



KITCHENER-WATERLOO SECTION

**IEEE Section, Signal Processing and CIS Chapter
Electrical and Computer Engineering Department
University of Waterloo**

The Pattern Analysis and Machine Intelligence Group (PAMI) Seminar

What is the pixel?

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Date: Tues Dec 5. 2006

Time: 3:00PM,

Location: EIT 3141, University of Waterloo

Abstract: We present a data structure in which image is specified by its support, its quantities that are linked to the support and allowable generic operations. The algebraic structures of the support are defined using algebraic concepts such as chain and boundary. The quantities are organized in several layers and may be a scalar, vector, tensor or any other type. They are specified by the cochain. The generic operation corresponds to the coboundary operator. The image model has several advantages: it allows the derivation of efficient algorithms that operate in any dimension and the unification of mathematics and physics to solve classical problems in image processing and computer vision. It can be used for binary images as well as for several image acquisition systems. To show that this model is effective the problem of linear isotropic diffusion is tackled.

Dr. Djemel Ziou received the B.Eng. degree in computer engineering from the University de Annaba, Algeria, and the Ph.D. degree in computer science from the Institut National Polytechnique de Lorraine, Lorraine, France. Presently, he is Full Professor with the Department of Computer Science at the University of Sherbrooke, QC, Canada. His research interests include image processing, information retrieval, computer vision, and pattern recognition. Dr. Ziou heads the laboratory MOIVRE and the consortium CoRIMedia, which he founded. Dr. Ziou is a holder of NSERC/Bell Canada Chair in personal imaging.

****ALL ARE WELCOME****