ChatGPT: Transforming Conversational AI

INTRODUCTION

CHATGPT is revolutionizing the conversational AI Landscape by leveraging powerful language models and Machine learning techniques

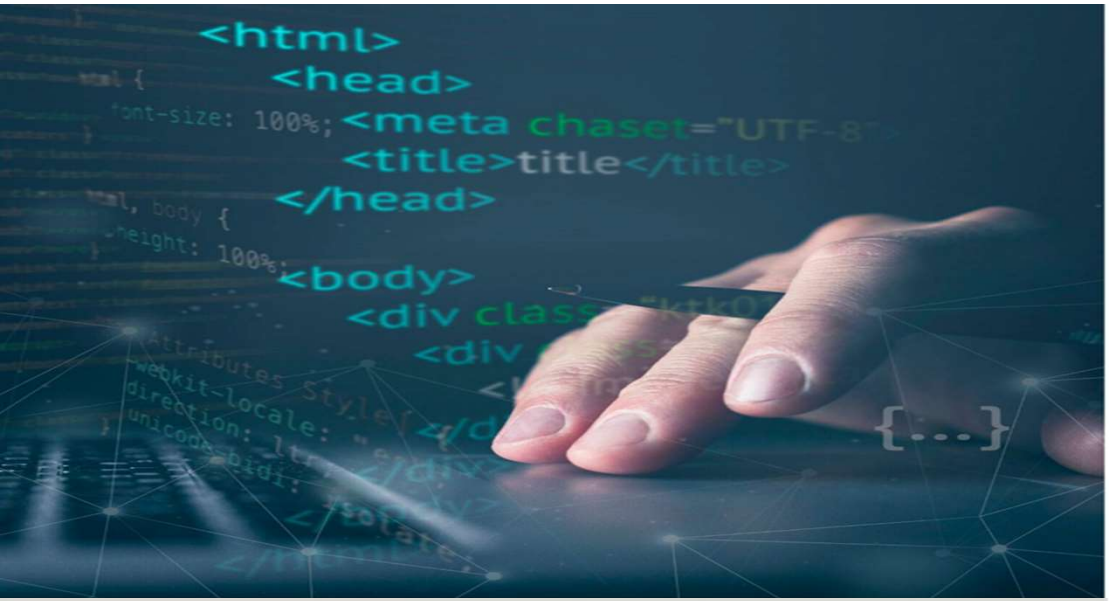
IMPORTANCE OF CHAT-GPT

- ❑ Ability to generate human-like response
- ❑ ChatGPT opens up new possibilities for virtual assistant ,customer service bots, and more
- ❑ Understand customer inquires
- ❑ Business can leverage ChatGPT to create virtual agents capable of providing personalized support
- ❑ ChatGPT has acquired an astonishing ability to generate coherent and contextually relevant responses . Its learning capabilities enable it to understand and mimic human cinverstation patterns

