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Donnerstag, 23.11.2017 um 12:00 Uhr
Ort: Seminarraum 87, Wilhelm Klemm-Straße 10

Micro/Nano-Electronics: a Story of Extraordinary Success... How much longer?

Prof. Jorge Fernández-Berni
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Universität Sevilla

For more than 50 years, the semiconductor industry has steadily increased the number of transistors integrated in chips according to the well-known Moore's Law. This is the fundamental reason behind the exponential technological development that we have enjoyed over the same period, supported by the ability to keep adding more information processing capacity per unit area of silicon. However, the end of this golden age of integration technologies seems to be right ahead of us. We are getting very close to fundamental physical limits that impact, in an interrelated way, transistor density, heat dissipation, processing speed and reliability of components. These limits appear as a barrier that could first lead to the economic unfeasibility of transistor scaling and, eventually, being unsurmountable without a technological paradigm shift. In this talk, we will analyze this challenging scenario where every aspect of information processing hardware is being revisited in the quest of the new switching mechanism capable of maintaining the current pace of development and technological innovation.

Source: modified from © Max Roser, https://ourworldindata.org/technological-progress/

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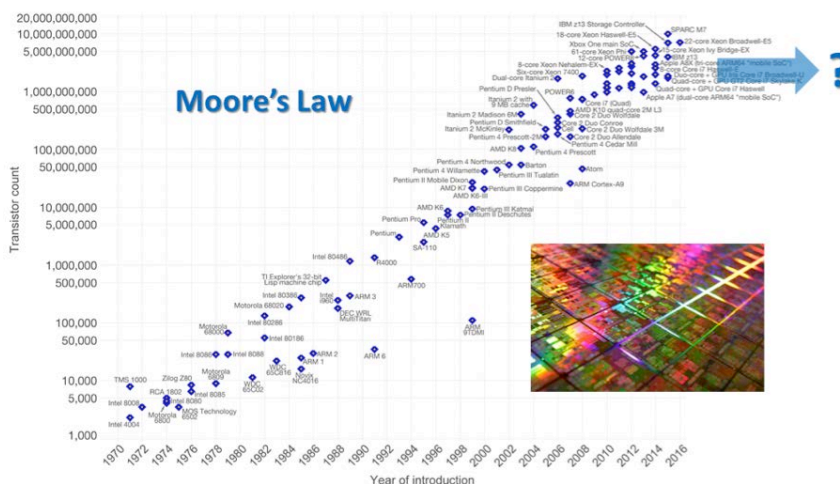
**Freitag, 24.11.2017 um 10:00 Uhr
Ort: Seminarraum 87, Wilhelm Klemm-Straße 10**

Visual Intelligence: the Next Big Tech Wave

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Most of us are able to take better pictures and videos with our mobile phones than those taken by professional photographers ten years ago. We humans are still the primary consumers of this high-quality visual information, making sense of its content and acting consequently. But this is changing rapidly. Machines are boosting their visual capabilities by leveraging training data – huge amounts of it as never available before – combined with advanced learning–inference techniques and state-of-the-art computational chips. Massive market niches like automotive or the Internet of Things (IoT) are driving investment in visual technologies, giving rise to a virtuous cycle of research and innovation. In this talk, we will delve into the reasons behind this shift of artificial vision from lab prototypes into products. We will also describe the research efforts aiming at bringing visual intelligence to the edge – as opposed to the cloud –, and how the concept of computational image sensor arises into this technological landscape.

Via della Conciliazione, 2005

Via della Conciliazione, 2013

Source: Der Spiegel