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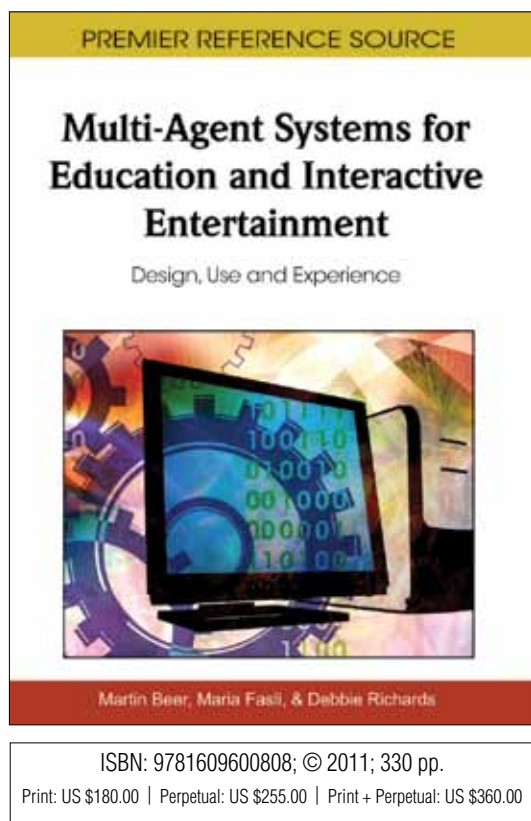
Multi-Agent Systems for Education and Interactive Entertainment: Design, Use and Experience

Multi-Agent Systems for Education and Interactive Entertainment

Design, Use and Experience

Martin Beer, Maria Fasli, & Debbie Richards

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The increased sophistication of the multi-agent software now becoming available is allowing much more sophisticated learning scenarios to be attempted. This has caused interest in the role of artificial intelligence in interactive systems to grow in recent years. Increasingly powerful consumer hardware makes research-level AI usable in real-world games and/or immersive learning environments.

Multi-Agent Systems for Education and Interactive Entertainment: Design, Use and Experience presents readers with a rich collection of ideas from researchers who are exploring the complex tradeoffs that must be made in designing agent systems for education and interactive entertainment. This book aims to provide a mixture of relevant theoretical and practical understanding of the use of multi-agent systems in educational and entertainment research, together with practical examples of the use of such systems in real application scenarios.

Topics Covered:

- E-learning Platforms
- Intelligent Emotional Agents in e-learning systems
- Virtual Training
- Recommender Agents
- Multiagent Systems
- Teaching AI and IA
- Complex Systems Development
- An Intelligent Agents and Multi-Agent Systems course involving NetLogo
- Multi-User Virtual Environments and Agents
- Agent-Based Modeling
- Domain Trainers
- (Immersive) Virtual Reality/Environment
- Case-Based Reasoning
- Cognitive, Emotion and Personality Modelling
- Embodied Agents
- Game Development
- Human Computer Interaction
- Knowledge Acquisition
- Knowledge Based Reasoning
- Language Technology including Speech, Linguistics, Dialogue
- Multi-Agent Environments and Social Systems
- Scenario Analysis
- Storytelling/Narrative Engines
- User Modelling

Market: This premier publication is essential for all academic and research library reference collections. It is a crucial tool for academicians, researchers, and practitioners and is ideal for classroom use.

Section 1: Teaching Agent-Based Systems within Computing

Chapter 1
MAgICS:
Stonedahl Forrest (Northwestern University, USA)
Wilkerson-Jerde Michelle (Northwestern University, USA)
Wilensky Uri (Northwestern University, USA)

Chapter 2
An Intelligent Agents and Multi-Agent Systems Course Involving NetLogo
Sakellariou Ilias (University of Macedonia, Greece)
Kefalas Petros (CITY College, Greece)
Stamatopoulou Ioanna (CITY College, Greece)

Chapter 3
Adapting Rewards to Encourage Creativity
Grove F. (University of Tulsa, USA)
Jorgenson N. (University of Tulsa, USA)
Brummel B. (University of Tulsa, USA)
Sen S. (University of Tulsa, USA)
Gamble R. (University of Tulsa, USA)

Chapter 4
A Multiagent Approach to Teaching Complex Systems Development
Lynch Simon C. (University of Teesside, UK)
Rajendran Keerthi (University of Teesside, UK)

Section 2: Teaching Agent-Based Systems beyond Computing

Chapter 5
Introducing AI and IA into a Non Computer Science Graduate Programme
Stamatopoulou Ioanna (CITY College, Greece)
Fasli Maria (University of Essex, UK)
Kefalas Petros (CITY College, Greece)

Chapter 6
Introducing Multiagent Systems to Undergraduates through Games and Chocolate
Bowring Emma (University of the Pacific, USA)
Tambe Milind (University of Southern California, USA)

Section 3: Using Agent Systems in Educational and Training Contexts: Educational Uses of Multi-User Virtual Environments

Chapter 7
Survey of Educational Multi-User Virtual Environments and Agents
Tezcan Arda (Macquarie University, Australia)
Richards Debbie (Macquarie University, Australia)

Chapter 8
A Comparative Study of Platforms for Multi-User Virtual Environments
Tezcan Arda (Macquarie University, Australia)
Richards Debbie (Macquarie University, Australia)

Section 4: Using Agent Systems in Educational and Training Contexts: Specific Issues and Solutions

Chapter 9
Agents with a Theory of Mind in Virtual Training
Harbers Maaike (Utrecht University, The Netherlands)
van den Bosch Karel (TNO Human Factors, The Netherlands)
Meyer John-Jules (Utrecht University, The Netherlands)

Chapter 10
Computers Can Feel Too:
Chatzara K. (Alexander TEI of Thessaloniki, Greece & Department of Special Education University of Thessaly, Greece)
Karagiannidis C. (University of Thessaly, Greece)
Stamatis D. (Alexander TEI of Thessaloniki, Greece)

Chapter 11
Scenario Authoring by Domain Trainers
Richards Debbie (Macquarie University, Australia)
Taylor Meredith (Macquarie University, Australia)

Chapter 12
Crafting a Personalised Agent-Oriented Mobile E-Learning Platform for Adaptive Third Level Education
Ayoola Olapeju Latifat (University College Dublin, Ireland)
Phelan Eleni Mangina (University College Dublin, Ireland)

Chapter 13
How to Build up Recommender Agents, Step by Step
Lluis de la Rosa Josep (University of Girona and Easy Innova, Spain)
Trias Albert (University of Girona, Spain)
Hormazábal Nicolás (University of Girona and Easy Innova, Spain)
del Acebo Esteve (University of Girona, Spain)
Montaner Miquel (University of Girona and Strategic Attention Management, Spain)