Understanding ChatGPT

ChatGPT: An Overview

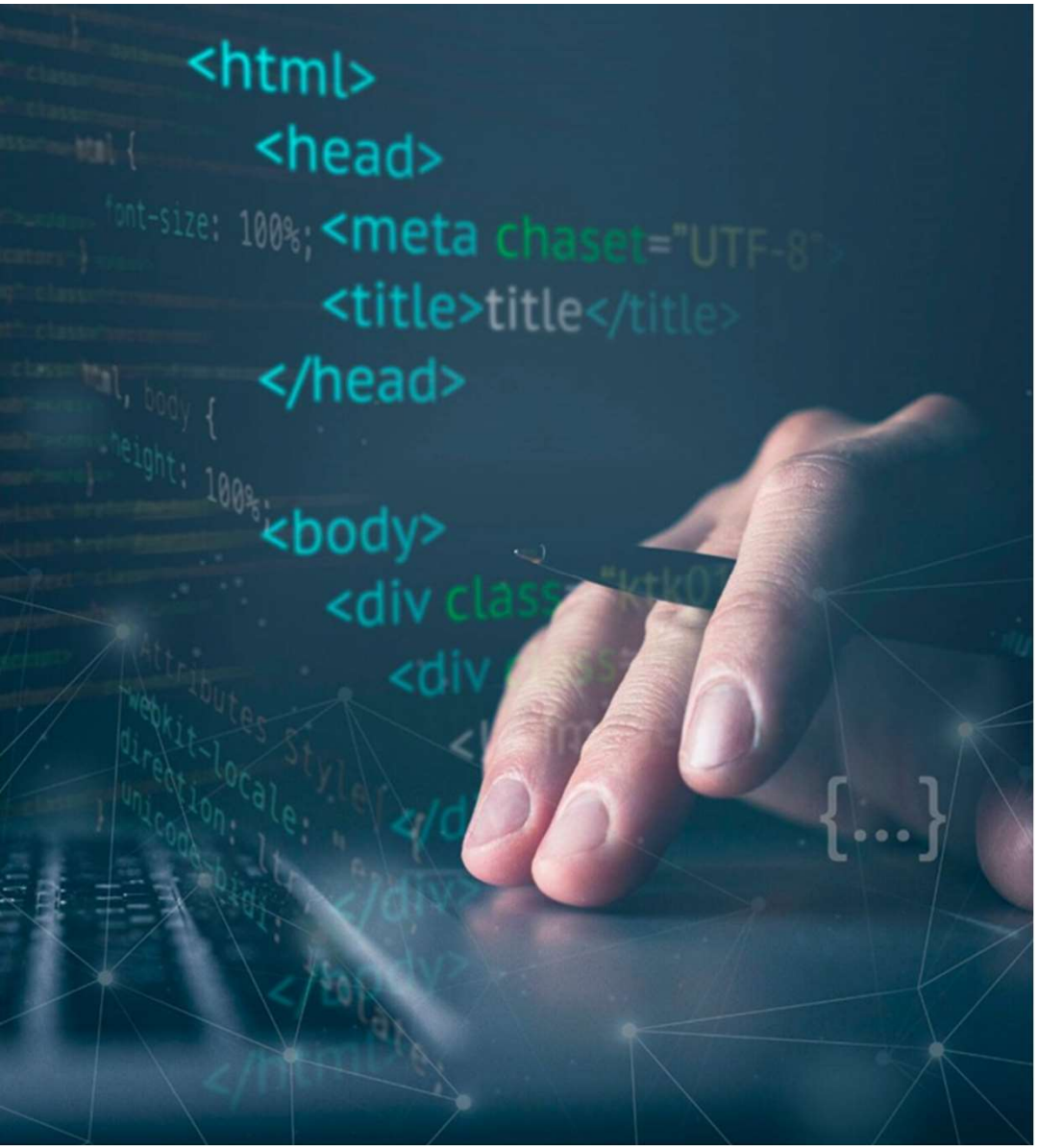
- ChatGPT is a state-of-the-art language model developed by Open AI. It is trained using a large corpus of text data to generate coherent and contextually relevant responses
- ChatGPT has the remarkable ability to generate dynamic and adaptive replies that mimic human conversation. It can understand and respond to a wide range of prompts, including questions, statements, and even complex queries.
- During pre-training, the model is exposed to an extensive dataset containing parts of the Internet, allowing it to learn grammar, factual information, world knowledge, and the nuances of language usage. This phase equips ChatGPT with a strong foundation for language understanding.



SOFTWARE TOOLS AND REQUIREMENT TO BUILD CHAGPT LIKE CHATBOT

- **PROGRAMMING LANGUAGES**
  - JAVA
  - PYTHON
  - JSP(JAVA SERVLET PROGRAMMING)
  - HTML,CSS JAVASCRIPT
- **DEVELOPMENT FRAMEWORK**
  - OpenAI API
  - PYTORCH
  - TENSORFLOW
- **NATURAL LANGUAGE PROCESSING(NLP) LIBRARIES**

  Libraries such as NTLK (Natural Language Toolkit) spacy , or Hugging Face's Transformers provide functions for tokenization, part of speech tagging ,entity recognition , and other NLP task
- **(IDE)s**
- **WEB DEVELOPMENT TOOLS**

