

# A visual method for generating the separating isosurface of two classes of objects in two-dimensional space using Marching Squares

Shawn Halayka\*

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## Abstract

With regard to the separating isosurface of two classes of objects in two-dimensional space, the transition from nonlinear to linear is documented.

## 1 Introduction

Iron out the wrinkles by downsizing. Can also convolve the images, like blurring, which can be used to melt away higher-frequency detail.

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\*Independent – sjhalayka@gmail.com

## References

- [1] James, et al. An Introduction to Statistical Learning with Applications in R. ISBN: 978-1-0716-1417-4

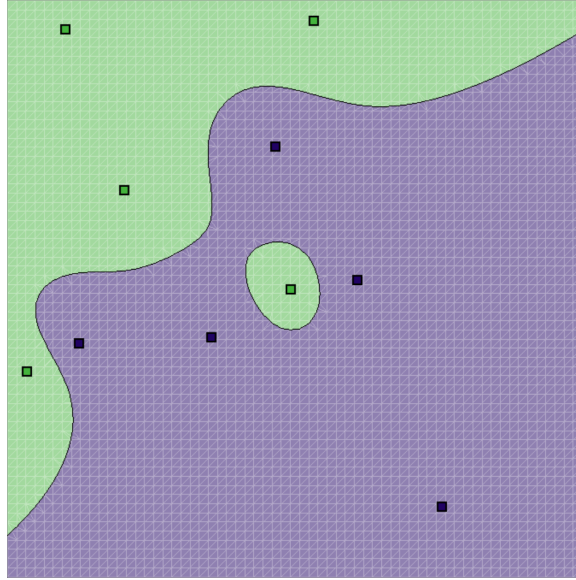


Figure 1: Nonlinear, radial, separation. Grid resolution is 64.

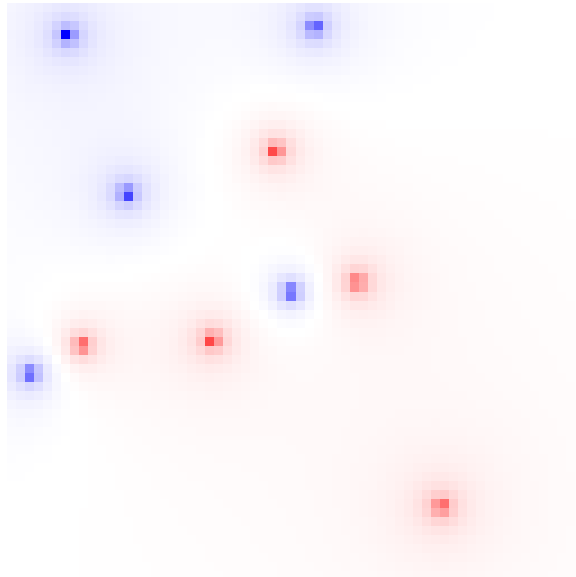


Figure 2: Bitmap image used as input to the Marching Squares algorithm. Image size is 64x64.

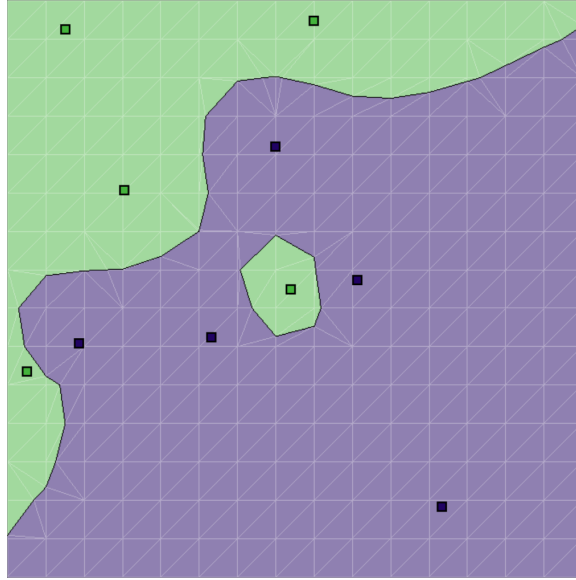


Figure 3: Nonlinear, radial, separation. Grid resolution is 16.

