On the Possibility of a Virtuous Cycle Between Photonics and Computing

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Are we at the dawn of a new era for photonics, or merely the peak of the latest vacuous fad? A few signs (and plenty of hype) suggest that the relationship between photonics, computation, and the economy could change radically over the next decade, with photonics becoming more centrally involved in computers, and computers, as the substrate of artificial intelligence, becoming more centrally involved in pretty much everything. In this talk, I'll outline how this revolution could occur, why it would (if it actually occurs) be perhaps the single most significant development in photonics in my lifetime, and finally, why and where it is likely to fail. I will then discuss how we as a field can improve the odds of success, and why we should be optimistic about a bright photonic future either way.