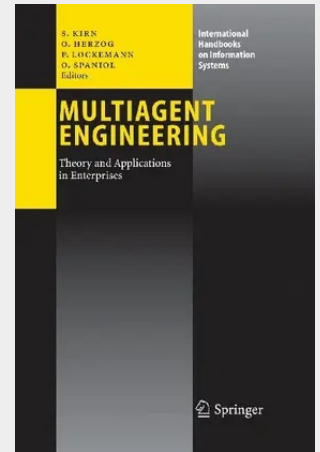


Multiagent Engineering

This handbook gives an overview on engineering of business information systems with agent technology. It introduces into this challenge, describes how to identify and to address the relevant technical problems, and explains how to engineer, integrated and test multiagent systems for real world applications. The book gives detailed descriptions of the development of two large scale multiagent systems: Agent.Hospital and Agent.Enterprise. These two systems have been developed in close cooperation with more than 20 enterprises and hospitals. They demonstrate clearly that multiagent technology has a great potential for innovative information systems, if a high degree of flexibility of the overall systems is required, e.g. because human actors and technical systems exhibit a great degree of local autonomy, or if the work environment is highly dynamic.

1 Multiagent Engineering: A New Software Construction Paradigm Multiagent systems have a long academic tradition. They have their roots in distributed problem solving in Artificial Intelligence (AI) from where they emerged in the mid-eighties as a distinctive discipline. Research in multiagent systems owes much to the work of Rosenschein on rationality and autonomy of intelligent agents, the European MAAMAW workshop series, and last but not least the famous readings of Bond & Gasser (1988) and Jacques Ferber's book on multiagent systems (1991). It gained further by a public discussion via the Distributed AI mailing list in summer 1991, when the pioneers of the field compared in much detail the concepts of distributed problem solvers to multiagent systems. Within only five years, a new exciting field of research had been established. Now, 15 years later, the field has matured to a degree that allows the - sults of academic research to be passed on to practical use and commercial exploitation. This potential coincides with a need for much larger flexib- ity of our IT infrastructure in light of its highly distributed character and extreme complexity, but also the global character of the business processes and the large number of business partners due to outsourcing and specia- zation. Many experts claim that multiagent systems are the right software technology for the needed IT infrastructure at the right time. The appeal has much to do with the broad perspectives of multiagent systems research.



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