

# Measuring the visual salience of alignments by their non-accidentalness

S. Blusseau<sup>a,c</sup>, A. Carboni<sup>b</sup>, A. Maiche<sup>b</sup>, J.M. Morel<sup>a</sup>, R. Grompone von Gioi<sup>a</sup>

<sup>a</sup> CMLA, ENS Cachan, France

<sup>b</sup> CIBPsi, Facultad de Psicología, Universidad de la República, Uruguay

## Abstract

Quantitative approaches are part of the understanding of contour integration and the Gestalt law of good continuation. The present study introduces a new quantitative approach based on the *a contrario* theory, which formalizes the non-accidentalness principle for good continuation. This model yields an ideal observer algorithm, able to detect non-accidental alignments in Gabor patterns. More precisely, this *parameterless* algorithm associates with each candidate percept a measure, the Number of False Alarms (NFA), quantifying its degree of masking. To evaluate the approach, we compared this ideal observer with the human attentive performance on three experiments of straight contours detection in arrays of Gabor patches. The experiments showed a strong correlation between the detectability of the target stimuli and their degree of non-accidentalness, as measured by our model. What is more, the algorithm's detection curves were very similar to the ones of human subjects. This fact seems to validate our proposed measurement method as a convenient way to predict the visibility of alignments. This framework could be generalized to other Gestalts.