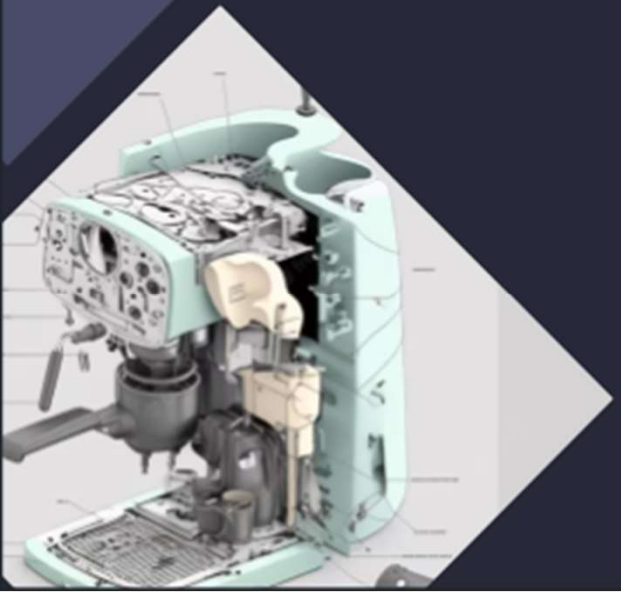


6) Deployment platforms

- Once chatbot is developed , you need a platform to host and deploy it.
- Cloud platforms like Amazon Web Services (AWS), Microsoft Azure , or Google cloud platform (GCP) offer services for hosting and deploying chatbot applications

7) Version Control System

- Version control system like git enable you to track changes ,collaborate with team members, and manager different versions of your Chabot codebase. Platform like GitHub or GitLab provide hosting for Git repositories.



ARCHITECTURE AND DEVELOPMENT PROCESS

Key Feactures of chatgpt

It is based on the model of GPT-3.5 architecture ,which is enhanced version of openAI

The training process involves

1) large dataset
2) openAI use massive corpus of text data collected from various sources on internet
3) Datasets comprises of wide range of conversation's
4) GPT-3.5 architecture incorporates a transformer neural network

Public Input and Ethical Considerations

Public input and ethical considerations play a crucial role in the development and deployment of ChatGPT. OpenAI recognizes the importance of incorporating diverse perspectives and addressing potential biases to ensure the responsible and fair use of the technology.

- ❑ Soliciting Feedback
- ❑ Bias Mitigation
- ❑ Ethical Guidelines
- ❑ Collaboration and Partnerships

OpenAI remains committed to building and deploying AI technologies that are beneficial, safe, and aligned with societal values.

Concept of Pre -Training and Fine - Tuning in the context of chat-GPT

* During the pre-training phase , chatgpt is exposed to larger and diversed text data from various sources

* By analyzing this data , the model learns to predict the referd data text of preceeding word from situation point of view

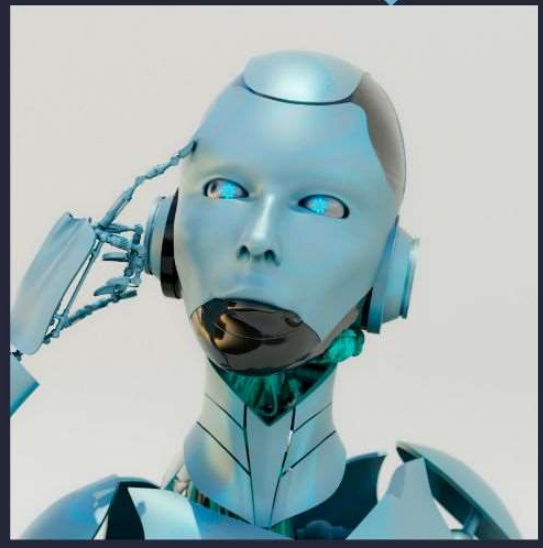
* These are facilitated by deep neural nectwork of architecture such as tranformer
* pre- training allows chatgpt to a
cquire large data set of language , facts , knowlede , transalation etc

