

# The Upgrade

Theo Portlock

June 6, 2020

---

# Abstract

In our lives, we try to make decisions that increase the possibility of a moral outcome. We judge others by their morality and their adherence to it. The aim of The Upgrade is to create a tool that will make more moral choices than a human. The possibility of succeeding in this creation is low but increases with effort, time, expertise, and help. The possibility of this project achieving that aim is incalculable. However, if it does, the consequences will pave the way for the future of a more moral society.

---

# Contents

<b>Abstract</b>	<b>iii</b>
<b>Table of Contents</b>	<b>v</b>
<b>Abbreviations</b>	<b>vii</b>
<b>List of Figures</b>	<b>vii</b>
<b>List of Tables</b>	<b>ix</b>
<b>1 Introduction</b>	<b>1</b>
1.1 Moral systems . . . . .	1
1.1.1 Majority moral opinion . . . . .	1
1.1.2 How morality changes over time . . . . .	1
1.2 The aims of the upgrade . . . . .	2
1.2.1 Core principles . . . . .	2
1.2.2 How the upgrade aligns with current moral beliefs . . . . .	2
1.2.3 Previous attempts to achieve these ends . . . . .	2
1.3 AI safety and responsibility . . . . .	2
1.4 Probability of The Upgrade to succeed . . . . .	2
1.5 Chapter abstracts . . . . .	2
<b>2 Bitarray datastreams</b>	<b>5</b>
2.1 Chapter introduction . . . . .	5
2.2 Sources of data . . . . .	5
2.3 Binary conversion . . . . .	5
2.4 Tandem data input . . . . .	5
2.5 Time resolution . . . . .	5
<b>3 Combinations</b>	<b>7</b>
3.1 Chapter introduction . . . . .	7
3.1.1 Classical combinatorics . . . . .	7
3.1.2 The problem of scale . . . . .	7
3.2 The combinations array . . . . .	7
3.3 Slicing the combinations array . . . . .	7
3.3.1 Combinations of combinations . . . . .	7

---

3.4	Chapter summary . . . . .	7
<b>4</b>	<b>Memory</b>	<b>9</b>
4.1	Chapter introduction . . . . .	9
4.2	Persistence of activation . . . . .	9
4.3	Delay function . . . . .	9
4.4	Transfer and Storage . . . . .	9
4.5	Summary . . . . .	9
<b>5</b>	<b>Action</b>	<b>11</b>
5.1	Chapter introduction . . . . .	11
5.2	The random-pianist method . . . . .	11
5.3	Summary . . . . .	11
<b>6</b>	<b>Conclusion</b>	<b>13</b>
6.1	Chapter introduction . . . . .	13
	<b>References</b>	<b>15</b>
	<b>Acknowledgements</b>	<b>17</b>
	<b>Appendix</b>	<b>19</b>
6.2	Chapter introduction . . . . .	19

# List of Figures

---



# List of Tables

---

# Chapter 1

## Introduction

### 1.1 Moral systems

#### 1.1.1 Majority moral opinion

Morality is the set of principles that distinguish between right and wrong actions. An action is considered morally virtuous (good) if its consequences increase the probability of achieving a desired end. These ends vary between individuals. As it is with the legal system, an estimation of common "good" is essential for the arbitration of an action. Having a consensus of shared values permits also the use of the golden rule; the principle of treating others as you want to be treated, the basis of which forms the idea of justice. The search for this consensus is done at a personal scale during adolescence, or at a collective scale when we vote, complete polls, or protest. LEARN MORE ABOUT DETERMINISM/FREE WILL AND PUT HERE TOO

#### 1.1.2 How morality changes over time

TIME DEPENDANT MORAL GRAPHS AXIOM PCA PLOT

---

## **1.2 The aims of the upgrade**

### **1.2.1 Core principles**

### **1.2.2 How the upgrade aligns with current moral beliefs**

### **1.2.3 Previous attempts to achieve these ends**

NUMENTA (Numenta, n.d.), ALPHA GO, ETC

## **1.3 AI safety and responsibility**

THE ASSURANCE OF ALIGNMENT OF THE UPGRADE WITH CONSENSUS CORE MORAL BELIEFS. AN APPEAL TO THE UPGRADE FOR ALIGNING WITH THE PREFERENCES OF PEOPLES MORAL SYSTEMS

## **1.4 Probability of The Upgrade to succeed**

FACTORS THAT AFFECT THIS PROBABILITY TO SUCCEED PASSION TIME EXPERTISE MANPOWER JUSTIFY THE WRITING OF THIS MANUAL

## **1.5 Chapter abstracts**

### **Running The Upgrade**

In this chapter, an explanation and justification of software for The Upgrade is given

---

## **Bitarray datastreams**

In this chapter, the conversion of external data to a stream of binary data is discussed.

## **Combinations**

In this chapter, implementation and benefits of conversion of the bitarray datastream into a combinatoric matrix are discussed.

## **Memory**

In this chapter, a method to persist the activation of elements of the combinatoric matrix is proposed.

## **Action**

In this chapter, the random-pianist method of bitarray datastream output is described.



# Chapter 2

## Bitarray datastreams

### 2.1 Chapter introduction

### 2.2 Sources of data

### 2.3 Binary conversion

### 2.4 Tandem data input

### 2.5 Time resolution

---



# Chapter 3

## Combinations

### 3.1 Chapter introduction

#### 3.1.1 Classical combinatorics

#### 3.1.2 The problem of scale

### 3.2 The combinations array

### 3.3 Slicing the combinations array

SCALE ADJUSTMENT TIME ADJUSTMENT SKEW ADJUSTMENT

#### 3.3.1 Combinations of combinations

PAIR FINDING SET THEORY PROBABILITIES OF PROBABILITIES

### 3.4 Chapter summary

---

# Chapter 4

## Memory

4.1 Chapter introduction

4.2 Persistence of activation

4.3 Delay function

4.4 Transfer and Storage

4.5 Summary

---

# Chapter 5

## Action

### 5.1 Chapter introduction

### 5.2 The random-pianist method

### 5.3 Summary

---

## Chapter 6

## Conclusion

### 6.1 Chapter introduction

---



# References

Numenta, N. H. (n.d.). *Home page, numenta inc, 2007.*

---

# Acknowledgements

---

# Appendix

## 6.2 Chapter introduction