Intelligent Habitats: The Interaction of People, Agents and Environmental Artefacts

Graham Clarke, Anthony Pounds-Cornish, Victor Callaghan
University of Essex, UK

Email: **robots@essex.ac.uk** Web: cswww.essex.ac.uk/intelligent-buildings
Full Paper: **cswww.essex.ac.uk/intelligent-buildings/publications.htm**

Abstract:

In this paper we describe a vision for the 21st Century and beyond in which our living environment is populated with intelligent computer-based artefacts that can autonomously respond and adapt to our needs. We describe a model based on our current work on embedded agents. Embedded-agents can be regarded as the placement of some capabilities of human intelligence into a machine or product, which enables it to do things on our behalf. In our model there are two main forms of agent; those embedded into world infrastructure (e.g. buildings, cars etc) which act on behalf of the environment and those we carry around on our person (e.g. mobile phones, watches etc) which act on behalf of the *individual* by interacting transparently with infra-structural and information agents in such a way as to support and optimise a persons personal needs. We will show this model is an essential part of the development of space habitat systems that will enable space travel and planetary living in the early part of this millennium. We raise some of the implications for society *in terms of citizenship and identity*. We relate all arguments to existing technological developments, particularly intelligent-buildings, which we are actively researching.

References:

Callaghan V, Clarke, G."Buildings As Intelligent Autonomous Systems: A Model for Integrating Personal and Building Agents ", The 6th International Conference on Intelligent Autonomous Systems, Venice, Italy; July 25 - 27, 2000

Callaghan V, Clarke G, Colley M, Hagras H "A Soft-Computing DAI Architecture for Intelligent Buildings" Journal of Studies in Fuzziness and Soft Computing on Soft Computing Agents, Physica-Verlag-Springer, November 2000

Sharples S, Callaghan V, Clarke G, "A Multi-Agent Architecture for Intelligent Building Sensing and Control" International Sensor Review Journal, May 1999

Sharples S, Callaghan V, Clarke G, "The Application Of Intelligent Building Techniques To Care Service Provision", IEE Colloquium on Intelligent Methods in Healthcare & Medical Applications, York, October 1998