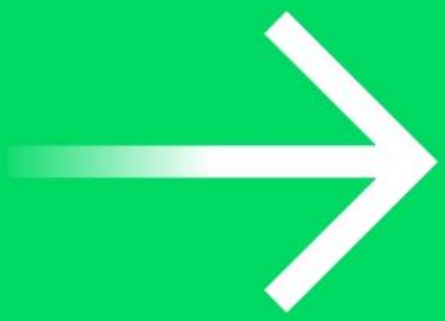
Generative AI Cheatsheet

Allowing you to join
the conversation about
GenAI right away



Stay up-to-date on the latest advancements in generative AI by following to my Linkedln at linkedin.com/in/md-anas-mondol .

What is Generative AI?

Generative AI is a branch of artificial intelligence focused on creating new data samples, such as text, images, videos, speech, and 3D objects. By leveraging advanced algorithms, these models learn patterns and features from existing data, enabling them to generate realistic and diverse outputs for various applications, spanning from content creation to design, entertainment, and beyond.

What is Text Generation?

Text generation involves creating human-like text using advanced AI models that leverage the Transformer architecture. These models have an expanded attention span, allowing them to understand and generate contextually relevant content while being trained on large datasets for coherent and creative outputs.

Some Applications:

- **Chatbot:** AI-driven conversational agents for customer support, FAQs, and more.
- **Content Creation:** Generating articles, social media posts, or creative writing.
- **Translation:** Converting text between languages while preserving meaning.
- **Summarization:** Condensing lengthy text into shorter, digestible summaries.
- **Knowledge Management:** Organizing, retrieving, and analyzing information from large volumes of text data.

What is Image Generation?

mage generation refers to the creation of synthetic images using AI algorithms, primarily employing techniques such as Generative Adversarial Networks (GANs) and stable diffusion models. GANs consist of two competing neural networks, while stable

diffusion models combine forward and reverse diffusion processes, enabling the generation of realistic images.

Some Applications:

- **Art:** Creating unique, AI-generated artwork or assisting artists with visual inspiration.
- **Design:** Generating logos, product concepts, or visual elements for various industries.
- **Gaming:** Producing game assets, textures, or character designs using AI-generated content.
- **Data Augmentation:** Enhancing datasets for training machine learning models with additional, diverse images.
- **Text-to-Image Synthesis:** Generating photorealistic images from text descriptions or low-quality inputs, aiding in visualization or prototyping.
- **Advertising and Media:** Creating tailored visual content based on textual prompts for marketing campaigns, social media, and entertainment purposes.

What is Voice Generation?

Voice generation is the process of synthesizing human-like speech using advanced AI algorithms, often leveraging deep learning techniques such as WaveNet or Tacotron. These models learn the nuances of human speech, including intonation, pitch, and rhythm, to produce realistic and natural-sounding audio from text inputs.

Some Applications:

- **Text-to-Speech (TTS):** Converting written text into spoken words, assisting visually impaired users, or providing audio content for various platforms.
- **Virtual Assistants:** Enhancing the user experience by providing natural-sounding speech for AI-driven assistants like Siri, Alexa, or Google Assistant.
- **Audiobooks:** Generating narrations for books, making content more accessible and engaging for listeners.
- **Voice Cloning:** Creating customized voices for use in animation, gaming, or personalized applications.

What is Video Generation?

Video generation is the process of creating new video content using advanced artificial intelligence algorithms, specifically deep learning models. By learning from vast amounts of existing video data, these models can synthesize realistic and visually appealing videos, resulting in a wide array of applications across various industries.

Some Applications:

- **Entertainment:** AI-generated videos can be used for creating movies, TV shows, and advertisements, significantly reducing production costs and time.
- **Virtual Reality (VR) and Augmented Reality (AR):** Video generation algorithms can create realistic environments and characters for immersive VR and AR experiences.
- **Video games:** Procedurally generated video content can enhance the gaming experience by creating unique and dynamic visuals, characters, and environments.
- **Education and training:** AI-generated videos can simulate realistic scenarios for training and educational purposes, such as medical simulations or safety drills.
- **Advertising:** Personalized video content can be generated to target specific demographics or individual preferences, increasing ad effectiveness and engagement.

What is 3D object generation?

3D object generation refers to the process of creating three-dimensional objects using software and computer graphics. This process involves designing a model with height, width, and depth that can be viewed from different angles. The generated 3D objects can be used in various applications such as gaming, animation, product design, architecture, and many others.

Some Applications:

- **Gaming:** 3D object generation is widely used in the gaming industry for creating lifelike characters, landscapes, and envi-

---

ronments. The generated objects provide a more immersive and realistic gaming experience for players.

