SORS: Representing and reasoning about policy for agent-based simulation

Objectives

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Abstract: Agent-based simulation is a useful tool for exploring the design of social policy, since it approaches the modelling problem from the bottom up, focussing on individual behaviour. Agents are assumed to have goals that policies either facilitate or frustrate, leading to individual compliance or non-compliance and having implications for the overheads of monitoring. The policy designer needs to be able to investigate the effects of different policies, both in isolation and in conjunction with others across a variety of population distributions. From an engineering point of view, this can be achieved by means of explicit, referenceable policy models that observe and interpret agent actions against policy norms, both for monitoring and as a source of information for agent decision-making. This talk presents the concept of deontic sensors as a service and the institutional Action Language (InstAL) as means to support policy exploration in the context of agent-based simulation.

Short bio: Julian Padget is a Reader

in AI in the Department of Computer Science at the University of Bath. His research foci are on intelligent agents, norm representation and reasoning, and distributed systems. He began work on how to represent software-interpretable constraints on behaviour over 20 years ago, publishing formal models for distributed auctions. Since then, a common thread throughout his work has been how to translate human requirements into verifiable machine-processable descriptions, such as current work on data security policies, legal reasoning, verification of (declarative) smart contracts (for distributed ledgers), and the evolution of governance in autonomous systems. This approach to systems construction was taken up in a business setting by TheBookdepository for their ordering and selling systems, the success of which lead to their takeover by Amazon. He also works with the Cabinet Office on the potential for application of AI in government processes and public services.

Speakers

Julian Padget is a Reader in AI in the Department of Computer Science at the University of Bath. Barcelona Supercomputing Center - Centro Nacional de Supercomputación