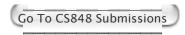# CS848 Paper Submission Site

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Paper # 20 (Download paper of type application/pdf, 397156 bytes)	
Title:	Wavelet-Based Histograms for Selectivity Estimation
Abstract:	

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Attribute	Value
Are you finished with this review?	Finalize, I am done editing
Provide a short summary of the paper	This paper presents a method of calculating a histogram and selectivities using wavelet functions. The authors begin with an introduction of notation to be used and a brief overview of related work in creating histograms. The authors next begin a description of their method. The method begins by creating the combined distribution from raw data or random samples. The wavelet coefficients are calculated next and the m most significant coefficients are stored. The authors present a method to reduce the number of coefficients stored. This ensures that no more space than is needed to accurately represent the frequencies within a certain error threshold is used. The authors next present a discussion of online reconstruction of the histogram data. This can be completed relatively quickly (i.e. O(N) time) and used to accurately calculate selectivities. A discussion of representing the histrogram as a smooth piecewise curve is also presented and can also be accomplished in sub-linear time. The authors next discuss extending their model to multidimensional histograms. A brief introduction to previous approaches is given. The model is extended by computing the multidimensional wavelets and compressing them as in the single dimension case. The paper concludes with some performance analysis information and brief summary remarks.
What is the strength of the paper? (1-3 sentences)	This paper presents a method of constructing histograms that provides lower error than traditional techniques.
What is the weakness of the paper? (1-3 sentences)	Poor explanation of the method of multidimensional histogram wavelets is given. Some performance data is missing. Many parts of the paper are difficult to follow as they are presented in a highly technical manner.
Your qualifications to review this paper	I know the material, but am not an expert

Writing Quality	Average
Relevance to query processing?	The paper is relevant to query processing
Experimental Methodology	**Good**
Novelty of paper	This is a new contribution to an established area
Overall paper merit	**The paper is a novel or new contribution with average/weak methodology, or an incremental contribution that has good methodology. Someone in the area should read it**
In your opinion, will this paper be important over time?	Good
Provide additional detailed comments to the author	You have presented a new way of calculating histograms that appears to be novel and model the actual distribution with relatively low error. However, I have several issues with your presentation: -What makes a coefficient "significant" is not defined in section 3. Please elabourate. -Very little introduction to the problem and your solution is given except in the abstract. More of an introduction would have been appreciated. -You do not provide a very comprehensive overview of the method used to calculate multidimensional histograms. More time should have been spent discussing this task. -Missing is a discussion of the overhead your method imposes on queries, as well as some discussion of the actual time required to compute the wavelets. This would have been very useful. -Your paper, while presenting a novel concept, is written at a level that is very difficult to understand. The amount of math in your paper that is not well explained makes it difficult to grasp the concepts. More care should have been taken to present your material to users with varying backgrounds. Overall, you have a fantastic concept. I believe that you need to fix the above issues with your presentation before publishing your work.
Additional comments to PC (not seen by author)	**I believe that the concept presented is novel, but I believe there are too many deficiencies (see above) with this paper to warrant publishing it at this time.**

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