University of Huddersfield Repository

Holmes, Violeta and MacFarlane, Katrinna

Agent Mediated Information Exchange

Original Citation


This version is available at http://eprints.hud.ac.uk/id/eprint/5207/

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

• The authors, title and full bibliographic details is credited in any copy;
• A hyperlink and/or URL is included for the original metadata page; and
• The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

http://eprints.hud.ac.uk/
Agent Mediated Information Exchange
Child Safety Online

Dr. Violeta Holmes
The University of Huddersfield, UK
v.holmes@hud.ac.uk

Katrina MacFarlane
ELIHE, Blackburn College, UK
k.macfarlane@blackburn.ac.uk

Abstract
This poster presents a tool for agent-mediated information exchange between users/children while chatting online. The Internet plays a significant role in the lives of children today by opening up a whole new world. It provides excellent educational opportunities, access to a huge range of information and can be fun. However, it also plays a role in the abuse of children in a variety of ways. We are aware of the potential for paedophiles to misuse modern technology to abuse children’s trust by attempting to contact them through chat rooms. Hence, there is a need to automate the process of monitoring information exchange when children chat online.

Keywords: Multi-agent System, JADE, Protégé, Ontology, Online Safety, Agent-Based Paradigm, Reactive, Intelligent Agents, Knowledge management, Mobile Agents, JADE-Leap

Background Information
Research into the way children interact online was carried out, which involved a survey of 437 school children between the ages of 11 and 13 on their internet chat habits. 59% of those who took part regularly chatted to people over the internet. Even recently, highly publicised cases of young people going missing as a result of meeting strangers contacted online, have come to light which suggests that the problem is not being resolved with any great success.

Multi-Agent System Development in the Java Agent Development Framework (JADE)
A possible solution to detecting meeting arrangements in a message or conversation, would be to develop an ontology that the agent could use to recognize proposed meetings. Ontology is a formal description of all the objects, rules and relationships within a particular domain of knowledge.

We are in the process of building an ontology domain in protégé, which will have three classes intentions, locations, and times. If these three classes are identified in a message or conversation action can be taken. The protégé ontology, once linked with the JADE agents, would enable the detection agent to take the appropriate steps to block the message or end the conversation.

The ontology would have to be updated frequently but this would be the case for any language based solution because of the nature of language; it evolves constantly.

Conclusions and Future Work
• We have researched the issues associated with child safety online
• We have developed a prototype for an agent-mediated autonomous system that is able to automatically block the transmission of personal data, such as addresses and telephone numbers to other users, if such data is detected in a message.
• This multi-agent system was modeled using UML and implemented in the JADE Framework.
• We are in the process of developing a meeting detection agent, using protégé ontology and JADE.
• This agent will detect and prevent meeting arrangements being made between users of the multi-agent system.
• We plan to investigate the application of a Natural Language Processing based solution to our Agent Mediated Information Exchange.
• We will then be able to evaluate how the two solutions would be most effective in the real-time dynamic of online interaction.
• We can then work towards the research and development of a mobile solution using JADE Leap technology.

References
Promoting Internet Safety through Public Awareness Campaigns Guidance for Using Real Life Examples Involving Children or Young People
Issued by the Home Office Taskforce for Child Protection on the Internet November 2005


Ontology Development Using Protégé
A possible solution to detecting meeting arrangements in a message or conversation, would be to develop an ontology that the agent could use to recognize proposed meetings. Ontology is a formal description of all the objects, rules and relationships within a particular domain of knowledge.

We are in the process of building an ontology domain in protégé, which will have three classes intentions, locations, and times. If these three classes are identified in a message or conversation action can be taken. The protégé ontology, once linked with the JADE agents, would enable the detection agent to take the appropriate steps to block the message or end the conversation.

The ontology would have to be updated frequently but this would be the case for any language based solution because of the nature of language; it evolves constantly.

Class creation in Protégé

Class Diagram for Time Ontology

Sequence Diagram

Code snippet from Profile Agent

JADE Remote Management Agent GUI

Multi-Agent System Development in the Java Agent Development Framework (JADE)