

# VU Research Portal

## **Influence of Attention on Perception, Learning, Memory and Awareness**

Vartak, D.D.

2018

### **document version**

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

### **citation for published version (APA)**

Vartak, D. D. (2018). *Influence of Attention on Perception, Learning, Memory and Awareness*.

### **General rights**

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal ?

### **Take down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

### **E-mail address:**

[vuresearchportal.ub@vu.nl](mailto:vuresearchportal.ub@vu.nl)

# Index

Name [page no.]

## Chapter I

Introduction [1]

- 1.1a Perception & Gestalt Psychology [3]
- 1.1b Neuronal response & Receptive fields [7]
- 1.1c Flow of information in the visual system [12]
- 1.1d Topographic organization of the cortex [16]
- 1.1e Attention & Feedback processing [18]

1.2 Research Question [24]

### Chapter Introductions

1.3 Measuring attention's molecular foundation [25]

1.4 Attention and learning [26]

1.5 Spread of attention [27]

1.6 Working memory processing [29]

1.7 Recurrent processing in conscious awareness [30]

1.8 References [32]

## Chapter II

Abstract [44]

Introduction [45]

Methods [50]

- Curve tracing task [50]
- Monkeys and surgeries [51]
- Maintenance of the recording chamber [51]
- Preparation of the electrode and solutions [52]
- Electrode design [53]
- Recording setup [53]
- Calibration [54]

**Results [57]**

**Discussion [59]**

**References [63]**

## **Chapter III**

**Abstract [68]**

**Introduction [69]**

**Results [71]**

- **Icon learning task [72]**
- **Probe task [75]**
- **Visual search task [77]**

**Discussion [81]**

**Methods [87]**

- **Participants [87]**
- **Stimuli and Apparatus [88]**
- **Tasks [88]**

**References [93]**

## **Chapter IV**

**Abstract [98]**

**Introduction [99]**

**Experiment 1 [106]**

- **2.1 Methods [107]**
- **2.1.1 Participants [107]**
- **2.1.2 Stimuli and apparatus [107]**
- **2.1.3 Procedure [109]**
- **2.1.4 Analysis [110]**
- **2.2 Results [110]**
- **2.3 Discussion [112]**

**Experiments 2 [114]**

- **3.1 Methods [114]**
- **3.1.1 Participants [114]**
- **3.1.2 Stimuli and apparatus [115]**
- **3.1.3 Procedure [115]**
- **3.1.4 Analysis [115]**
- **3.2 Results [116]**
- **3.3 Discussion [119]**

#### **Experiment 3 [120]**

- **4.1 Methods [121]**
- **4.1.1 Participants [121]**
- **4.1.2 Stimuli, apparatus and procedure [121]**
- **4.2 Results [121]**
- **4.3 Discussion [122]**

#### **General Discussion [124]**

#### **References [133]**

## **Chapter V**

#### **Abstract [140]**

#### **Introduction [141]**

#### **Methods [143]**

- **Surgical procedures [143]**
- **Behavioral Task [145]**
- **Electrophysiology and iontophoresis [145]**
- **Data acquisition [147]**
- **Data analyses [148]**
- **Statistical analyses [148]**

#### **Results [149]**

- **NMDA [149]**
- **AMPA [154]**

#### **Discussion [157]**

**References [161]**

**Supplementary figures [165]**

## **Chapter VI**

**Abstract [168]**

**Introduction [169]**

**Results [171]**

- **Contrast detection task [171]**
- **Phosphene detection task [177]**

**Discussion [180]**

**Methods [182]**

- **Surgeries and RF mapping [182]**
- **Behavioral setup [184]**
- **Contrast detection task [184]**
- **Phosphene detection task [185]**
- **Data acquisition and artifact removal [186]**
- **Data analyses [187]**
- **Statistical tests [188]**

**References [189]**

**Supplementary figures [192]**

**Summary [201]**

**Samenvatting [206]**

**Discussion [212]**

**Conclusion [218]**

**References[219]**

**Thank You [223]**

**Journal Publications[225]**

**Notes[226]**