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   Sommario/riassunto Artificial intelligence is deeply involved in our daily lives via reinforcing
                      the digital transformation of modern economies and infrastructure. It
                      relies on powerful computing clusters, which face bottlenecks of power
                      consumption for both data transmission and intensive computing.
                      Meanwhile, optics (especially optical communications, which underpin
                      today's telecommunications) is penetrating short-reach connections
                      down to the chip level, thus meeting with AI technology and creating
                      numerous opportunities. This book is about the marriage of optics and
                      AI and how each part can benefit from the other. Optics facilitates on-
                      chip neural networks based on fast optical computing and energy-
                      efficient interconnects and communications. On the other hand, AI
                      enables efficient tools to address the challenges of today's optical
                      communication networks, which behave in an increasingly complex
                      manner. The book collects contributions from pioneering researchers
                      from both academy and industry to discuss the challenges and
                      solutions in each of the respective fields.