



WATERMARKING POLYGONAL LINES USING AN OPTIMAL DETECTOR ON THE FOURIER DESCRIPTORS DOMAIN (TueAmPO1)



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✳ **Abstract :** Polygonal lines are key graphical primitives in vector graphics. In addition, polygonal lines can be used to define the boundary of Video Objects. The ability to apply a digital watermark to such an entity would extend the benefits of copyright protection to a wide range of data, such as Geo–graphical Information Systems (GIS) or MPEG–4 video. This paper builds on and extends the contour watermarking algorithm proposed in [1]. Contour watermarking is achieved by modifying the Fourier Descriptors magnitude. Watermarks generated by this technique can be successfully detected even after rotation, translation, scaling or reflection of the host polygonal line. The detection of such watermarks had been previously carried out through a correlator detector. In this paper, the statistics of the Fourier Descriptors are considered, and their analysis is exploited to devise an optimal detector, designed according to the Bayesian decision theory.