

A Biologically Inspired Model of Chromatic Assimilation & Contrast in the Primary Visual Cortex

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Abstract

Short work summary (around 100 words).

Index Terms

Primary Visual Cortex, V1, Receptive Field, Color Assimilation, Color Induction

I. INTRODUCTION

COLOR induction and contrast are two related, opposing, perceptual phenomena. The former is a change in color perceived "toward" a nearby color, while the latter is a change of one color "away" from the nearby color. Neurophysiological research suggests that these phenomena may arise as early in primate vision processing as the primary visual cortex (V1). It is proposed that the boundaries between two colored regions drive these effects. Specifically, research in the field describes neurons which fire selectively to boundaries between specific colors, so called double opponent cells, and identifies them as being critically related to the color perceived.

Within, we propose a computational model inspired by the current understanding of this biology. We present two implementations, one more biologically accurate, and another more computationally elegant. We explore the behaviour of these models with respect to what they can teach about the biological theories, as well as their application to the field of computer vision.

II. STATE OF THE ART

You should copy and paste the state of the art submitted to the M8: Research and Technology Transfer Management.

III. METHOD

Computational approach used to solve the problem

IV. EXPERIMENTS

All the details about the experiments design and process

V. RESULTS

Explanation about the performance evaluation procedure and results analysis.

VI. CONCLUSIONS

Summary about the degree of achievement according to the given problem and the adopted hypothesis; and outline about open research lines...

APPENDIX A APPENDIX TITLE

Appendix one text goes here.

ACKNOWLEDGMENT

The authors would like to thank...

REFERENCES

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