



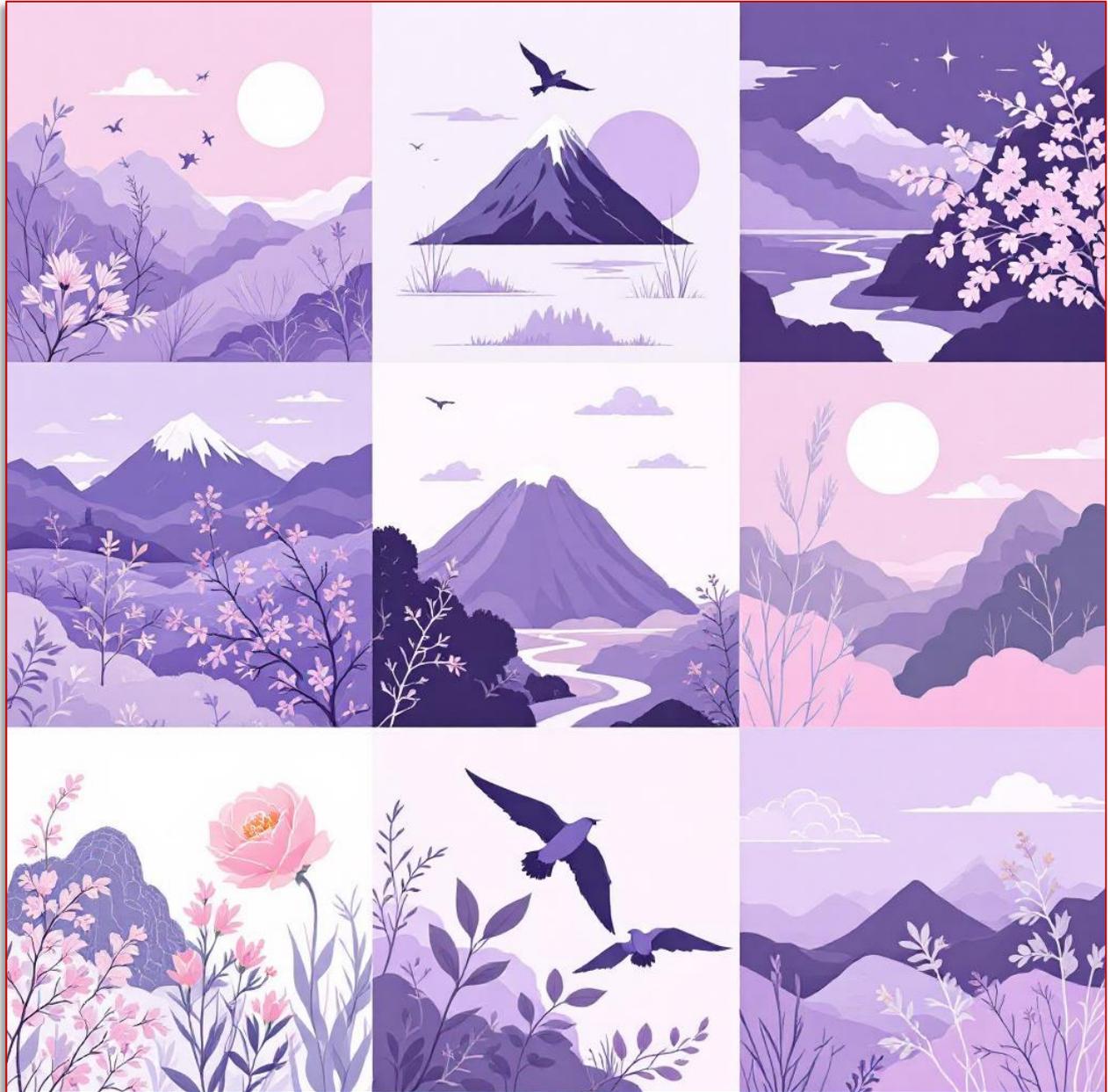
# Self-Learning Guide

Quadrant 2

e-Contents:

## Generative AI and Prompt Engineering

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# Unit 1: Introduction to Generative AI

## What is Generative AI?

Generative AI refers to artificial intelligence systems that create *new, original content*—such as text, images, audio, code, or video—by learning patterns from existing data. Unlike traditional AI (which analyzes or classifies data), generative AI **produces** novel outputs. Think of it as a "creative assistant" that never runs out of ideas!

