

Article

# Eyes of Things

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**Abstract:** Embedded systems control and monitor a great deal of our reality. While some “classic” features are intrinsically necessary, such as low power consumption, rugged operating ranges, fast response and low cost, these systems have evolved in the last few years to emphasize connectivity functions, thus contributing to the Internet of Things paradigm. A myriad of sensing/computing devices are being attached to everyday objects, each able to send and receive data and to act as a unique node in the Internet. Apart from the obvious necessity to process at least some data at the edge (to increase security and reduce power consumption and latency), a major breakthrough will arguably come when such devices are endowed with some level of autonomous “intelligence”. Intelligent computing aims to solve problems for which no efficient exact algorithm can exist or for which we cannot conceive an exact algorithm. Central to such intelligence is Computer Vision (CV), i.e., extracting meaning from images and video. While not everything needs CV, visual information is the richest source of information about the real world: people, places and things. The possibilities of embedded CV are endless if we consider new applications and technologies, such as deep learning, drones, home robotics, intelligent surveillance, intelligent toys, wearable cameras, etc. This paper describes the Eyes of Things (EoT) platform, a versatile computer vision platform tackling those challenges and opportunities.

**Keywords:** embedded computer vision; eyes of things; Internet of Things; computer vision

## 1. Introduction

Sensors are central to the Internet of Things paradigm. A special place is reserved for imaging sensors, which represent one of the richest sources of information about the world. In this respect,

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