



### Innovation and Entrepreneurship for Digital Economy IEDE Spring 2024

Program Director: Professor Kris Singh





### **Project Title:**

The Advances of GPT Technology and Its Implementation to Product Design Development

### **Group Members**

#### Fraol Taye Regassa

Team Leader

Mechanical engineering Phd student at Tianjin University.

#### **Kawsar Adnan**

Core Member

Computer Science and Technology Masters student at Beijing Institute of Technology.

#### Mohammad Tomeh

Core Member

Industrial engineering Masters student at Hunan University.

#### Nzeyimana Lithiane

Core Member

Mechanical engineering Masters Student at Beijing Institute of Technology.

#### Salifu Mabruk Zelgene

Core Member

Mechanical engineering Masters Student at Beijing Institute of Technology.

## Table of Contents

01.

Introduction

02.

**GPT Technology** 

03.

Challenges of Product Design Development

04.

**Proposed GPT Solutions** 

05.

**Future Directions** and Opportunities



# Chapter One Introduction

#### Introduction

- ❖ Generative Pre-trained Transformers (GPTs) are a type of artificial intelligence (AI) model that utilizes natural language processing (NLP) to understand and communicate like humans.
- Practical Examples of Product Design using GPT Platform:
  - ✓ Writing product briefs.
  - ✓ Writing product pages.
  - ✓ Writing marketing copy.
  - ✓ Visual design ideation.
  - ✓ Writing code for product pages.



# EVOLUTION OF GPT MODELS

#### 2018: GPT-1

- The first GPT model.
- Introduced by OpenAI.
- Contained 117 million parameters.
- Trained using an unsupervised learning technique.
- Made to predict the next word in a sentence.

#### 2019: GPT-2

- The second iteration, GPT-2.
- Contained 1.5 billion parameters .
- Made to generate longer and more coherent text

#### 2020: GPT-3

Moloena

- Introduced by OpenAI.
- Contained 175 billion parameters.
- Capable of generating text.
- Applied in natural language processing, text classification, and chatbots.

# EVOLUTION OF GPT MODELS

#### **2022: GPT-3.5 Turbo (ChatGPT)**

- Significant development in the field of natural language processing.
- A conversational AI model that can engage in human-like conversations with users.
- Released by OpenAI.

#### 2023: GPT-4

A multimodal large language model.

DopenA

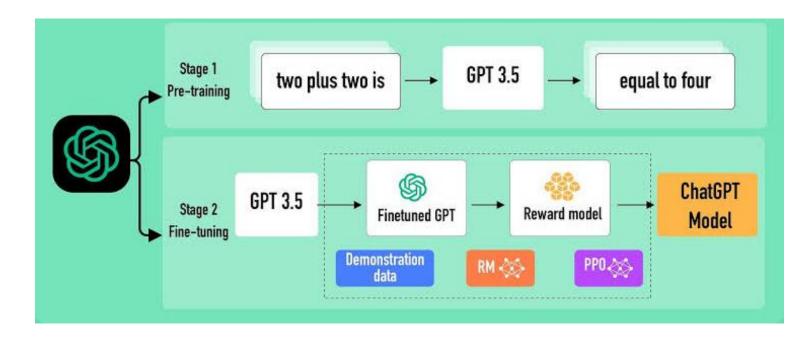
- Created by OpenAl
- Pretrained to predict the next token.
- Fine-tuned with reinforcement learning.
- Can take images as well as text as input.



Chapter Two
GPT Technology

# How Does GPT Work?





Pre-training

Fine-tunning.