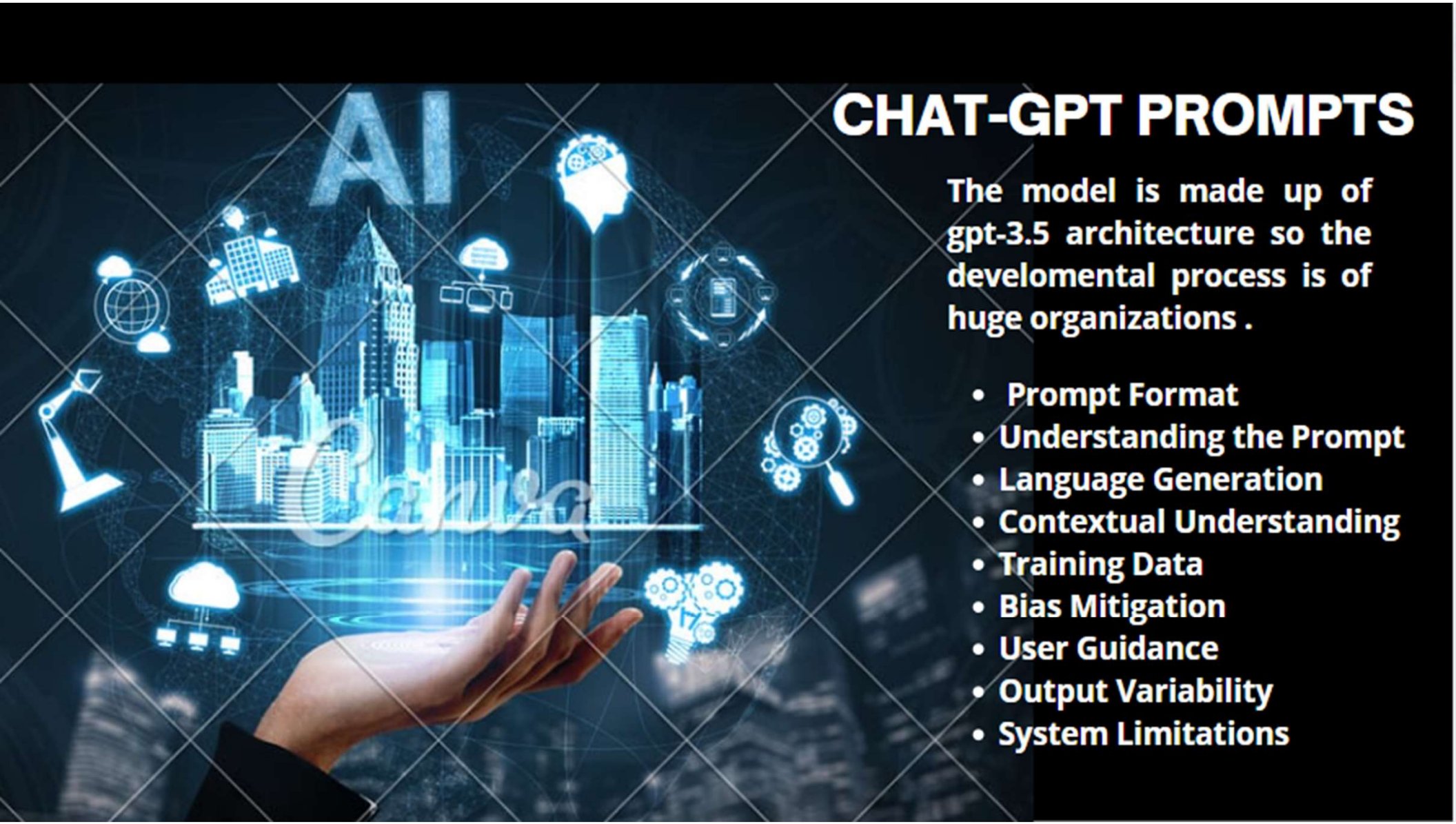
* Fine tuning allows chatgpt to bind it data to corpus for specific condition of behaviour ,humor , presence of mind and ethics .

COMBINATION OF PRE TRAINING AND FINE TUNING

* However, pre-training alone may result in responses that are sometimes inappropriate or nonsensical. To address this, ChatGPT undergoes a fine-tuning process. In this stage, the model is further trained on custom datasets created by OpenAI. These datasets contain examples of desired behavior, demonstrations of appropriate responses, and comparisons to rank different replies.

* Fine-tuning allows ChatGPT to specialize and adapt its responses to specific contexts or domains. By exposing the model to carefully curated data, OpenAI can guide and refine its behavior, ensuring it generates more appropriate and useful responses. This fine-tuning process is essential for aligning ChatGPT with desired behavior and making it a more reliable and dependable conversational AI system.

