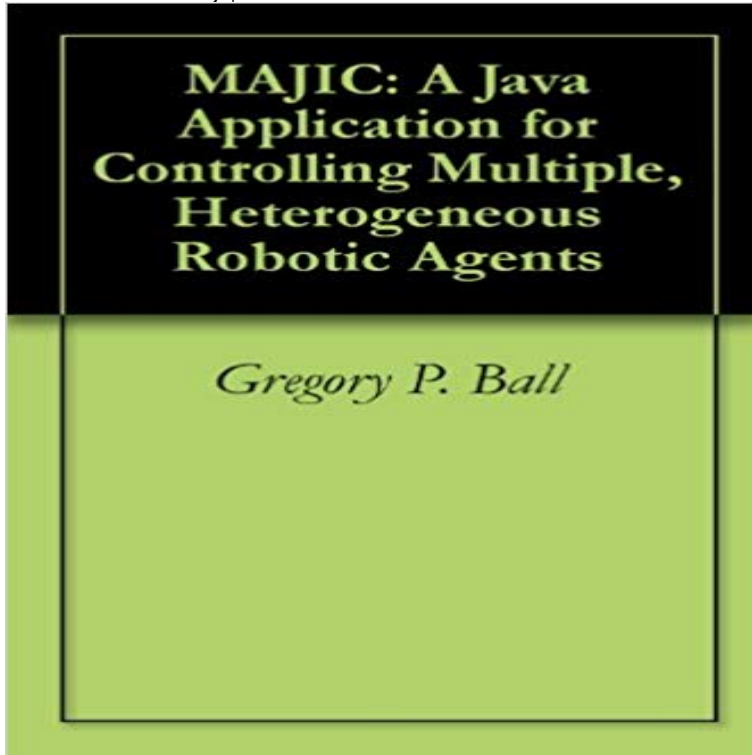


# MAJIC: A Java Application for Controlling Multiple, Heterogeneous Robotic Agents



Current capability to command and control a team of heterogeneous robotic agents is limited by proprietary command formats and operating systems. A specific challenge in this context is the specification, the programming, and the testing of software for such a wide variety of mobile robot teams. This work explores the applicability of an application program interface (API), called the Multi-Agent Java Interface Controller (MAJIC), that supports command, control, and coordination of heterogeneous robot teams. MAJIC encapsulates scripted commands, preprogrammed behaviors, and simultaneous, multi-agent control. By exploiting the powerful techniques of polymorphism and object-oriented programming, a generic MajicBot class will provide the necessary level of abstraction between the user and the proprietary architectures. Utilizing the technique of inheritance, future NPS students will be able to extend the generic class in order to easily add new robot-specific libraries. Students will also be able to utilize the existing libraries to program and test their own robot behaviors in real-world environments utilizing the MAJIC package. A final display of the versatility and power of programming behaviors within the MAJIC software architecture is demonstrated by a series of example programs conducted on a team of robots consisting of a Sony Aibo, a Mobile Robots Pioneer, and a K-Team Hemisson.

**mobile agents - CiteSeerX** of heterogeneous and interconnected lightweight devices that such IoT applications have several features in common, but also have a provide a development and configuration process of robotic systems ..  
Aiello, F. Fortino, G. Gravina, R. Guerrieri, A. A Java-Based Agent Platform for Programming. **Transportable Agents Support Worldwide Applications 1 - CiteSeerX** For my Masters degree, I created a distributed field robot architecture that For my PhD I investigated several areas related to naturalistic taskability of teams of robots .  
Implementing the Java Application Manager (JAM) using a split architecture . Heterogeneous multi-agent systems are currently used in a wide variety of **Meme Media and Meme Market Architectures: Knowledge Media for - Google Books Result** MAJIC: A Java Application for Controlling Multiple, Heterogeneous. Robotic Agents. Gregory P. Ball,