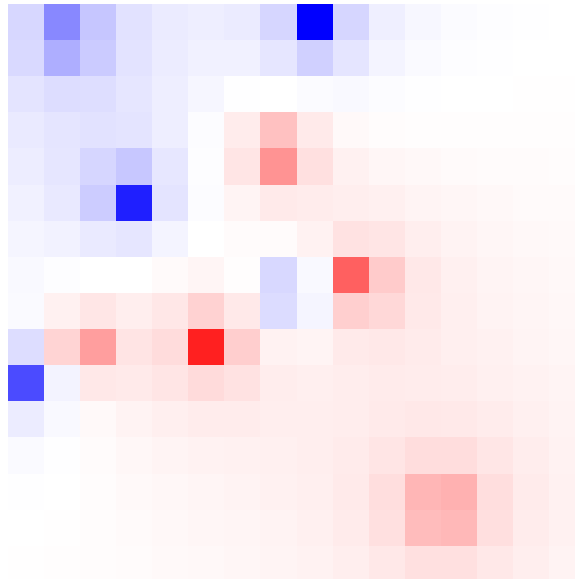


Figure 4: Bitmap image used as input to the Marching Squares algorithm. Image size is 16x16.

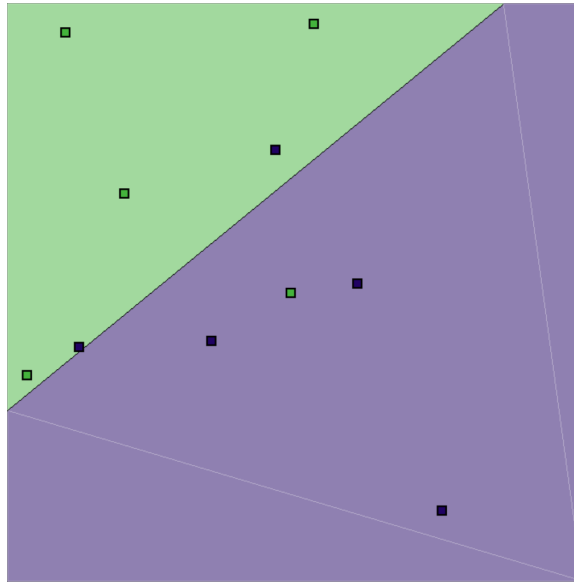


Figure 5: Linear separation. Grid resolution is 2.

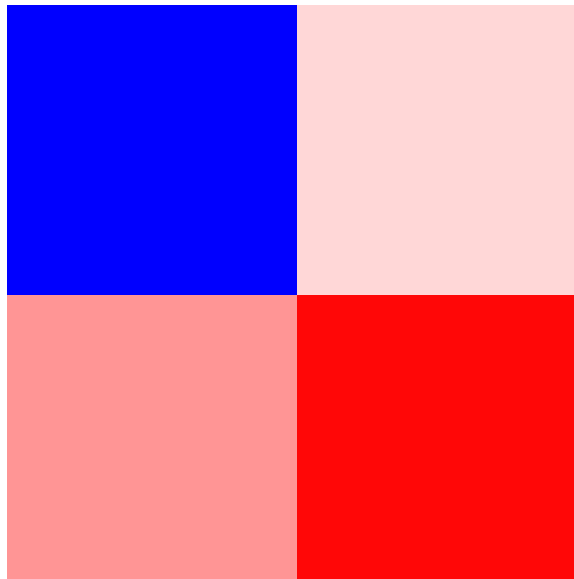


Figure 6: Bitmap image used as input to the Marching Squares algorithm. Image size is 2x2.



Figure 7: Bitmap image used as input to the Marching Squares algorithm.



Figure 8: Nonlinear, radial, separation.



Figure 9: Blurred bitmap image used as input to the Marching Squares algorithm.



Figure 10: Nonlinear, radial, separation. Note that the blurring of the bitmap image melts away the higher-resolution detail.