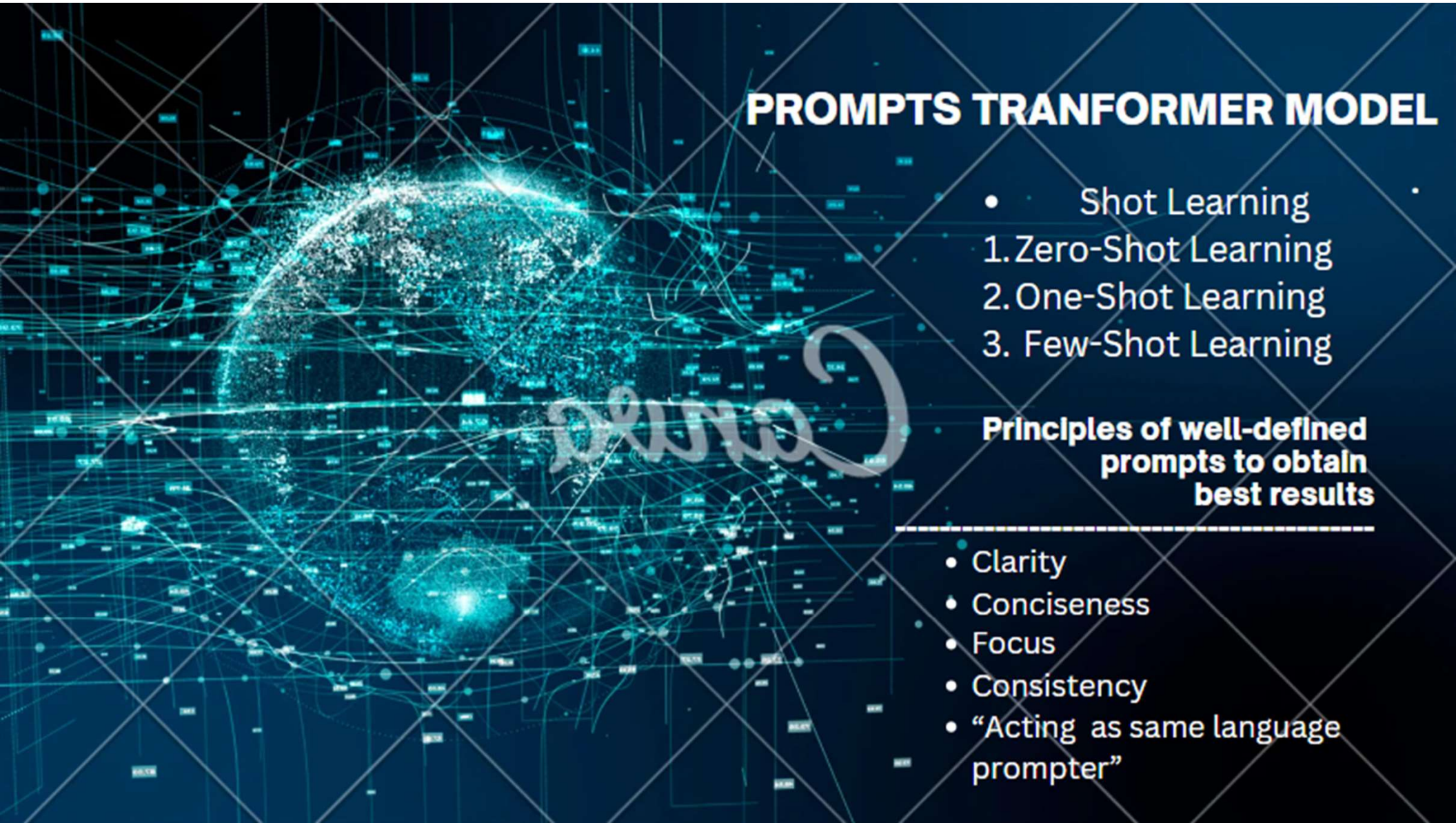




CHAT-GPT PROMPTS

The model is made up of gpt-3.5 architecture so the develomental process is of huge organizations .

