Call for Papers for a
Special Section of *IEEE Transactions on Pattern Analysis and Machine Intelligence* on
**Shape Analysis and Its Applications in Image Understanding**

For a variety of reasons, including the possibility of characterizing objects according to their shapes and the relative invariance of shape to imaging conditions, the use of shape analysis in image understanding is fast gaining prominence. Recent years have seen a proliferation of ideas and methods for modeling shapes and for applying these models to image understanding. In particular, studies of shape spaces, driven by tools from functional analysis, differential geometry and statistics, have risen remarkably. This special section of *IEEE Transactions on Pattern Analysis and Machine Intelligence* (*TPAMI*) will be dedicated to the state of the art in shape analysis with applications to image analysis and pattern recognition. The notion of shape has a broad usage in the community; here it is being treated as a geometric property invariant to certain shape-preserving transformations, typically rigid motions, scales, and reparameterizations. We invite papers that will review existing methods in shape analysis, propose new ideas and applications, and/or exhaustively compare different approaches for studying shapes. Papers must demonstrate the applicability of the proposed methods to the areas described in the scope of the journal.

The topics of interest include but are not restricted to:
1. Novel representations of shapes, the resulting shape spaces and Riemannian metrics on these spaces.
2. Statistical modeling of shape variability and model-based inference in non-Euclidean shape spaces.
3. Modeling dynamics of shapes with applications to video-based pattern analysis.
4. Application of the above tools to problems involving clustering, indexing, classification, recognition, and retrieval.
5. Modeling the relationships between shapes and functionalities, e.g., in biomedicine and biochemistry.

Prospective authors should follow the guidelines of the *IEEE TPAMI* for submitting manuscripts online. Additionally, a one-page summary describing the original contribution, clearly indicating the relevant shape analysis issues addressed in the manuscript, should accompany each manuscript. As per *TPAMI* guidelines, only regular-sized papers will be considered. The deadline for submission is 17 October 2008 and the special issue is tentatively scheduled for publication in December 2009.

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