

# [Working of natural brain biology essay](https://assignbuster.com/working-of-natural-brain-biology-essay-essay-samples/)

[Science](https://assignbuster.com/essay-subjects/science/), [Biology](https://assignbuster.com/essay-subjects/science/biology/)

## Abstract

## List of Figures

## INTRODUCTION

INTRODUCTIO1. 1Blue Brain . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 1. 2What is Virtual Brain? . . . . . . . . . . . . . . . . . . . . . . . . . . 1. 3Why we need Virtual Brain? . . . . . . . . . . . . . . . . . . . . . . . 1. 4How it is possible? . . . . . . . . . . . . . . . . . . . . . . . . . . . .

## 2. WORKING OF NATURAL BRAIN

2. 1Getting to know more about Human Brain . . . . . . . . . . . . . . . 2. 1. 1 Sensory Input . . . . . . . . . . . . . . . . . . . . . . . . . . . 2. 1. 2 Integration

## . . . . . . . . . . . . . . . . . . . . . . . . . . . .

2. 1. 3 Motor Output . . . . . . . . . . . . . . . . . . . . . . . . . . . 2. 2How we see, hear, feel, & smell? . . . . . . . . . . . . . . . . . . . . 2. 2. 1Nose . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2. 2. 2Eye . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2. 2. 3Tongue . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 2. 2. 4Ear . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

## 3. BRAIN SIMULATION

## 4. HOW THE BLUE BRAIN PROJECT WILL WORK?

4. 1Goals & Objectives . . . . . . . . . . . . . . . . . . . . . . . . . . . 4. 2Architecture of Blue Gene . . . . . . . . . . . . . . . . . . . . . . . . 4. 3Modeling the Microcircuit . . . . . . . . . . . . . . . . . . . . . . . 4. 4Simulating the Microcircuit . . . . . . . . . . . . . . . . . . . . . . . 4. 5Interpreting the Results . . . . . . . . . . . . . . . . . . . . . . . . . 4. 6Data Manipulation Cascade . . . . . . . . . . . . . . . . . . . . . . . 4. 7Whole Brain Simulations . . . . . . . . . . . . . . . . . . . . . . . .

## 5. APPLICATIONS OF BLUE BRAIN PROJECT

5. 1What can we learn from Blue Brain? . . . . . . . . . . . . . . . . . . 5. 1. 1Defining functions of the basic elements . . . . . . . . . . . . 5. 1. 2 Understanding complexity . . . . . . . . . . . . . . . . . . . . 5. 1. 3Exploring the role of dendrites. . . . . . . . . . . . . . . . . . 5. 1. 4Revealing functional diversity . . . . . . . . . . . . . . . . . . 5. 1. 5Tracking the emergence of intelligence . . . . . . . . . . . . . 5. 1. 6Identifying points of vulnerability . . . . . . . . . . . . . . . . 5. 1. 7Simulating disease and developing treatments . . . . . . . . . . 5. 1. 8Providing a circuit design platform . . . . . . . . . . . . . . . 5. 2Applications of Blue Brain . . . . . . . . . . . . . . . . . . . . . . . 5. 2. 1Gathering and Testing 100 Years of Data . . . . . . . . . . . . 5. 2. 2Cracking the Neural Code . . . . . . . . . . . . . . . . . . . . 5. 2. 3Understanding Neocortical Information Processing . . . . . . . 5. 2. 4A Novel Tool for Drug Discovery for Brain Disorders . . . . . 5. 2. 5A Global Facility . . . . . . . . . . . . . . . . . . . . . . . . . 5. 2. 6 A Foundation for Whole Brain Simulations . . . . . . . . . . . . . 5. 2. 7 A Foundation for Molecular Modeling of Brain Function . . . .

## 6. ADVANTAGES AND LIMITATIONS

6. 1Advantages . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . 6. 2Limitations . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

## 7.

## FUTURE PERSPECTIVE

## 8.

## CONCLUSION