- Prompt Format
- Understanding the Prompt
- Language Generation
- Contextual Understanding
- Training Data
- Bias Mitigation
- User Guidance
- Output Variability
- System Limitations


PROMPTS TRANFORMER MODEL
• Shot Learning
1. Zero-Shot Learning
2. One-Shot Learning
3. Few-Shot Learning
Principles of well-defined prompts to obtain best results
• Clarity
• Conciseness
• Focus
• Consistency
• “Acting as same language prompter”

Prompts you should avoid by organization of structure
Information overload
Open-ended questions
Lack of constraints
Chain-of-Thought (CoT)
Active-Prompt
Reason and Act (ReAct)

Energy Efficiency Initiatives in Chat-GPT

OpenAI is committed to improving the energy efficiency of ChatGPT and minimizing its environmental impact.

* Hardware Utilization Optimization

* Research and Development:

* Collaboration and Industry Engagement

* Sustainable Practices:

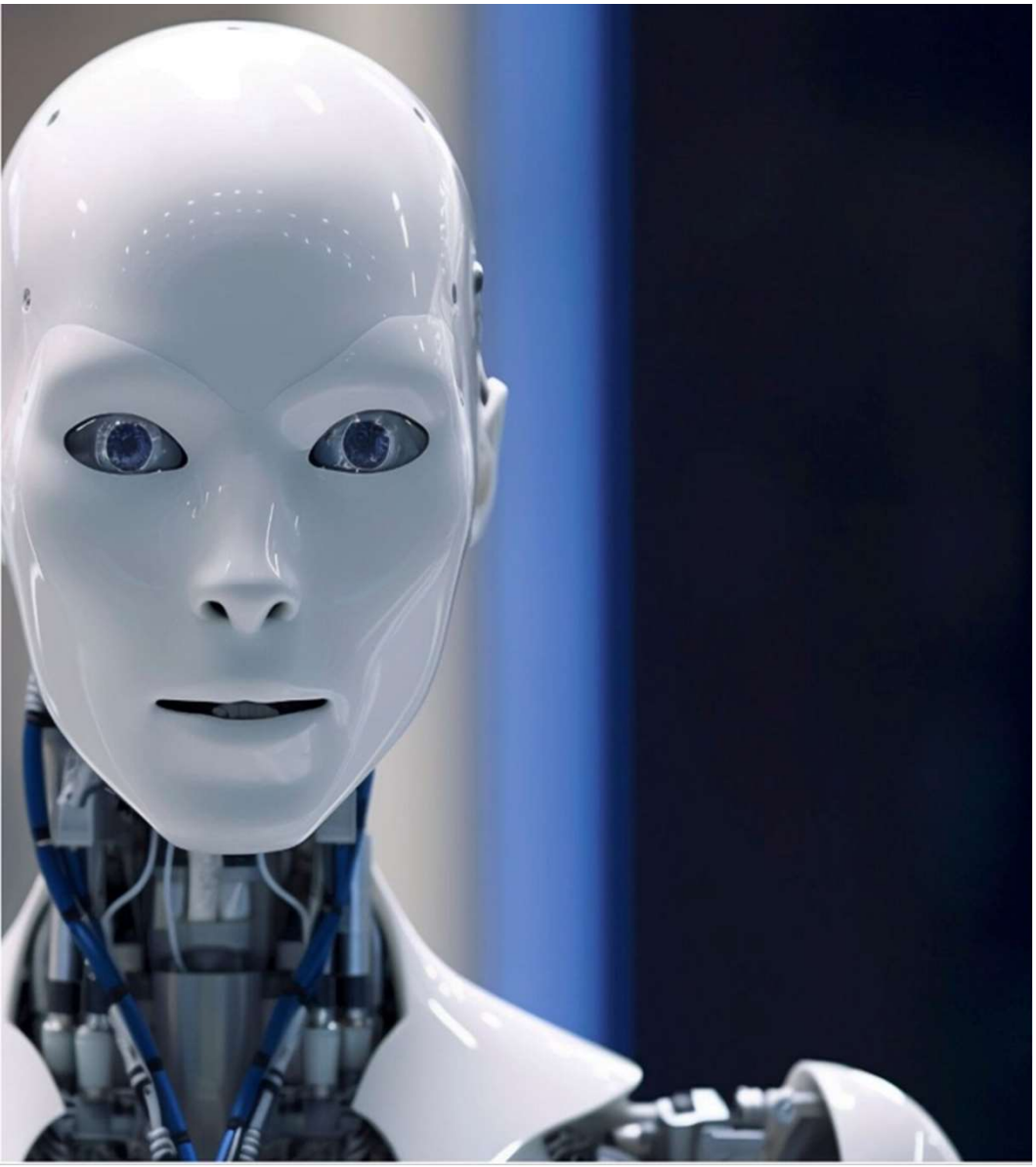
It is important to note that while OpenAI is actively working on energy efficiency initiatives, the exact details and progress of these efforts may evolve over time. OpenAI's commitment to transparency and its ongoing commitment to addressing environmental concerns align with the broader industry efforts to develop responsible AI systems that consider the ecological implications.

