

# Multiagent Systems, and the Search for Appropriate Foundations

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## ABSTRACT

Over 25 years ago, faced with a request to provide a short description of my research, I ventured that my work focused on the use of economic theory, voting theory, and game theory to establish appropriate foundations for Multiagent Systems (though the original wording was slightly different). That has remained an accurate description of my research, and it is a description that I still use.

In this talk, I will discuss how this meta-description found instantiation in a wide range of my research group's work, the ways in which my perspective has changed over the years, and my understanding of our short-term and long-term challenges in Multiagent Systems.

Along the way, I'll elaborate on some specific observations, about research in the field and the field itself, including:

- Some of the disruptions that have occurred in MAS, including the move to include self-motivated agents as an important subject for research, and the acceptance of mechanism design as a legitimate topic to be included in artificial intelligence;
- Some of the wider trends in AI that have had a more minor impact on MAS;
- Ways in which intuitions about interaction have driven my formal research;
- The heterogeneous origins of the field, and the lasting impact that has had on its development.

## Categories and Subject Descriptors

I.2.11 [Artificial Intelligence]: Distributed Artificial Intelligence—Multiagent systems

## General Terms

Economics, Theory

## Keywords

Social choice theory, Game theory

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## Biography

Jeff Rosenschein is the Samuel and Will Strauss Professor of Computer Science in the School of Engineering and Computer Science at the Hebrew University of Jerusalem; he currently serves as Head of the School, and is director of its Multiagent Systems Research Group. He received his undergraduate degree in Applied Mathematics from Harvard University (1979), and his masters degree (1982) and PhD (1986) in Computer Science from Stanford University. He has published widely in the field of Multiagent Systems, including co-authoring the book "Rules of Encounter", MIT Press, 1994, which influenced the adoption of game-theoretic techniques within the field of artificial intelligence; he was a co-winner of the IFAAMAS Influential Paper Award (2007). He is co-editor-in-chief of the Journal of Autonomous Agents and Multiagent Systems, is on the Advisory Board of the Journal of Artificial Intelligence Research, is a Fellow of the Association for the Advancement of Artificial Intelligence, and received the Rector's Prize for Excellence in Research and Teaching in 2011 from Hebrew University. He is the 2013 recipient of the ACM/SIGART Autonomous Agents Research Award.

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