

Editorial

AI Communications track on agreement technologies

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The area of agreement technologies is receiving increased attention within the Artificial Intelligence research community. This is because current intelligent software applications are often based on components that are autonomous, capable of sophisticated ways of interacting, massively distributed, and quite often embedded in all sorts of appliances and sensors. These autonomous components, usually termed agents, need to be socially-aware in order to successfully achieve their goals.

The important research question is how can we build software systems as collections of these components and guarantee that they interoperate correctly, and are thus reliable, especially when the components are complex, with autonomic and adaptive features, and open? One of the basic assumptions in the development of agreement technologies is that the components are independently developed and thus no a priori assumptions on their workings can be made. Correct interoperability needs to be based on a two step process: first, the establishment of explicit agreements among the entities and then the execution of those agreements. The generation of agreements requires techniques that cover the two fundamental aspects of potential disagreement: semantics and co-ordinated action, for instance, semantic alignment techniques to allow compo-

nents understand one another, negotiation techniques to explore the space of possible agreements, argumentation techniques to influence the acceptance of particular courses of action or normative reasoning to determine the consequences of agreement violations. The execution of agreements calls for techniques to gather feedback on the success of agreements in the form of trust and reputation measures, to learn models of the opponents or to modify the normative setting. Software components willing to participate in open systems will therefore require to include some of the aforementioned techniques as extra capabilities in order to explicitly represent, generate and monitor these agreements, on top of the simpler capacity to interoperate, once the agreements are set.

All these so far independent areas have been recently grouped under the umbrella of the term *agreement technologies* in prestigious conferences (e.g. IJCAI, AAMAS) and journals (e.g. JAAMAS). A conference has been set with the generic title of *International Conference on Agreement Technologies* with the aim of giving a new forum for discussion on the interrelations among the different approaches. This track in *AI Communications* will give space to research work based on the best papers that appear in this conference series and papers explicitly submitted for the track.

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