

## Requirements for Phylogenetic Tree Visualisation - A User Driven Approach

**Abstract:** This poster presentation is about potential to provide an interactive visual taxonomy management system. It will be part of our efforts to structure, manage, and enable understanding of complex scientific information to enable scientists to collaborate using a systems approach. The main subject will be editing and display of phylogenetic/phylogenetic knowledge, this could make possible new insights. The project will build on the knowledge of the Faculty of Health and Life Sciences (FHLS) in this biological field, the FHLS Science Communication Unit's excellent public understanding work and the visualisation, e-science, and information management abilities of the Centre for Complex Cooperative Systems (CCCS) The CCCS team will apply novel end-user programming research to enable the editing, management and representation of biological and environmental information including phylogenetic trees.

UWE has established a computing infrastructure for representation of complex scientific information, has in depth experience in applied scientific research, and on public understanding of science outreach. UWE Computer Science research allows for bringing together related fields of Semantic Web and ontology/taxonomy management, end-user programming, and visualisation and interaction with complex information.

Although web based taxonomies already exist, there are still opportunities to improve the visualisation and interactivity capabilities of taxonomy representation. In addition, Semantic Web techniques can enable automated structuring and management of information.

This research in management, structuring, and visualisation of information will enable visualisation of complex e-science problems to assist in enabling understanding of them, and the CCCS centre has many years of experience in gathering and enabling representations of such problems. This will enable the UWE Science Communication Unit to manage a process of making information managed in this project public. The main scientific information will be based on the work of experienced Faculty of Applied Science (FAS) researchers in Biology and Environmental Sciences. These staff have many years of research experience and much research data to make publicly available, such as phylogenetic information. The taxonomy management system will enable the use of such information and a methodology for its representation and contextualisation in varied interactive ways, according to what is most useful for particular people and types of information. This could be applied to the field of phylogenetic systematics in order to combine biological and environmental approaches and solutions.

UWE has used this technology and approach to visualise engineering product data structures and processes, but there is no reason why this strategy could not be applied to visualisation of phylogenetic taxonomy structures and to the debate on how to classify life forms which is an ontology matter. The use of visualisation via end-user HCI advances and the Semantic Web can widen this debate.

This is not a full paper, the requirement for this workshop was abstract, and poster (also uploaded), and a Demo if we wanted to do this (which I did).

Peter Hale