Artificial Intelligence Master (UPC-URV-UB), course 2010-2011

Complementary Artificial Intelligence Seminar 1, 2010-2011

Topic: Engineering Norm-Governed Systems

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Dates: One week in May or June, 2011, 3 hours in the morning

Place: Universitat de Barcelona (UB), Campus UB, Historical Building, Gran Via de les Corts Catalanes 585, 08007 Barcelona

Abstract: This course is concerned with engineering multi-agent systems which operate in open, dynamic, unpredictable and potentially hostile environments; whose speed and complexity of operation requires them to exhibit self-* properties (* = regulating, repairing, etc.); whose components are heterogeneous entities which may act collaboratively or selfishly; and which are therefore required to adapt according to the prevailing environment conditions, the need for self-regulation or repair, or in response to anti-social behaviour of components. The idea of norm-governed systems has been proposed and used as a way of specifying a system in which the behaviour of its components is regulated by norms, where norms are specific rules prescribing legal, social or organizational constructs. Recent research has focused on 3 aspects which are essential for software engineering norm-governed systems with self-* properties: the executable specification of norm-governed systems, adaptation mechanisms for norm-governed systems, and proving properties of such systems. This course focuses on surveying the state-of-the-art, explaining and applying some of the methods, and examining the open research questions, in each of these three areas.