

Objects in the Intelligent Information Fusion System

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Abstract

NASA Goddard, Code 935 is developing the Intelligent Information Fusion System (IIFS) to help scientists combat the problem of having too much data to search. It provides the basis for doing queries of the data in terms that the scientist understands. The complexity of modeling the remote sensing domain is such as to make relational databases undesirable. The IIFS employs an object oriented database (OODB) to provide the metadata used to tie the system together. The IIFS is an attempt to provide a scalable system that will handle searches into terabytes (and eventually petabytes) of data. The OODB allows the use of unique indices that are not available in relational databases. For instance, Sphere Quadtrees (SQTs) allow a spherical representation of the Earth that is more appropriate for world-wide coverage. The SQT has already been incorporated into the IIFS as a spatial search mechanism. The database serves as a testbed for trying various search techniques. Its object-oriented design allows for easy alterations to the strategies used for querying. The combination of a well designed model, the performance of the object-oriented database and the use of specialized search techniques should provide a system that will grow into its role of managing petabytes of data.