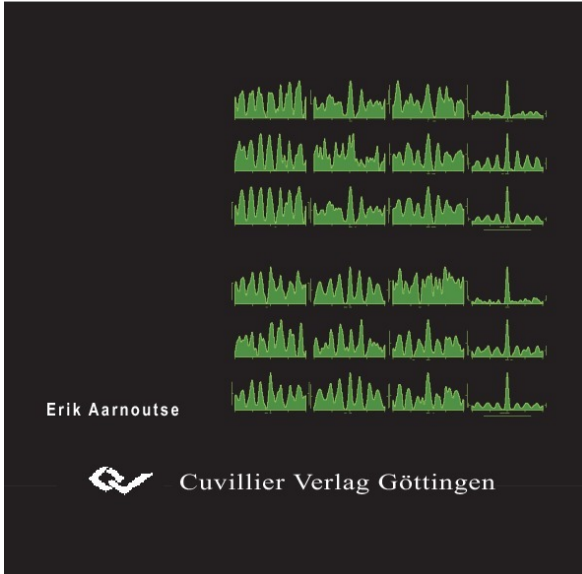




Erik Jan Aarnoutse (Autor)

Correlated firing of neurons in the cat primary visual cortex

CORRELATED FIRING OF
NEURONS IN THE CAT
PRIMARY VISUAL CORTEX



<https://cuvillier.de/de/shop/publications/3268>

Copyright:

Cuvillier Verlag, Inhaberin Annette Jentsch-Cuvillier, Nonnenstieg 8, 37075 Göttingen,
Germany

Telefon: +49 (0)551 54724-0, E-Mail: info@cuvillier.de, Website: <https://cuvillier.de>

Contents

Chapter 1 General introduction	1
1.1 Organization of the visual system	1
1.2 Visual perception: localists and connectionists	3
1.3 The Binding Problem	5
1.4 The temporal binding hypothesis	7
1.5 Temporal binding: critique	12
1.6 Objectives of the thesis	16
Chapter 2 Methodology	17
2.1 Spike sorting	17
2.2 Cross-correlation analysis	19
2.3 Comparison with multi neuron recording	25
Chapter 3 State dependency of stimulus induced changes in correlated firing of single neurons in the cat visual cortex	27
3.1 Summary	27
3.2 Introduction	28
3.3 Methods	29
3.4 Results	36
3.5 Discussion	60
3.6 Concluding remarks	66
Chapter 4 Fast synchronous oscillations in the cat visual cortex and their relationship with cortical excitability, activity state and functional specificity of neuron populations	67
4.1 Summary	67
4.2 Introduction	68
4.3 Methods	69
4.4 Results	73
4.5 Discussion	91
4.6 Conclusions	95

Chapter 5 Covariance and neural synchrony in cat primary visual cortex: anatomy, orientation and time scales	97
4.1 Summary	97
4.2 Introduction	98
4.3 Methods	99
4.4 Results	100
4.5 Discussion	104
Chapter 6 General discussion	105
6.1 Predictions tested	105
6.2 Correlations on two time scales	107
6.3 Where do we go from here?	108
6.4 Concluding remarks	109
References	111
Acknowledgments	130
Curriculum Vitae	131