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PREFACE

Welcome to JEIC

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On many occasions, individuals are able to coordinate their actions. Although no one individual can have a complete understanding of an entire economic system, the adaptive behaviors exhibited by individuals seeking to profit by their individual economic activities often combine to guide the system to a fully coordinated state. On the other hand, the depression is a state in which economic activities are poorly coordinated, and in which markets have failed to coordinate economic activities.

The fact that selfish behavior may not achieve full efficiency has been well reported in the literature. The investigation of the loss of collective welfare due to selfish and uncoordinated behavior is important. Recent research efforts have focused on quantifying this loss for specific environments. The investigation of price anarchy has provided a number of measures by which to design social systems with robustness against selfish behaviors. Economic and social systems are based on an analogous assumption that individuals are selfish optimizers, and methodologies are needed so that selfish behaviors of individuals do not degrade system performance.

The success or failure of individuals in coordinating their actions is something of a mystery, and many studies have examined how individuals coordinate their actions. There is increasing awareness that researchers in many fields share a common understanding of economic and social systems as consisting of a large collection of interacting economic agents. These interactions among economic agents merit careful study in order to understand the macroscopic behavior of decentralized economic systems. The concepts of agent-based modeling offer a particularly innovative and intricate means of understanding the relationship between local interactions and macroscopic properties. Agents are assumed to follow simple rules related to giving and receiving influence. These rules are not

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necessarily derivable from any principles of rational calculation at the individual level, and agents continually learn and evolve. Ongoing theoretical research into the dynamics of complex economic networks may provide further clues as to how coordination normally works in decentralized economic systems, and why it occasionally fails.

The Journal of Economic Interaction and Coordination (JEIC) is a venue for high-quality multi-disciplinary research contributions addressing theoretical and computational aspects of interaction and coordination of economic agents. Contributions will not be restricted to any particular school of thought, but should be based on rigorous theoretical models and supported by experimental validation. JEIC focuses on emergent behavior in economic activities as well as on the development of analytical and computational tools in models with economic agents.

The general goal of JEIC is to address the wide range of research being undertaken by the interdisciplinary community, particularly in the fields of economics, computer science, physics, and other related disciplines, to provide a common platform under which new results can be published and disseminated. Economists seek to understand not only how individuals behave, but also how the interaction of many individuals leads to aggregate outcomes. Computer scientists pay a great deal of attention to how large systems of learning agents can work with each other in complex networks. In addition, physicists seeking a better understanding of the macroscopic properties of large-scale economic systems have created a new research field, referred to as "Econophysics".

The Journal of Economic Interaction and Coordination serves to communicate the most recent theoretical applications and methodological advances, and the main goal of JEIC is to promote interactions and cross-fertilization among different approaches to the new economic science. JEIC seeks especially to encourage papers at the cutting edge of approaches that are relevant to economic and social systems. By bringing together three emerging fields, economics, computer science, and physics, under the same umbrella, JEIC stresses the expanding importance of close communication and cooperation among these three fields for future scientific and technological development. A genuinely interdisciplinary approach will enable researchers and students to expand their knowledge and to develop concepts for future interdisciplinary academic achievement. This journal also covers current achievements in this rapidly changing field.

The Journal of Economic Interaction and Coordination clearly welcomes contributions that go beyond the above paradigms by the proposal of new mechanisms and approaches that clarify or facilitate the development of systems of learning and evolving agents.

In particular, JEIC supports in-depth study of important challenges related to:

(1) Theoretical foundations: to contribute to a new economic science based on interacting agents;

(2) Modeling and computation: to contribute a new methodology and techniques based on learning and evolving agents to solve complex economic and social problems;
(3) Simulations and experiments: to reach a better understanding of collective behaviors of interacting agents;
(4) Verification: to contribute to the discovery of new laws that govern complex economic and social systems;
(5) System and policy design: to support the design and development of a new system and policies using learning and evolving agents.

An international society for the advancement of economic science, called the Society for Economic Science with Heterogeneous Interacting Agents (ESHIA) becomes operational in 2006. Accommodating a vibrant interdisciplinary area, ESHIA aims to bring together researchers focusing on agent-based approaches in economics and related fields. For more information, please visit www.es-hia.org. In addition, JEIC is the official journal of ESHIA.

One final theme needs to be addressed, namely the fostering of a scientific community. The question here is what is required in order to promote the growth and success of this research field. Progress requires the development of an even broader community of researchers from all fields who are interested in fostering a new economic science based on heterogeneous interacting agents.

With a strong international team of editors dedicated to producing a publication of the highest quality, we hope that this journal will grow quickly based on the quality and importance of its content. We will publish uniformly strong papers, and timely and important special issues. Although the editors-in-chief and the editors are designated as being primarily responsible for the activities of the journal, in actuality, by submitting high-quality research papers for consideration, it is the authors who will make this journal a success.