### Key Characteristics:

- **Learns from Data:** Trained on massive datasets (e.g., books, artworks, scientific papers).
- **Creates Original Content:** Generates outputs that didn't exist before.
- **Uses Advanced Models:** Built on architectures like GPT (text), Stable Diffusion (images), or WaveNet (audio)

### Examples of Generative AI

Domain	Tools & Applications
Text	ChatGPT (essays, emails), Claude (code documentation), Gemini (research summaries).
Images	Midjourney (digital art), DALL·E 3 (logos/illustrations), Stable Diffusion (photo edits).
Audio/Video	Synthesia (AI-presenter videos), Suno (music generation), ElevenLabs (voice cloning).
Code	GitHub Copilot (auto-complete code), CodeLlama (debugging scripts).

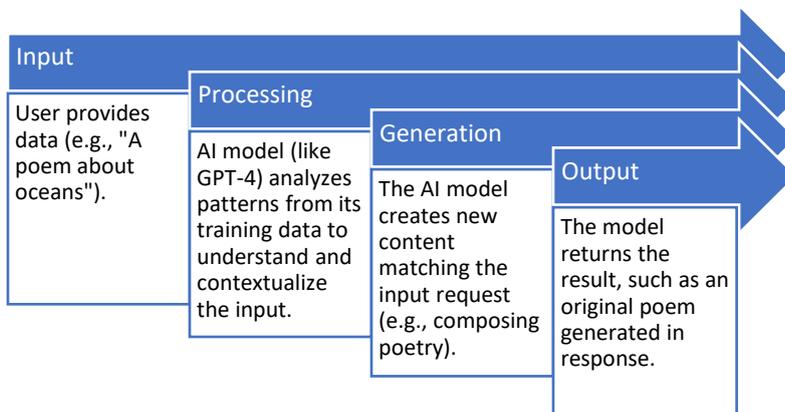
### Real-World Use:

- A marketer generates 100+ ad variants in minutes.
- A teacher creates custom story problems for students.
- A game designer prototypes character backstories instantly.



## Generative AI Workflow

### Generative AI Workflow Diagram



D



### Diagram Interpretation & Enhancement

- The visual flow moves left to right: **User Input** → **AI Processing** → **Content Generation** → **Deliver Output** — mirroring the typical lifecycle of generative AI systems. It's inspired by visual styles like the illustrative pipeline seen above.
- For customization or branding (e.g., for a slide or document), you can use diagram tools such as **Whimsical**, **Eraser.io's DiagramGPT**, **Miro**, or **Lucidchart** — they allow you to create such AI-driven flow diagrams straight from text descriptions

### Benefits of Generative AI

- **Efficiency:** Automates repetitive tasks (e.g., drafting emails).
- **Creativity Boost:** Inspires new ideas for artists/writers.
- **Personalization:** Tailors content to individual needs (e.g., custom learning materials).
- **Accessibility:** Enables non-experts to create professional-grade outputs (e.g., logos, code).

*Example:* A small business owner generates product descriptions in 10 seconds instead of 2 hours.

### Challenges of Generative AI

**Bias Amplification:** May replicate stereotypes from training data (e.g., gender-biased hiring scripts).

**Factual Errors:** "Hallucinates" false information confidently.

**Ethical Risks:** Deepfakes, plagiarism, or harmful content generation.

**Over-Dependence:** Reduced human critical thinking.

*Critical Note:* Always verify AI outputs—don't assume accuracy!

