

Self-Learning Media Search Engines

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The diversity of intrinsic qualities of digital media entities tends to impede their effective retrieval. In a Self-Learning Search Engine architecture, the subtle nuances of human perceptions and deep knowledge are taught and captured through unsupervised reinforcement learning, where the degree of reinforcement may be suitably calibrated. Such architectural paradigm enables indexes to evolve naturally while accommodating the dynamic changes of user interests. It operates by continuously constructing indexes over time, while injecting progressive improvement in search performance. In this talk, we describe a Self-Learning Search Engine architecture based on reinforcement learning using a Semi-Markov Decision Process framework. The evolutionary index learning problem is analyzed, and the results shown that such search engines can confer significant advantages in improving the search performance of multimedia objects.