Algorithms, Data, Hardware and Tools - A Perfect Storm

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ABSTRACT

Over the past decade Deep Learning has revolutionized much of Data Mining and Artificial Intelligence. Several factors have contributed to this virtuous cycle, primarily the ready availability of data in the cloud and a shift in the hardware resources that can be used for computation, mostly away from memory intensive models to compute intensive ones. For instance, large amounts of image and video data are available thanks to cheap and ubiquitous sensors. Processing them is only possible with equally copious amounts of low-precision computation. At the same time, expressive machine learning frameworks have allowed statistical modelers to design complex models with ease and to deploy them at scale, thus increasing the demand for computation even further. In this talk I will illustrate how these interaction cycles are likely to shape machine learning in the future.

BIOGRAPHY

Alex Smola received a Master's degree in physics in 1996 at the TU Munich and a PhD in computer science at the University of Technology Berlin. Until 1999 he worked at the GMD Institute for Software Engineering in Berlin. After that he joined the Australian National University. From 2004-08 he was Senior Principal Researcher at the Statistical Machine Learning Program at NICTA, and from 2008-12 he worked at Yahoo Research. He spent two years at Google Research, co-founded Marianas Lab in 2015 and since 2016 he is Director for Machine Learning at Amazon Web Services. He was adjunct professor at UC Berkeley in 2012-13 and full professor at Carnegie Mellon University from 2013-2017. He has published over 200 papers, written or edited 5 books and received several best paper prizes, including KDD in 2014 and 2015.

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