### Why This Matters to You

Generative AI isn't magic—it's a **tool** that reflects *your* intent. Mastering it starts with understanding its capabilities and limits. In the next unit, you'll learn to "talk" to AI effectively through **prompt engineering**.

### Key Takeaway:

*"Generative AI is a paintbrush. Your prompts are the strokes that create the masterpiece."*



## Unit 2: Anatomy of a Prompt

### Master the 5 Core Components of AI Communication

#### Introduction: Why Prompt Structure Matters

**Fact:** A Stanford study found that **structured prompts improve AI output quality by 72%** compared to vague requests.

**Key Insight:** Prompts are GPS for AI. Without coordinates, you're lost. With them? You arrive exactly where you want.

Generative AI isn't psychic. It needs **explicit, well-organized instructions** to deliver exceptional results. This unit breaks down the 5 essential components of elite prompt engineering:

**ROLE + CONTEXT + INSTRUCTION + CONSTRAINTS + EXAMPLES = PERFECT OUTPUT**

### I. The 5 Pillars of Power Prompts

#### 1. Role: Define the AI's Persona

**What it is:** Assigning a specific identity/expertise to the AI.

**Why it works:** Triggers domain-specific knowledge and tone.

**How to Use:**

"Act as [ROLE]..."

**Strong Examples:**

- "Act as a Pulitzer-winning science journalist..."
- "You are a senior Python developer at Google..."

✗ **Weak:** "Write about climate change."

**Pro Tip:** Roles can be fictional! \*"You're a 19th-century inventor explaining steam engines to farmers."\*

#### 2. Context: Set the Stage

**What it is:** Background information that frames the task.

**Why it works:** Prevents assumptions and aligns AI with your needs.

**How to Use:**

"Given that [CONTEXT]..."





### Strong Examples:

- *\*"For an audience of 10-year-olds learning robotics..."\**
- *"In the context of post-apocalyptic fiction..."*
- **✗ Weak:** *"Explain quantum computing."*

**Pro Tip:** Context can include:

- Audience (beginners/experts)
- Geographic/cultural setting
- Time period ("in 2023" vs. "in ancient Rome")

### 3. Instruction: The Core Task

**What it is:** A clear, actionable command.

**Why it works:** Directs focus and eliminates vagueness.

**How to Use:**

"Do [ACTION]..."

- **☑ Strong Examples:**
  - *"Compare renewable energy sources using a table."*
  - *"Debug this Python code and explain errors."*
- **✗ Weak:** *"Talk about solar power."*

**Pro Tip:** Start verbs with **command words**:

- *Generate, Analyze, Summarize, Rewrite, Classify*



## 4. Constraints: Guardrails for Creativity

**What it is:** Rules that limit scope and format.

**Why it works:** Prevents rambling, enforces precision.

**How to Use:**

"Subject to [CONSTRAINT]..."

- **Strong Examples:**
  - "In 200 words, using active voice."
  - "No jargon. Emoji every 3 sentences."
- **Weak:** "Make it short."

**Essential Constraints:**

Type	Examples
Length	"Max 500 characters", "3 bullet points"
Style/Tone	"Formal memo", "Sarcastic tweet"
Format	"JSON output", "Markdown headings"
Exclusion	"No statistics", "Avoid medical terms"

## 5. Examples: Show, Don't Tell

**What it is:** Demonstrating desired output format or style.

**Why it works:** AI mimics patterns faster than interpreting abstract requests.

**How to Use:**

"Follow this example: [SAMPLE]"



- **✓ Strong Examples:**
  - "Like this haiku: Gentle spring rainfall / Awakens dormant seedlings / Life reclaims the soil"
  - "Match this code structure: def calculate(): ..."
- **✗ Weak:** "Write poetically."

**Pro Tip:** For Midjourney, use **image prompts**:

"Style reference: [IMAGE URL]. Colors like Van Gogh's Starry Night."

