Contents

Preface / vii
Tim Finin, Lalana Kagal, Elisa Kendall, Jason H. Li,
Margaret Lyell, and Walt Truszkowski

Invited Talks

Distributed Intelligence: Overview of the Field and Its
Application in Multi-Robot Systems / 1
Lynne E. Parker

Monitoring and Managing Intelligence in Distributed Systems/ 7
H. Van Dyke Parunak

Coordination in Human-Agent-Robot Teamwork / 17
Jeffrey M. Bradshaw, Paul J. Feltovich, Matthew Johnson, Larry Bunch,
Maggie Breedy, Hyuckchul Jung, James Lott, Andrzej Uszok

Papers

Interoperability in Open Heterogeneous Multirobot Systems / 24
Stanislaw Ambroszkiewicz, Waldemar Bartyna, Krzysztof Cetnarowicz,
Marek Faderewski, Grzegorz Terlikowski

Multi-Robot Management Framework Based on the Agent
Dual-Space Control Paradigm / 32
Stanislaw Ambroszkiewicz, Krzysztof Cetnarowicz, Wojciech Turek

A Flexible Human Agent Collaboration (HAC) Framework for
Human-Human Activity Coordination (H2AC) / 38
Wei Chen, Vikram Manikonda, Edmund Durfee

A Distributed Approach to Solving Constrained Multiagent Task
Scheduling Problems / 42
Kevin Cousin, Gilbert L. Peterson

The FAME Problem Domain for Distributed Planning / 49
Markus Dale, Marie desJardins

Developing a Low-Cost Robot Colony / 53
Felix Duvallet, James Kong, Eugene Marinelli, Kevin Woo, Austin Buchan,
Brian Coltin, Christopher Mar, Bradford Neuman
Energy-Optimal Data Collection and Communication Using a Group of UUVs / 59
Serdar Erkan, Mahmut Kandemir, Gary Giger, S. Daniel Lovell

Scaffolding and the Insufficiency of the Intentional Stance as a Conceptual Underpinning for Multiagent Systems / 65
Albert Esterline

Automated Mission Parallelization for Unmanned Underwater Vehicles / 69
Gary Giger, Mahmut Kandemir, S. Dan Lovell, John Dzielski, Sekhar Tangirala

Intelligent Cyber Security Analysis in Enterprise Networks / 75
Jason H. Li, Renato Levy, Peng Liu

On the Contributors to “System Smartness:” A Med Net Agent System Case Study / 79
M. Lyell, W. Krueger, W. Chen

A Biosurveillance Platform for BioSense Message Analysis Using Integrated Reference Ontologies and Intelligent Agents / 86
Cecil O. Lynch, Craig Cunningham, Eric Schripsema, Tim Morris, Barry Rhodes

A Mixed Initiative Controller and Testbed for Human Robot Teams in Tactical Operations / 92
Vikram Manikonda, Priya Ranjan, Zachary Kulis

Discovering Distributed Expertise / 100
Mark T. Maybury

A Tool for Parallel Distributed Reasoning about Computing Networks / 104
Scott Musman, F. Duncan

Evolving Use of Distributed Semantics to Achieve Net-centricity / 108
Leo Obrst, Dru McCandless, Suzette Stoutenburg, Karen Fox, Deborah Nichols, Mike Prausa, Rick Sward

Intelligence in Future NASA Swarm-based Missions / 112
Christopher Rouff

Federated Ontologies Supporting a Merged Worldview for Distributed Systems / 116
Charles Turnitsa, Andreas Tolk

Forming Stable, Overlapping Coalitions in an Open Multi-agent System / 120
Brandon Wilson, Marie desJardins