FET2010 @ European Parliament

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The eMorph consortium, together with the former participants of the CAVIAR project and the neuromorphic colleagues of
INI
, have been invited to show the past and future work on brain inspired research funded by the EU. A stand on "The Power of Brain Computation" will host demos of the
Dynamic Vision Sensor
and the
Pencil Balancer
, and a stream connection to
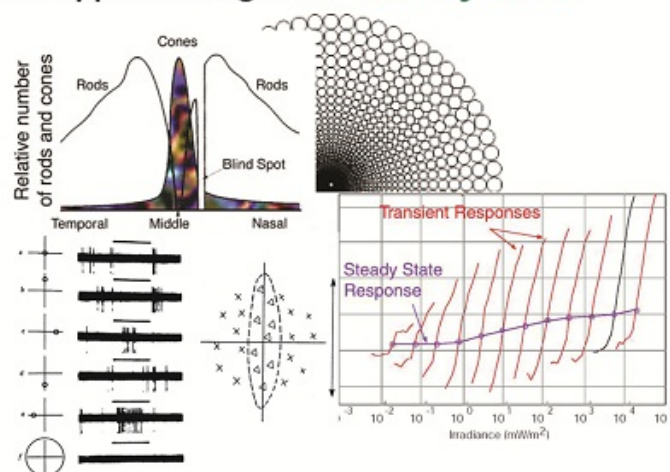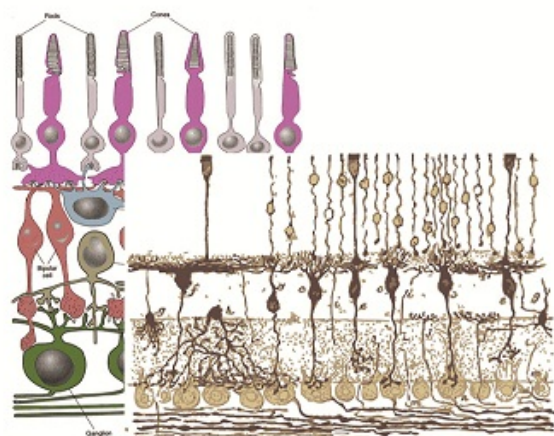live demos
of the
iCub
hosted at the parallel
Hannover Messe
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The power of brain inspired con

Information technology has not yet delivered artificial systems that can compare with biology in reliably, robustly and efficiently extracting information from the often noisy and ambiguous real world, and interacting with the world by generating appropriate behaviours.

Through our research we implemen
VLSI systems, to create a new field
world and has the potential to deliver

CAVIAR and eMorph projects belong to a line of work that applies this goal to vision systems.

Visual System ➤ Visual Primitives

"CAVIAR provided a framework and building blocks for the implementation of artificial vision systems and other bio-inspired processing systems that have to be compact and work in real time".
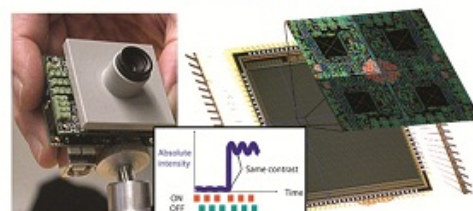
Specifically, CAVIAR provided:

• a spike-based infrastructure that enables assembly of hierarchically structured multi-layer multi-chip neural systems

• an event-based 2D convolution chip that computes arbitrary kernels at high speed

• an event-based dynamic vision sensor (DVS) that responds object movement irrespective of scene illumination

• high-level processing chips for dimension reduction, competition and the learning of spatiotemporal patterns

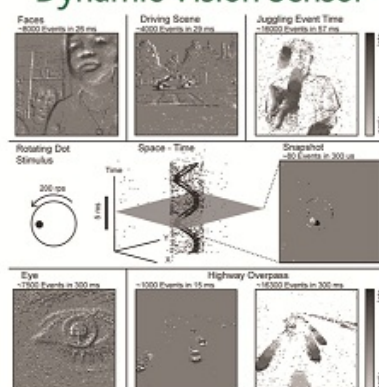• a demonstrator proof of concept of event-based bio-inspired neural systems

CAVIAR proved that an asynchronous event-driven visual system can overcome some of the limitations of conventional frame-based image processing which typically requires high computational resources, and is incompatible with responding to visual stimuli in real time.

Dynamic Vision Sensor

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