ECoMASS 2012 Workshop Welcome Message

Welcome to the Sixth Annual Workshop on Evolutionary Computation and Multi-Agent Systems and Simulation (ECoMASS 2012)!

Evolutionary computation (EC) and multi-agent systems and simulation (MASS) both involve populations of agents. EC is a learning technique by which a population of individual agents adapt according to the selection pressures exerted by an environment; MASS seeks to understand how to coordinate the actions of a population of (possibly selfish) autonomous agents that share an environment so that some outcome is achieved. Both EC and MASS have top-down and bottom up features. For example, some aspects of multi-agent system engineering (e.g., mechanism design) are concerned with how top-down structure can constrain or influence individual decisions. Similarly, most work in EC is concerned with how to engineer selective pressures to drive the evolution of individual behavior towards some desired goal. Multi-agent simulation (also called agent-based modeling) addresses the bottom-up issue of how collective behavior emerges from individual action. Likewise, the study of evolutionary dynamics within EC (for example in coevolution) often considers how population-level phenomena emerge from individual-level interactions. Thus, at a high level, we may view EC and MASS as examining and utilizing analogous processes. Therefore it is natural to consider how knowledge gained within EC may be relevant to MASS, and vice versa; indeed, applications and techniques from one field have often made use of technologies and algorithms from the other field. The intentional study of the intersection between EC and MASS is warranted and has the potential to contribute to both fields.

The ECoMASS Workshop at GECCO has a successful history as a forum for exploring precisely this intersection, and we are looking forward to another year of stimulating discussion, bringing together experts as well as novices in both areas, to engage in dialogue about their work. This year's participants bring a variety of research topics for discussion, including particle swarm optimization, simulated water distribution systems, evolution of technologies in market environments, dynamic scheduling problems, automated algorithm discovery for MASS, and evolutionary tags/signaling. In previous years we have been fortunate to have, in addition to the authors themselves, a diverse audience coming from a variety of backgrounds and bringing unique perspectives with them. In this, the sixth year of ECoMASS, we anticipate that similarly lively conversations will ensue, and we hope that you will join us to be a part of them!

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