



Faculty of Computer Science 2005–2006 Seminar Series

The First Class(ification)–Oriented Representational Formalism

By

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Any environment can be viewed as a multitude of evolving and interacting classes of ‘objects’. Why hasn’t this simple and unifying view inspired the organization of various databases and search engines, as well as the development of AI, and CS in general? I suggest that the primary (and non-obvious) reason for the current state of affairs is the total lack of class-oriented representational formalisms in CS, and indeed in all sciences. As to the substantial efforts exerted by the pattern recognition and machine learning communities to understand classification, all such efforts have been confined to conventional representational formalisms, which I contend are fundamentally inadequate for the task. This ‘loyalty’ to existing formalisms, while quite understandable, is regrettable.

In this talk, I will discuss the recently developed class-oriented representational formalism – the Evolving Transformation System (ETS) – as well as an accompanying radically different view of ‘data’. The key feature of the ETS object representation is its temporal nature: for the first time objects become processes. Moreover, the introduction of temporal object representation is intended to bridge the ubiquitous (inductive) gap between object and class representations: for example, between a vector and the vector space domain delineating the corresponding class, or between a string and the corresponding grammar. In other words, the information present in a conventional object representation is, simply, insufficient for the reliable recovery of the corresponding class representation. In ETS, such an inductive recovery is anticipated to be more reliable, first, because the history of an object’s formation is more explicitly present in its representation, and second, objects in the same class must have very similar formative histories.

STUDENTS ARE ENCOURAGED TO ATTEND
