An Adaptation of SE Min-Cut for Hyperspectral Image Segmentation

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Abstract

1 Introduction

2 Algorithm

Estrada et al. (2004) have defined an affinity measure $a_{i,j}$ between all points $\vec{x}_i$ and $\vec{x}_j$ where $||\vec{x}_i - \vec{x}_j||_1 = 1$ such that

$$a_{i,j} = e^{\frac{-(I'(\vec{x}_i)-I'(\vec{x}_j))^2}{2\sigma^2}}, \tag{1}$$

where $I' : \mathbb{R}^1 \mapsto \mathbb{R}^1$ is the scalar intensity and σ is a constant which normalizes variation between pixels. As an extension to a spectral domain, we have accomodated for a dimension of size k which corresponds to the number of bands in the image, with

$$a_{i,j} = e^{\frac{-||I'(\vec{x}_i)-I'(\vec{x}_j)||_2^2}{2\sigma^2}}, \tag{2}$$

where $I' : \mathbb{R}^1 \mapsto \mathbb{R}^1$ and $||\cdot||_2$ denotes the Euclidean norm.

3 Application

4 Conclusion

References

Estrada, F. J., Jepson, A. D., and Chennubhotla, C. (2004). Spectral embedding and min cut for image segmentation. In *BMVC*, pages 1–10.