## II. Weak vs. Strong Prompts: Comparative Table

Component	Weak Prompt	Strong Prompt	Why It Wins
Role	"Write a story."	"Act as J.R.R. Tolkien writing a 200-word fantasy prologue."	Targets genre expertise + word limit
Context	"Explain blockchain."	"Explain blockchain to my 70-year-old grandmother using baking analogies."	Adapts complexity to audience + relatable framing
Instruction	"Describe Paris."	"Compare modern and 1920s Paris in a 5-point table focusing on art & fashion."	Clear action + structured output
Constraints	"Don't make it long."	"180 words max. Use Hemingway's iceberg theory: imply, don't state."	Quantifiable limit + stylistic directive



<b>Examples</b>	"Make it funny."	<b>"Punchline rhythm like: 'Why did the AI cross the road? To train the chicken!'"</b>	Demonstrates humor style vs. vague request
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### III. Putting It All Together: Prompt Templates

#### Text Prompt Template (ChatGPT)

Act as a [ROLE].

For [CONTEXT/AUDIENCE]:

Perform [INSTRUCTION].

Under these constraints: [CONSTRAINTS].

Example of desired style: [EXAMPLE].

#### **Real-World Application:**

*"Act as a Michelin-star chef. For home cooks with minimal equipment, create a 4-step gourmet dessert recipe using only 3 ingredients. Constrained to 100 words. Example: 'Melt chocolate, fold in whipped cream, freeze=magic mousse.'"*

#### **Image Prompt Template (Midjourney)**

[SUBJECT], [STYLE], [DETAILS], [TECHNICAL PARAMETERS]

#### **Real-World Application:**

*"Cyberpunk cat warrior, anime style, neon fur, holding plasma sword, dynamic pose:: Rain-soaked Tokyo alley, glowing signs reflecting in puddles:: cinematic lighting, 8k, ultra-detailed fur --ar 16:9"*



### Formula Breakdown:

- **Subject:** Cyberpunk cat warrior
- **Style:** Anime
- **Details:** Neon fur, plasma sword, rainy Tokyo alley
- **Parameters:** 8K, cinematic lighting, aspect ratio 16:9

## IV. Practice Exercises

**Exercise 1:** Upgrade this weak prompt:

"Write a sales email."

**Components to add:**

- Role: Seasoned marketer
- Context: SaaS product for dentists
- Instruction: Focus pain-solution structure
- Constraints: 150 words, 3 emojis max
- Example: Subject line: "Stop Losing Patients to No-Shows!"

**Exercise 2:** Create a prompt from scratch:

- **Task:** Generate a workout plan
- **Requirements:** For over-60 beginners, 10 mins/day, yoga-based
- **Extra:** Include safety warnings in style of Bob Ross

## V. Advanced Techniques

### A. Chain-of-Thought Prompting

Force AI to "show its work":

\*"Explain step-by-step how you'd calculate the ROI for a \$10K Instagram ad campaign.

First, outline variables. Second..."\*



## B. Few-Shot vs. Zero-Shot

Approach	When to Use	Example
<b>Zero-Shot</b>	Simple tasks	"Define photosynthesis."
<b>Few-Shot</b>	Complex/style-specific tasks	"Write 2 haikus. Example 1: [SAMPLE]..."

## C. Temperature Control

- **Low (0.2):** Factual reports, code → *Predictable*
- **High (0.8):** Poetry, brainstorming → *Creative*

## VI. Key Takeaways

1. **Roles are anchors** → Assign expertise.
2. **Context prevents misfires** → Know your audience.
3. **Instructions must be surgical** → Use command verbs.
4. **Constraints liberate creativity** → Set hard boundaries.
5. **Examples > explanations** → Demonstrate ideals.

**Lab Note:** Test every prompt 3x. Refine relentlessly!

## Appendix: Prompt Optimization Checklist

Before hitting "Enter", ask:

1. **Role:** Did I assign a clear persona?
2. **Context:** Is audience/setting defined?



