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Abstract

"The convergence of photonics and electronics: an opportunity for machine vision"

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As machine vision evolves into ever-smarter robotics using machine learning, huge innovations in photonics will have a big role to play in the sensors, cameras, fiber optics, displays and imaging technologies that enable these systems. The related research and development efforts are currently accelerated by the general convergence between photonics and electronics. For example Silicon wafer based technologies as well as II-VI and III-V material based photonics components encounter an increase of the substrate size and possible denser interconnections. Similarly recent progresses of wafer level integration offer the potential to be used to add or simplify optical functions. Moreover, photonics and electronics move towards the sharing of the same design tools and methods: this trend helps in the development of hybrid platforms assembling analog-digital electronics and photonics functions in the same module. This talk will illustrate this photonics-electronic convergence and will give examples of how this general trend paves the way for higher integration of additional functionalities and more efficient embedded processing.