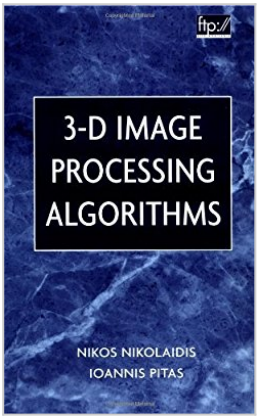

3-D Image Processing Algorithms

By N. Nikolaidis, Ioannis Pitas

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Thorough, up-to-date, comprehensive coverage of 3-D image processing This authoritative guide presents and explains numerous 3-D image processing, analysis, and visualization techniques, including volume filtering, interpolation, 3-D discrete Fourier transform, evaluation of topological and geometrical features, region segmentation and edge detection, skeletonization and registration, and visualization. Necessary theoretical background is provided for each topic, along with a number of algorithms, selected on the basis of their acceptance by the scientific community.

The presentation of each technique includes a commented implementation, either in C code or in C-like pseudocode. Though presented in an almost ready-to-run form, the C code is simplified to expose the structure of the processing algorithms, rather than their programming details. This combination of theoretical treatment and C code implementation allows readers to gain a thorough insight into these techniques.

Important features of 3-D Image Processing Algorithms include:
* A demo version of EIKONA 3D image processing software
* Lab exercises based on EIKONA 3D
* Accompanying transparencies summarizing the most important topics.

The material can be downloaded from an ftp site

Based on the authors' long experience in research and teaching of 2-D/3-D image processing, 3-D Image Processing Algorithms is an indispensable resource for electrical, computer, and biomedical engineers, as well as computer graphics professionals and programmers.

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Editorial Review

Review
"Explains numerous 3-D image processing, analysis, and visualization techniques, such as volume filtering, skeletonization and registration, and visualization." (SciTech Book News Vol. 25, No. 2 June 2001)

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