- **Architecture and product design:** 3D object generation plays a crucial role in architecture and product design, as it allows designers to create 3D models of buildings, products, and prototypes. The generated objects can be viewed from different angles, providing designers with a better understanding of how the final product will look and function.
- **Medical applications:** 3D object generation is also used in medical applications for creating 3D models of human anatomy. These models are used by medical professionals for research, education, and surgical planning. The generated 3D models can also be used to create custom implants and prosthetics for patients.

Prompt Guidelines

The 10 Golden Rules for ChatGPT Prompting:

- **Provide Context:** Give enough information and use keywords to help the AI understand your instructions.
- **Avoid Open-Ended Questions:** Be specific and avoid broad inquiries that may lead to unclear responses.
- **Use Keywords:** Incorporate relevant keywords to help ChatGPT generate higher-quality responses.
- **Be Specific:** Use precise information and clear language to improve the accuracy of the AI's output.
- **Avoid Jargon:** Refrain from using jargon or slang to prevent confusion and misunderstandings.
- **Keep it Concise:** Use clear and concise language to make it easier for the AI to understand your instructions and provide accurate responses.
- **Test and Iterate:** Experiment with different prompt styles and phrasings, then analyze the responses to refine your prompts for better results.

- **Use Examples:** Provide examples when possible to help clarify your instructions and guide the AI in the desired direction.
- **Set Boundaries:** If necessary, set limits on the scope of the AI's responses to keep the output focused and relevant.
- **Be Patient:** Understand that AI may not always provide perfect results initially. Be ready to adjust your prompts or provide additional context as needed to improve the quality of the generated output.

The 10 Golden Rules for Image Generation Prompting (i.e. Midjourney)

- **Be Descriptive:** Use detailed and descriptive text prompts to generate more vibrant and unique outputs.
- **Use Style Keywords:** Provide keywords related to styles, art forms, designs, genres, or specific artists to influence the output style. → Dali, Monet
- **Stylize the Output:** Adjust the "stylize" setting to control the level of stylization in the generated image.
- **Control Abstraction with Chaos:** Use the "chaos" set to increase or decrease the level of abstraction in the subject. → /imagine Omaha Beach --chaos 60
- **Set Resolution:** Specify the output resolution using keywords like 8K, 4K, photorealistic, or standard settings like "HD" and "quality". → --hd or quality 4
- **Choose Aspect Ratio:** Specify the desired aspect ratio for the output image or use a custom image size. → --ar 4:3 or --ar 16:9
- **Use Image Prompts:** Pass an image URL as a prompt to influence the output style or provide multiple images and assign weights to them.
  → /imagine http://www.imgur.com/Im3424.jpg a soldier on the beach
- **Assign Weights to Text Prompts:** Assign weights to different parts of the text prompt to emphasize certain subjects.
  → /imagine soldier german::1 french::3 US::1.5
- **Filter Out Words:** Use the "--no" keyword to discard any

---

unwanted subjects from the generated image.
→ /imagine Soldier --no gun

- **Experiment with Interesting Keywords:** Use specific camera or lens types, lighting conditions, or other unique keywords to achieve a specific look in the output image.

Top 15 Generative AI Tools/ Companies

- Beautiful.ai: AI-driven presentation design and text optimization.
- Aiva.ai: AI-powered music composer for various projects.
- Superhuman: Advanced email client for organization and productivity.
- Dall-E: AI-generated custom digital images based on user prompts.
- Synthesia.io: AI-generated spokesperson avatars for video content creation.
- Notion: AI-enhanced note-taking, organization, and content creation.
- Jasper.ai: GPT-3-based AI writing tool for diverse content needs.
- Bardeen: AI-powered automation tool for content suggestions, writing, and productivity.
- Copy.ai: Content generation for articles, emails, and social media posts.
- Rephrase.ai: Personalized video campaigns using AI-generated digital avatars.
- Type Studio: AI-assisted content creation platform for various media formats.
- Murf.ai: AI-generated, life-like voiceovers in multiple languages and accents.
- Designs.ai: All-in-one AI design tool for logos, videos, social media posts, and voiceovers.
- Soundraw: AI-generated, royalty-free background music based on mood, genre, and length.

What are Ethical Considerations around Generative AI?

- **Job market:** Job displacement and unemployment due to automation
- **Energy Consumption:** Significant energy consumption and environmental impact associated with training and running Generative AI models
- **Biases in Data:** Inherent biases in training data can lead to the perpetuation of societal inequalities and discrimination.
- **Deception**: The possibility of AI-generated content being used to manipulate or deceive individuals or society as a whole, e.g. deep fakes.

Stay up-to-date on the latest advancements in generative AI by following to my Linkedln at linkedin.com/in/md-anas-mondol .