

Technical summary

The research question proposed in PLINY is this: how can a corpus of images and a corpus of time serial data, be constructed such that these corpora are as accessible to retrieval, browsing and summarization as text corpora are now? The intention is to create evidence based on linguistic data, essentially terminology of a specialist domain organised within an ontological framework. This ontologically-grounded terminology will be used to (a) annotate visual content with linguistic evidence in an arbitrary domain of knowledge, and (b) annotate time serial variation of the values associated with markets with the visual and linguistic evidence of the behaviour of the stakeholders in the markets. The key question of aggregating evidence in a single modality, and then the aggregation of evidence in different modalities, will be addressed using aggregation techniques founded on a new interpretation of Pareto's utility theory by fuzzy logicians and fuzzy set theorists. The innovative aspect of PLINY is that the annotation systems will be able to update their knowledge base of links between the linguistic evidence and image (or time serial) data sets using methods and techniques of self-organised learning systems. Research effort in PLINY will benefit from, and provide feedback to, work in knowledge engineering and behavioural psychology, especially in the context of decision making under uncertainty and sometimes contradictory evidence.

Public awareness summary

The world is literally getting filled up images and time serial data that relate to human safety, security and survival. Hospitals have access to imaging devices that literally generate millions of images related to a single patient sometimes extending over decades: these images relate from the electron-microscopic image of constituents of an individual cell to the x-ray image of the largest bone in the body. All these images have to be retrieved for diagnosis, therapy and prognosis and for this purpose these images have to be annotated. There is no systematic and automated way in which these images can be annotated efficiently and consistently: PLINY project proposes an information that can not only retrieve an image with its associated keywords but can learn to associate keywords with the central features of a set of images. This learning facilitates the annotation of an image that has not been seen by the PLINY system. Our security depends on our Customs officials being able to examine literally thousands of often sealed containers: high-energy x-rays are being deployed and these images have to be retrieved much like the medical images. Our survival depends on judging the 'moods' of the markets, especially from the publicly available texts and image collections of people involved in the markets.