high tech companies in other industry sectors.

Areas of expertise

Synective Labs has an experienced team with a large degree of senior engineers. With expert knowledge within signal and image processing, algorithm development and various related applications we provide solutions within a range of different areas such as:

- Vision and image processing systems
- Mobile telecom systems and microwave links
- Communication solutions and high speed interfacing
- Server based acceleration using FPGA's and GPU's



Synective applies efficient techniques for your application

We add value

Synective's mission is to help our customers to their market with technically efficient solutions. This is carried out by our experienced consultants at the customers' premises or executed in our own environment. Our goal is to deliver high quality design, on schedule.

- 20+ experienced FPGA designers - Wide and deep knowledge base
- Market leading customers - Working with leading edge products and requirements
- Delivering quality design, on schedule - Excellent track record
- Individual access to shared consultant expertise

Synective Labs

Image Processing & Machine Learning

Image & Signal Processing

High performance signal and image processing is one of the key areas Synective operates in. In parallel to our system design and implementation teams, we have an algorithm development team with image and signal processing focus.

Key areas within image processing

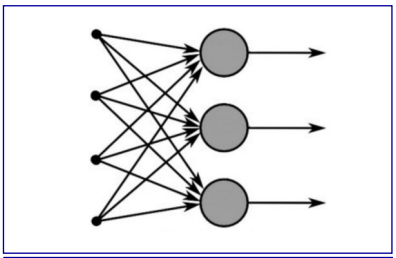
- Object extraction and classification
- 3D imaging and optical flow calculation
- Pattern matching
- Dynamic image enhancement and filtering
- Real time camera exposure control
- Image processing and coding techniques

Machine Learning

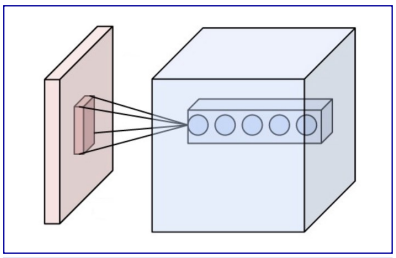
Machine Learning empowers engineers to create applications that learn from data. The rise of the modern graphics card and the availability of more open data than ever has paved way for unparalleled advances by Deep Learning in everything from image classification, to text translation, to text-to-speech.

Edge Deep Learning on FPGA

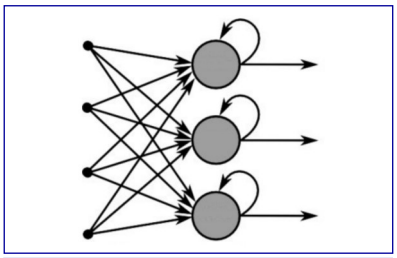
Machine learning on the edge is becoming an increasingly active topic within FPGAs, being a reconfigurable multifunction accelerator. Offloading decisions to the edge enables sensors to operate in real time critical operations without support from the cloud.
Finding the most optimal implementation in terms of cost, energy and size requires investigations. To showcase the potential Synective Labs has implemented a convolutional neural network using binary weights on a Zedboard. Training on a MNIST dataset, using an in-house server cluster, we can obtain an embedded digit OCR in a matter of minutes. If we want it to perform another task the only difference is the weights and not the implementation, as that can be reused across applications.



A Feed Forward Neural Network is a framework for basic machine learning classification or regression



A Convolutional Neural Network (CNN) is the go-to algorithm in Deep Learning for image related tasks.



Recurrent Neural Network (RNN) is a family of techniques that are often applied to time series.

Business Models

Consultancy

Provides expert knowledge at customer premises

- Systems design
- FPGA/ASIC
- Test/ver/debug
- Vision/algo
- Machine Learning
- SW design
- MSc, PhD education

Project

Customer solutions executed at Synective Labs

- Three offices including lab facilities
- Structured processes; coding rules, GIT, VUnit
- Systems design
- Silicon implementation
- Electronic design

Product

CAN FD IP for FPGA and ASIC

- Verified and packaged delivery for customer target device
- IP integration support
- Implemented for all major FPGA vendors

Contact us

For enquiries please send us an email on info@synective.se or call us on any of the below numbers.

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