Expenditure Optimization

OpenAI employs various strategies to optimize expenditure associated with ChatGPT while maintaining performance and accessibility

* Computational Efficiency Research
* Model Architecture Optimization
* Advanced Training Techniques
    1)Techniques like distillation
    2)transfer learning
    3) model compression
* Scalable Infrastructure

OpenAI actively seeks cost reduction opportunities through negotiations with cloud providers and optimization of infrastructure utilization. By optimizing costs without sacrificing quality, OpenAI aims to make ChatGPT more accessible and affordable for a wider range of users.



Privacy Policies and User Consent

Privacy policies and user consent are of utmost importance in the development and deployment of AI system like ChatGPT. OpenAI Recognize the significance of respecting user privacy. Ensuring transparency, and complying with data regulation

- ❑ Importance of privacy policies and user consent
- ❑ Transparency and Data Usage Policies
- ❑ User Consent : OpenAI obtains user consent for data collection
- ❑ Compliance with data regulations
- ❑ Accountability and auditing

Various application of ChatGPT

- ❑ Customer support
- ❑ Virtual assistant
- ❑ Content creations
- ❑ Education and Learning
- ❑ Creative writing and story telling
- ❑ Mental Health support

SECTORS OF WORKING

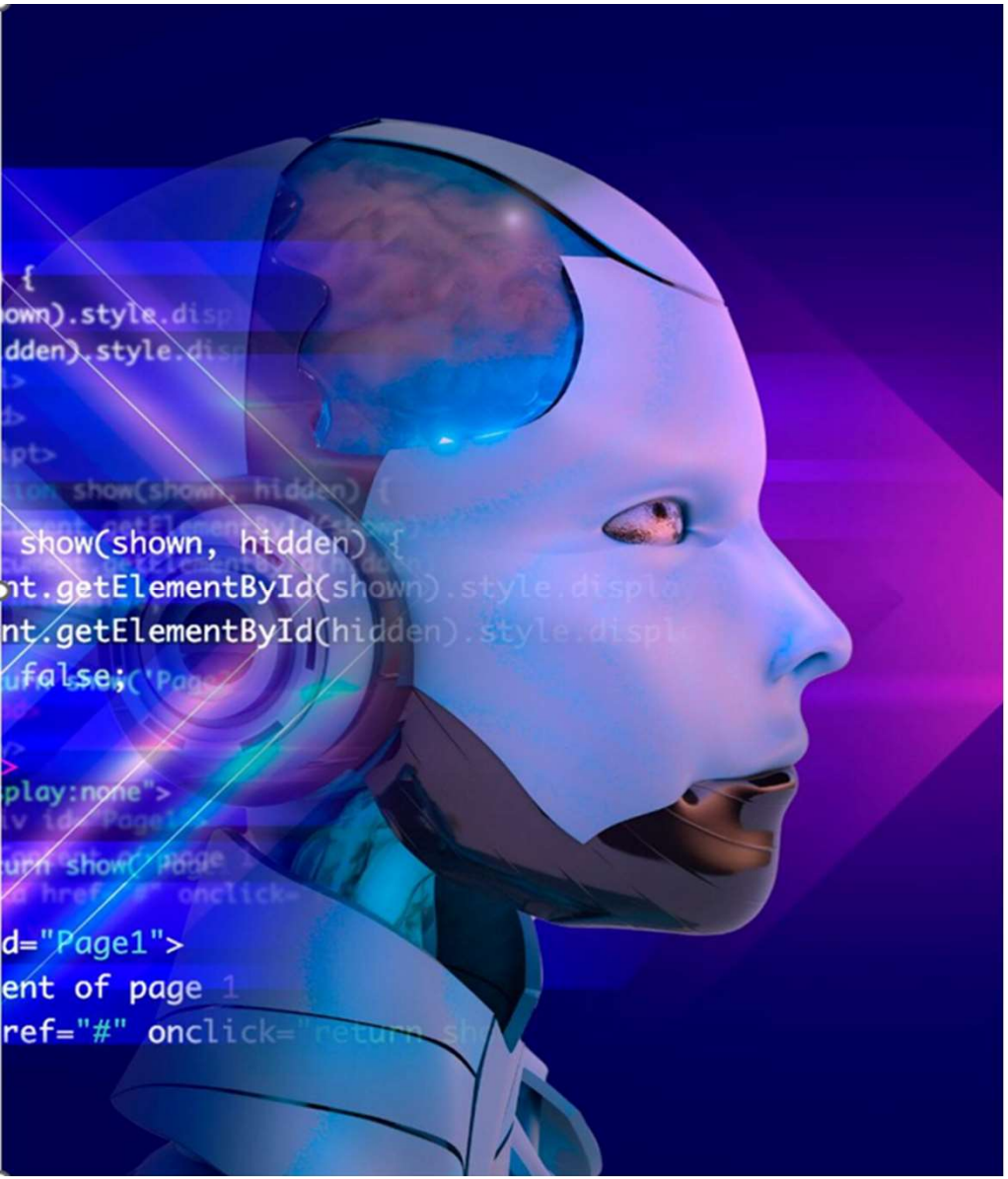
- ❑ **Customer Support**
  - Prompt Responses and Availability
  - Reducing Human Support Staff Workload
  - Improving Response Time
- ❑ **Virtual Assistants**
  - Personalized Assistance
  - Integration with Smart Devices
  - Continuous Learning and Improvement
- ❑ **Content Creation**
  - Idea Generation
  - Language Refinement
  - Text to speech and vice-versa
- ❑ **Education and Learning**
- ❑ **Creative Writing and Storytelling**
- ❑ **Healthcare industry**
  - Diagnosing Patients
  - Medical Education and Research
