Three Lessons of Ancient and Modern Philosophy for Creative Human-Centered Computation

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Abstract

The discipline of data-mining was formed at the intersection of statistics, database management, and machine learning, and as such its disciplinary biases lean toward the formal, the analytical, and the computational; however, a particular interesting growth area for applications of and inspiration for data mining lies in /human-centered computation/ in which a variety of techniques are brought together to aid and augment human actors engaged in discourse and behavior in cyberspace. The shift to integrating humans into friendly and effective cyber-environments brings a set of creative challenges and qualitative design problems that require solution, but the usual toolkit of the data miner may not be fully satisfactory for this purpose. This talk considers three lessons borrowed from ancient and modern philosophy to fill the gap. The talk starts by considering the usual assumptions of the 20th century technological paradigm and considers how those are tied to habits of thought learned after World War 2. It continues by considering the observations of authors such as Friedman, Florida, and Pink who believe that our present times are marked by increased returns to /creativity/. The talk then shifts to the requirements of human-centered computing, considering one model that dovetails with the speaker's work on /genetic algorithms--/search procedures inspired by the mechanics of natural selection and genetics--and then considers how the needs of human-centered computing drive the designer to consider unfamiliar issues that dictate starting from a near-blank slate. The challenge of the /tabula rasa /leads us first to ancient Greece, and the bootstrapping of Western knowledge by Socrates, Plato, and Aristotle. Two lessons of creative bootstrapping are drawn from their example, and these are use in some practical examples of qualitative model building in the realm of human-centered computation. Thereafter, a particular lesson of modern philosophy is borrowed from John Searle to better equip the designer of human-centered systems to understand the nature and constitution of the /institutional artifacts/ being designed. The talk closes by suggesting that the incorporation of methods such as these into our designs and teaching can be useful not only in human-centered computation, but in the engineering of all human-centered systems.