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ronald r coifman* (coifman@math.yale.edu), Dept of Mathematics, Yale University, 10 Hillhouse ave, New Haven, CT 06520, and **gavish matan**. *Harmonic Analysis and Geometries of Digital Data Bases* . Ronald Coifman , Matan Gavish Yale University.

Given a matrix (of Data) we describe methodologies to build two multiscale (inference) Geometries/Harmonic Analysis one on the rows , the other on the columns . The geometries are designed to simplify the representation of the data base . We will provide a number of examples including; matrices of operators , psychological questionnaires, vector valued images, scientific articles, etc. In all these cases tensor Haar orthogonal bases play a crucial role in organizing the data base viewed as a function of two variables (row, column) in the case of potential operators we relate to Calderon Zygmund decompositions , while for other data this is a "data agnostic analytic learning tool" (Received September 21, 2009)