RETINE

PROGRAMMABLE VISION CHIP ENABLING
HIGH FRAME RATE AND LOW LATENCY IMAGE ANALYSIS

➕ WHAT IS RETINE?

In collaboration with CEA-List for embedded imaging processing, CEA-Leti developped RETINE Technology. This 3D technology stacks an image sensor and a matrix parallel array of processors in a single vision microchip. It is designed to provide fast detection and flexible scene analysis capabilities; reducing the output data stream to the minimal relevant amount.
The low latency and high framerate allow operations such as counting events, speed measurement, motion triggering, tracking or slow motion capture.

➕ APPLICATIONS

RETINE helps improve:

- Robotics: compact solution for positioning or tracking control
- Quality inspection in manufacturing leveraging High-speed optical monitoring
- Safety with rapid presence detection to trigger safety devices or promptly cut off engines
- Drones: vision chips are helpful for flight assistance through ground positioning and speed estimation, field analysis or ground modeling.

➕ WHAT'S NEW?

RETINE vision chip is built around a scalable matrix parallel structure. The used 3D stacked implementation brings a high data bandwidth from the sensor to the processing elements, allowing high speed image analysis. Furthermore the 192 multicore processors are able to compute different programs, allowing to execute differentiated code in different area of the vision chip. As a result the chip can be seen as a flexible system able to significantly reduce the need of communication to a main external driver element.

PATENTS 5 PATENTS

Image sensor

Matrix parallel computing

Hybrid bonding integration
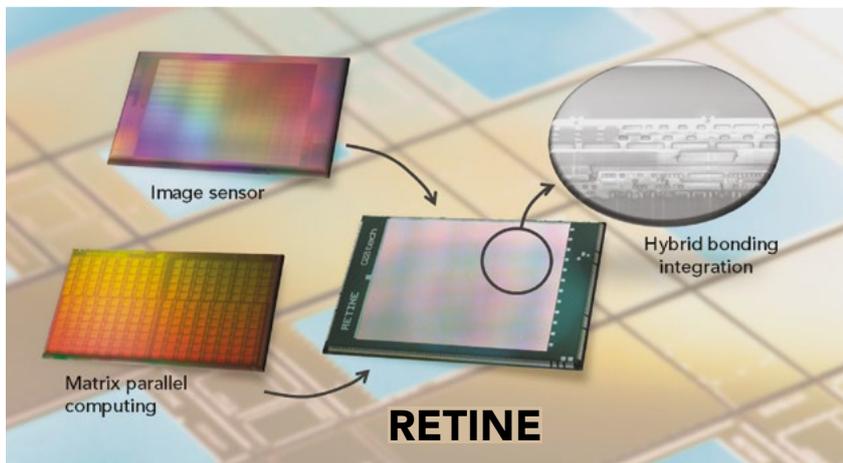
RETINE

➕ WHAT'S NEXT?

RETINE provides a major breakthrough in terms of flexible computing with low latency. It will address the growing needs for image analysis in various industries. In close collaboration between the two institutes, the next generation of Retine is under development.
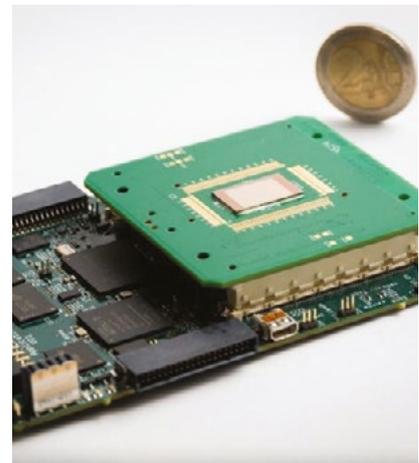
INTERESTED IN THIS TECHNOLOGY?

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