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✓ 100 XP

What is generative AI?

3 minutes

Artificial Intelligence (AI) imitates human behavior by using machine learning to interact with the environment and execute tasks without explicit directions on what to output.

Generative AI describes a category of capabilities within AI that create original content. People typically interact with generative AI that has been built into chat applications. One popular example of such an application is ChatGPT, a chatbot created by OpenAI, an AI research company that partners closely with Microsoft.

Generative AI applications take in natural language input, and return appropriate responses in a variety of formats such as natural language, images, or code.

Natural language generation

To generate a natural language response, you might submit a request such as "*Give me three ideas for a healthy breakfast including peppers.*"

A generative AI application might respond to such a request like this:

OK, here are three healthy breakfasts that include peppers:

1. Egg and Pepper Scramble: Dice up some bell peppers and sauté them in a pan until they're slightly softened. Then, add in some beaten eggs and scramble everything together. Serve with whole-grain toast for a nutritious breakfast.

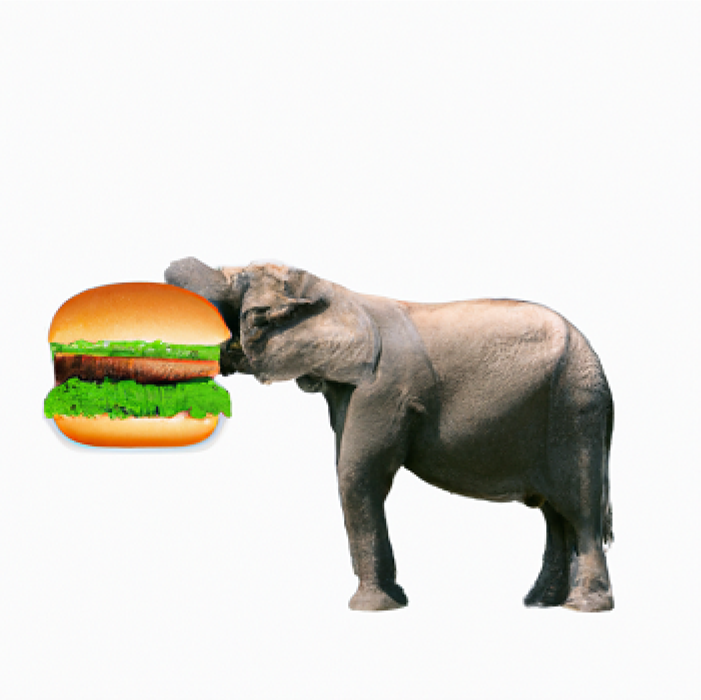
2. Pepper and Avocado Toast: Toast a slice of whole-grain bread and top it with sliced bell peppers, mashed avocado, and a sprinkle of salt and pepper. This is a great way to get some healthy fats from the avocado along with the vitamin C from the peppers.

3. Breakfast Burrito with Peppers: Sauté some diced bell peppers, onions, and scrambled eggs together in a pan. Then, spoon the mixture onto a whole-grain tortilla and top with some salsa or hot sauce. Roll it up and enjoy a satisfying and nutritious breakfast.

Image generation

Some generative AI applications can interpret a natural language request and generate an appropriate image. For example, you might submit a request like "*Create an image of an elephant eating a burger*".

A generative AI application could then return an original new image based on the description you provided, like this:



Code generation

Some generative AI applications are designed to help software developers write code. For example, you could submit a request like "*Show me how to code a game of tic-tac-toe with Python*" and generate the following response:

Sure, here's some basic code for a Tic-Tac-Toe game in Python:

```
board = [' ' for x in range(9)]

def print_board():
    row1 = '| {} | {} | {} |'.format(board[0], board[1], board[2])
    row2 = '| {} | {} | {} |'.format(board[3], board[4], board[5])
    row3 = '| {} | {} | {} |'.format(board[6], board[7], board[8])
    print()
    print(row1)
    print(row2)
    print(row3)
    print()

def player_move(icon):
    if icon == 'X':
        number = 1
    elif icon == 'O':
        number = 2
    print('Your turn player {}'.format(number))
    choice = int(input('Enter your move (1-9): ').strip())
    if board[choice - 1] == ' ':
        board[choice - 1] = icon
    else:
        print()
        print('That space is taken!')

def is_victory(icon):
    if (board[0] == icon and board[1] == icon and board[2] == icon) or \
       (board[3] == icon and board[4] == icon and board[5] == icon) or \
       (board[6] == icon and board[7] == icon and board[8] == icon) or \
       (board[0] == icon and board[3] == icon and board[6] == icon) or \
       (board[1] == icon and board[4] == icon and board[7] == icon) or \
       (board[2] == icon and board[5] == icon and board[8] == icon) or \
       (board[0] == icon and board[4] == icon and board[8] == icon) or \
       (board[2] == icon and board[4] == icon and board[6] == icon):
        return True
    else:
        return False

def is_draw():
    if ' ' not in board:
        return True
    else:
        return False

while True:
    print_board()
    player_move('X')
    print_board()
    if is_victory('X'):
        print('X Wins! Congratulations!')
        break
    elif is_draw():
        print('The game is a draw!')
        break
    player_move('O')
    if is_victory('O'):
        print_board()
        print('O Wins! Congratulations!')
        break
    elif is_draw():
        print('The game is a draw!')
        break
```

This is just a basic implementation of the game, and can be improved upon with additional features such as error handling and input validation.

Next unit: Large language models

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