



Seminar Series 2008—2009

**FACULTY OF
COMPUTER
SCIENCE**

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3:00pm

Information
Technology
Center
Room—C-317

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On the Design of E-health Systems: Diagnostic Class of Patients as the Central Organizing Concept

By

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Following up on Weichang Du's talk, I propose a high-level organization for E-health systems in which the diagnostic class of patients is the basic organizing concept. Here, I am using the ubiquitous term 'class' in a new, more precise, sense, as it emerges within the recently developed representational formalism, evolving transformations system (ETS): it is a set of 'objects' with a common generative/formative history. This view of the class could not have emerged within the conventional formalisms, simply because current mathematical formalisms cannot support it. At the same time, this view allows much more reliable organization of information systems around the class concept.

ETS was conceived as the first class-oriented representational formalism. So far, all efforts exerted by the pattern recognition and machine learning communities to deal with classification have been confined to conventional representational formalisms, which I contend are fundamentally inadequate for the task. This 'loyalty' to the existing formalisms, while quite understandable, is regrettable, since it appears to stand in the way of future developments.

I will introduce ETS as well as an accompanying radically different view of 'data', inspired by the 'biological' view of objects as evolving processes. The key feature of the ETS structural object representation is its temporal nature. This, richer, representation clarifies why within the conventional formalisms the information present in object representation is simply insufficient for a reliable recovery of the corresponding class representation, and hence no theoretical developments within such formalisms, including new algorithms, could change this basic fact.

STUDENTS ARE ENCOURAGED TO ATTEND