

Study Report About Generative AI Applications

1) GPT-3 (Generative Pre-trained Transformer 3):

Functionality:

- 1) Natural Language Processing (NLP)
- 2) Text generation, completion, and summarization
- 3) Code generation
- 4) Conversational AI
- 5) Language translation

Data Flow:

- 1) Input text is tokenized and processed through multiple transformer layers.
- 2) Attention mechanisms help the model focus on relevant parts of the input sequence.
- 3) The output is generated, providing contextually relevant results.

API Documentation:

Endpoint example 1 = /generate-text (POST):

Request Format:

```
{  
  "prompt": "Input text or prompt here"  
}
```

Response Format:

```
{  
  "generated_text": "Generated text output"  
}
```

Endpoint example 2 = /analyze-sentiment (POST):

Request Format:

```
{  
  "text": "Text for sentiment analysis"  
}
```

Response Format:

```
{  
  "sentiment": "Positive/Negative/Neutral"  
}
```

2) DALL-E Architecture:

Functionality:

- 1) Variational Autoencoder (VAE)
- 2) Transformer network
- 3) Decoder for image generation
- 4) Latent space representation

Data Flow:

- 1) Input text is encoded into a latent space representation by the VAE.
- 2) The latent space representation is used by the decoder to generate images.
- 3) The generated images are output based on the input textual descriptions.

API Documentation:

Endpoint example 1 = /generate-image (POST):

Request Format:

```
{  
  "description": "Textual description for image generation"  
}
```

Response Format:

- Binary data representing the generated image

Endpoint example 2 = /image-details (GET):

Request Format:

/image-details/{image_id}

Response Format:

```
{  
  "image_id": "Unique identifier",  
  "description": "Textual description of the image"  
}
```