

**Gargantini, I.; Atkinson, H. H.**

**Linear quadtrees: A blocking technique for contour filling.** (English) Zbl 0537.68095  
[Pattern Recognition 17, 285-293 \(1984\)](#).

Summary: Given a linear quadtree forming a region's contour, an algorithm is presented to determine all the pixels 4-connected to the border's elements. The procedure, based on a connectivity technique, associates a two-valued state ("blocked" or "unblocked") with each node and fills increasingly larger quadrants with black nodes whose state is known to be unblocked. Advantages of the proposed procedure over existing ones are: (i) multiply connected regions can be reconstructed; (ii) the border can be given as a set of either 4- or 8-connected pixels.

**MSC:**

**68T10** Pattern recognition, speech recognition

Cited in **2** Documents

**Keywords:**

[contour filling](#); [binary images](#); [connectivity filling](#); [pixel-based algorithms](#); [graphics](#); [linear quadtree](#)

**Full Text:** [DOI](#)

**References:**

- [1] Gargantini, J., An effective way to represent quadtrees, *Commun. ass. comput. Mach.*, 25, 905-910, (1982) · [Zbl 0504.68057](#)
- [2] Gargantini, I.; Tabakman, Z., Linear quad- and octtrees: their use in generating simple algorithms for image processing, (), 123-127
- [3] Gargantini, I., Detection of connectivity for regions represented by linear quadtrees, *Comp. math. applic.*, 8, 319-327, (1981) · [Zbl 0487.68060](#)
- [4] Gargantini, I., Linear oct-trees for fast processing of three-dimensional objects, *Comput. graphics image process*, 20, 365-374, (1982)
- [5] Gargantini, I., Translation, rotation and superposition of linear quadtrees, *Int. J. man. Mach. stud.*, 18, 253-263, (1983) · [Zbl 0507.68059](#)
- [6] Tabakman, Z., A software package for linear quadtrees, ()
- [7] Brassel, K.E.; Fegeas, R., An algorithm for shading of regions in vector display graphics, (), 126-133
- [8] Lieberman, M.L., How to color in a coloring book, (), 111-116
- [9] Newman, W.M.; Sproull, R.F., *Principle of interactive graphics*, (1979), McGraw-Hill New York
- [10] Pavlidis, T., *Algorithms for graphics and image processing*, (1982), Computer Science Press Rockill, MD · [Zbl 0482.68087](#)
- [11] Pavlidis, T., Filling algorithms for raster graphics, *Comput. graphics image process*, 10, 126-141, (1979)
- [12] Samet, H., Region representation: quadtree from boundary codes, *Commun. ass. comput. Mach.*, 23, 163-170, (1980) · [Zbl 0429.68074](#)
- [13] Shani, U., Filling regions in binary raster images—a graph theoretical approach, (), 321-327
- [14] Smith, A.R., Tint fill, (), 276-283
- [15] Pavlidis, T., Contour filling in raster graphics, *Ass. comput. Mach. comput. graphics*, 15, 29-36, (1981)
- [16] Gargantini, I.; Tabakman, Z., Separation of connected components using linear quad- and oct-trees, (), 257-267 · [Zbl 0542.68073](#)
- [17] Rosenfeld, A., Connectivity in digital pictures, *J. ass. comput. Mach.*, 17, 146-160, (1970) · [Zbl 0208.19806](#)

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