

# **Towards an spatial similarity system for knowledge acquisition Aboriginal art and navigation sites in the Hunter Valley region, NSW, Australia**

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## **ABSTRACT**

The aim of this paper is to describe the embryonic development of a research project concerned with locating sites of Aboriginal rock art, engraving sites and other artefacts relating to navigation. In the hinterland of Newcastle, Australia in the Mount Yengo and Wollombi areas there are reputedly many sites of Aboriginal cultural importance. Based on other similar sites in the geographical area there may be as many as 13,000 such important locations. From the known archaeological information available to the authors, only a few hundred sites have been located, recorded and catalogued. Finding the sites is very difficult given the rugged terrain and the very small size of the sites compared to the vastness of the area. The density of the sites is potential very low, although at present it is of course unknown. A spatial similarity system is presently being designed and constructed to assist in the future re-discovery of these important heritage sites. It should be stressed from the outset that this research project has the utmost respect for Aboriginal self-determination and the issues of *tapu* and ethics. In addition the project is not primarily concerned with any site interpretation, only the discovery of site locations. Given the classification of existing sites, land use, topology, topography and anthropological knowledge a knowledge acquisition system is being developed. The system will be founded on the concepts of case based reasoning (CBR). CBR will be used to derive numerical surfaces over the terrain to indicate site probabilities. The project has only just now been planned so it is very early days. This work presents some graphical images of the sites concerns and describes the similarity system concepts. Some preliminary work has already been carried out and has been reported in *GIS of Aboriginal Painting of Mount Yengo National Park*, by H. Schmolke, unpublished report, Department of Civil, Surveying and Environmental Engineering, University of Newcastle, Australia, 2000.

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