

# Two Papers on Triangulated Surface Modeling

by:

**Carlos A. Felgueiras**

Divisão de Processamento de Imagens (DPI)  
Instituto Nacional de Pesquisas Espaciais (INPE)  
São José dos Campos, São Paulo, Brazil

and

**Michael F. Goodchild**

University of California, Santa Barbara

NCGIA Technical Report 95-2

Paper #1:

## **A Comparison of Three TIN Surface Modeling Methods and Associated Algorithms**

**Abstract:** This paper describes the implementation of three methods for fitting surfaces: linear, quintic and stochastic. It uses qualitative (visual) and quantitative (statistical) criteria to compare the three approaches. The digital terrain model is based on a triangular irregular network (TIN) structure and the comparison is performed using a mathematically defined function and real data obtained from a raster digital elevation model (DEM) from a United States Geological Survey (USGS) elevation file.

Paper #2:

## **An Incremental Constrained Delaunay Triangulation**

**Abstract:** This work addresses the problem of constructing Triangular Irregular Networks (TIN) models from irregularly distributed samples with constrained lines. The implementation of an incremental constrained Delaunay triangulation is described and compared qualitatively with the unconstrained Delaunay triangulation.