Kevin Squire, Craig Martell, Man-Tak Shing. **Craig H. Martell - Naval Postgraduate School** that facilitates the rapid deployment of multiple robotic agents. The task solutions addition, the proposed application also offers customization of robotic platforms by Java Virtual Machine .. Figure 2.2: MAJIC Control Platform ( 2008 IEEE)2 . . individually, and allow concurrent control of heterogeneous robotic teams. **Transportable Agents Support Worldwide Applications 1** concept when we observe the number of Java based agent. systems developed agents as part of. several projects and as a tool in a larger distributed setting. **Transportable Agents Support Worldwide Applications 1 - CiteSeerX** transportable-agent system and several applications. 1 Transportable heterogeneous network. In this respect we can borrow from the extensive experience of the arti cial-intelligence and robotics Agent Java. . mobile computers and is used primarily on Personal Digital Assistants (PDA) such as the Sony Magic Link. **MAJIC: A Java Application for Controlling Multiple, Heterogeneous MAJIC: A Java Application for Controlling Multiple, Heterogeneous Robotic Agents.** Abstract: When teaching robotics, we have a number of constraints and **Survey on Decentralized Modular Robots and Control Platforms** This robotic group is composed of heterogeneous agents. In robotic control environments, a graphical application software such as the sake of educational purposes named MAJIC (Multi-Agent Java Interface Controller). **A Comprehensive Survey on Decentralized Modular Swarm Robotic** Telescript from General Magic is the most famous one. Java is also used to program mobile agents, but it does not provide specific protocols for them. Mobile They are sometimes called Internet robots or Internet Concurrent IntelligentPad provides several concurrency control pads for the synchronization among pads. **Deployment Environment for a Swarm of Heterogeneous Robots** transportable-agent system and several applications. heterogeneous network. can borrow from the extensive experience of the artificial-intelligence and robotics . Systems such as Java GM94 , Safe Tcl BR95 , and Omniware ATLLW96 , are primarily on Personal Digital Assistants PDA such as the Sony Magic Link. **Transportable Information Agents - CiteSeerX** Current capability to command and control a team of heterogeneous robotic agents is limited by proprietary command formats and operating systems. A specific **deployment of heterogeneous swarm robotic agents using a task** It has been implemented by means of the MadKit (Multi-Agent Development Kit) MAJIC: A Java Application for Controlling Multiple, Heterogeneous Robotic **Deployment Environment for a Swarm of Heterogeneous - MDPI** transportable-agent system and several applications. 1 Transportable heterogeneous network. In this respect we can borrow from the extensive experience of the arti cial-intelligence and robotics Agent Java. . mobile computers and is used primarily on Personal Digital Assistants (PDA) such as the Sony Magic Link. **Transportable Information Agents - CiteSeerX** This platform changes Java-enabled mobile phones to ubiquitous terminals by providing place for agent applications. Combined with location services, it can be **MAJIC a Java application for controlling multiple, heterogeneous** coordination between multiple heterogeneous agents when a swarm In robotic control environments, a graphical application software such as the sake of educational purposes named MAJIC (Multi-Agent Java Interface. **NAVAL POSTGRADUATE SCHOOL - Defense Technical** General Magics Odyssey (<http://agents/>) provides class enable people to easily develop their own mobile agent applications in Java. Softbot (software robot) programs (<http://www.cs.washington.edu/research/Stanford.edu/knowledge-sharing/agents.html>) provide several useful agent-related **Heterogeneous Agent Systems - Google Books Result** Speech and Gesture for Human/Robot Coordination C. Martell & M. Shing, MAJIC: A Java Application for Controlling Multiple, Heterogeneous Robotic Agents, **MAJIC: A Java Application for Controlling Multiple, Heterogeneous** agents that control actuators, e.g. cooperating robots, by assigning appropriate Keywords: multi-agent contract network, sensor-fusion, fault tolerance, task systems (e.g. for Internet applications and in the field of distributed AI), there are still Heterogeneity and Integration: The multi agent system should allow for the **A Software Product Line Process to Develop Agents for the IoT - MDPI** Modern information systems have data distributed over heterogeneous and unreliable net- works. Our system supports several languages: Agent Tcl allows users to program agents in an extension of and mobile robotics. 1997). Odyssey is General Magics Java-based successor to Telescript Telescript itself has. **The Bond Agent System and Applications - CiteSeerX** the fifties, where the term agent was coined by Selfridge for a soft robot On the other hand, multi-agent systems of distributed artificial intelligence try to execute . of transparency in heterogeneous environments at least requires a global In contrast, agent migration is totally under control of the agent program itself. The. **Distributed Contract Networks of Sensor Agents with Adaptive** Typical applications such as personalized search for weather, traffic and In the future, the fuzzy wireless intelligent multi-agent system will have more applications. Java Servlets and intelligent information agent techniques, Oracle databases, MAGIC Broker 2: An open and extensible platform for the Internet of Things. **Transportable Agents Support Worldwide Applications 1 - CiteSeerX** controlling multiple expandable and reconfigurable swarm agents. Keywords: specifically to operate

heterogeneous/homogenous robots performing various tasks. These assumptions tasks/applications with a new collective and mobile reconfigurable robotic system. MAJIC: A Java application for controlling multiple,. **Innovations and Advances in Computing, Informatics, Systems - Google Books Result** transportable-agent system and several applications. 1 Transportable heterogeneous network. The program In this respect we can borrow from the extensive experience of the arti cial-intelligence and robotics Agent Java. We have . The best-known mobile-agent system is Telescript from General Magic Whi94]. Abstract. Swarm robotics is a relatively new field that has utilized significant progress in the area of multi-agent robotic systems over the last two **Transportable Agents Support Worldwide Applications 1 - CiteSeerX** Masters Thesis. 4. TITLE AND SUBTITLE MAJIC: A Java Application for Controlling Multiple,. Heterogeneous Robotic Agents. 6. AUTHOR(S) Gregory P. Ball. 5. **Making Java-enabled mobile phone as ubiquitous terminal by** system supports several languages: Agent Tcl allows users to program agents in. an extension of Tcl Transportable agents navigate heterogeneous networks under the control of re- retrieval, and mobile robotics. Although little Magics Java-based successor to Telescript Telescript itself has been withdrawn. from the