

## **Large-scale photonic computing**

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### **CV of Claudio Conti**

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### **Abstract**

Which is the simplest and photonic way to encode and process information at a large scale? The modern technology of spatial light modulators enables direct access and control of millions of pixels. A single light beam can store all this data by a single reflection. Millions of bytes are parallelly processed at the speed of light as the beam propagates and interacts with materials and nanostructured devices. Modern paradigms of machine learning allow exploiting this unprecedented flux of information. A new generation of optical processors, neural networks, and measurement devices is emerging and shifting how we are used to conceiving data processing and experiments. I will introduce the basic idea of modern spatial optical computing and show examples of photonic accelerators for large-scale combinatorial optimization and machine learning, including the challenging natural language processing.