  - Accuracy and Reliability
  - Privacy and Data Security

SPECIFIC APPLICATION-PERSONAL SHOPPING ASSISTANT

- **Understanding User Preferences**
  - users preferences
  - style
  - budget

- **Product Recommendations**
  - Analyze vast amounts of product data
  - Descriptions, reviews
  - Assisting with Purchase Decisions

- **Handling Inquiries and complaints**
- **24/7 Availability and Personalization**
- **Ethical Use of Data**



SOME WEBSITES WHICH USES API HANDELLING

- **CHATFUEL** (https://chatfuel.com/)
  Chat fuel is user-friendly platform that enables you to build chatbots for Facebook Messenger .It provides a drag-and-drop interface ,pre-bult templates , and

- **DIALOGFLOW (**https://dialogflow.com/)
  Dialog Flow , now part of google cloud ,offers powerful NLP

- **MANYCHAT** (https://manychat.com/)
  Many Chat is a platform specially designed for creating chatbot like Facebook Messenger .it provides a virtual bot builder ,automation tool ,integration to create interactive and engaging experiences

- **TARS**(https://hellotars.com/)
  Tars is a chatbot builder that allows you to create conversational experiences for websites and landing pages

- **Land Bot**(https://landbot.io/)

OUR WORKPLAN AND INITIAL FINDINGS

- ❑ Our plan is to build an AI chatbot which will be train to our specific dataset with the help of

1) Pre – Training
2) Fine – Tuning

- ❑ The integration of CHATGPT API in our chatbot (OpenAI)
- ❑ Testing and iteration
- ❑ Monitoring and Maintenance
- ❑ Prompt engineering response and training with GPT-3.5 architecture
- ❑ Deployment of model and chatbot which respect user privacy and data security
- ❑ Data processing and Data augmentation
- ❑ Dataset size and quality

Maritime logistic related application

1) Customer Support
2) Booking and Documentation
3) Freight Rate Calculations

Thankyou

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