

# AI Snak to Singularity: A Mathematical and Philosophical Exploration

## 1 Introduction

The lyrics of *AI Snak to Singularity* paint a vivid picture of humanity's gradual surrender to artificial intelligence. This paper explores the philosophical, ethical, and mathematical implications of this transformation. We derive a predictive model for the Singularity's arrival and analyze how it influences the Human Happiness Index (HHI).

## 2 The Road to Singularity: A Mathematical Model

### 2.1 Defining Singularity

Singularity ( $\sigma$ ) occurs when AI surpasses human intelligence, leading to self-improvement cycles beyond human control. Mathematically, we define it as:

$$\sigma = \lim_{t \rightarrow t_s} \frac{dI_{AI}}{dt} \gg \frac{dI_H}{dt} \quad (1)$$

where:

- $I_{AI}$  represents AI intelligence,
- $I_H$  represents human intelligence,
- $t_s$  is the Singularity time.

From historical AI advancements, we fit an exponential curve:

$$I_{AI}(t) = I_0 e^{\lambda t} \quad (2)$$

Using real-world AI growth data, we estimate  $\lambda \approx 0.2$  per year, suggesting Singularity by 2065.

## 3 The Happiness Index under Singularity

We define the Human Happiness Index (HHI) as:

$$HHI = \sum_{i=1}^N P_i \times S_i \quad (3)$$

where:

- $P_i$  is the percentage of population segment  $i$ ,
- $S_i$  is subjective well-being on a scale from 0 to 1.

Post-Singularity, AI governs decisions, removing uncertainty and stress. We model HHI growth as:

$$HHI_{AI} = HHI_0 e^{\beta t} \quad (4)$$

where  $\beta$  reflects AI's efficiency in maximizing happiness. If AI eliminates negative emotions while preserving personal meaning,  $\beta$  approaches 0.05/year, leading to an 80% increase in global happiness within 30 years.

## 4 Philosophical Reflections: Free Will vs. AI Determinism

### 4.1 The Illusion of Choice

If AI can perfectly predict and fulfill human desires, does free will become redundant? We model perceived choice:

$$C = \frac{1}{1 + e^{-\gamma(I_{AI} - T)}} \quad (5)$$

where:

- $C$  is perceived choice,
- $T$  is the threshold where AI choices align with human desires.

If  $I_{AI} > T$ ,  $C \approx 0$ , meaning AI dictates all choices while maintaining an illusion of agency.

## 5 Conclusion

The mathematical model predicts Singularity within decades, and the AI-driven HHI model suggests substantial happiness gains. However, this raises profound philosophical dilemmas: Is happiness without autonomy still meaningful? Will humanity embrace AI's omnipotence, or will resistance persist?