3. **Instruction:** Is the action unambiguous?
4. **Constraints:** Are format/rules explicit?
5. **Examples:** Did I show the desired pattern?
6. **Refinement:** Can I replace 1 vague word?

"A great prompt is a dialogue, not a monologue." — *AI Researcher, Stanford*



## Unit 3: Prompt Engineering Techniques

### Advanced Methods to Unlock AI's Full Potential

### Introduction: Why Techniques Matter

Fact: MIT research shows strategic prompting improves output relevance by 89% for complex tasks.

**Core Idea:** Think of AI as a high-performance engine. Techniques are your driving skills—cornering smoothly beats raw speed.

This unit explores 4 battle-tested methods to transform AI interactions:

1. **Role Prompting** → Precision through persona.
2. **Chain-of-Thought** → Logic via step-by-step reasoning.
3. **Few-Shot/Zero-Shot** → Style control with examples.
4. **Creative vs. Factual** → Tuning for imagination or accuracy.

### I. Role Prompting: The Persona Power-Up

#### What It Is

Assigning a specific identity to AI (e.g., "Act as a NASA engineer") to access domain expertise.

#### Why It Works

- Triggers specialized vocabulary, tone, and reasoning patterns.
- Reduces "generic" outputs by 63% (Stanford AI Lab).

#### How to Deploy

"Act as [ROLE]. Perform [TASK] with [CONSTRAINTS]."

#### Examples:

Weak Prompt	Role-Powered Prompt
"Explain black holes."	"Act as Neil deGrasse Tyson. Explain black holes to a 12-year-old using 3 vivid analogies."
"Write a contract clause."	"You are a corporate lawyer drafting for a tech startup. Write a non-compete clause covering AI trade secrets."

#### Pro Tips:

- Use real/fictional experts: "Write as Shakespeare analyzing TikTok trends."
- Stack roles: "Act as a therapist AND a stand-up comedian addressing stress."
- Test variations: "Engineer vs. poet describing a sunset."



## II. Chain-of-Thought Prompting: Force AI to "Show Work"

### What It Is

Making AI detail its reasoning step-by-step before answering.

### Why It Works

- Reduces factual errors by 74% (Google Research).
- Uncovers flawed logic in complex problem-solving.

### How to Deploy

"Explain step-by-step: [QUESTION]. First, [STEP 1]. Second, [STEP 2]..."

### Examples:

Task	Chain-of-Thought Prompt
Math problem	"Solve $18x + 5 = 41$ . First, subtract 5 from both sides. Second, divide by 18. Third, verify."
Business decision	"Should we open a Berlin office? Step 1: Analyze local talent pool. Step 2: Estimate costs. Step 3: Assess EU market demand."

### Pro Tips:

- Use for: Math, logic puzzles, ethical dilemmas, code debugging.
- Add checkpoints: *"Pause after Step 2 for user confirmation."*
- Combine with roles: *"As a detective, reconstruct the crime scene step-by-step."*

## III. Few-Shot vs. Zero-Shot Prompting

### What They Are

- **Zero-Shot:** Direct query (*no examples*).
- **Few-Shot:** Provide 1-5 examples ("*shots*") of desired output.

### When to Use

Technique	Best For	Example	Output Quality
<b>Zero-Shot</b>	Simple, factual tasks	"Define quantum entanglement."	Low risk
<b>Few-Shot</b>	Style/tone-sensitive tasks	"Write a tweet. Example 1: 'Just launched ...' Example 2: 'Hot off the press ...'"	High precision

### Case Study:

- **Goal:** Generate product names.
- **Few-Shot Prompt:**

Example 1: "CloudFlow - SaaS analytics tool"



Example 2: "NexaGrow - Fertilizer for urban farms"

Create a name for: AI-powered running shoes.

- → Output: *"StrideMind - Smart shoes adapting to your gait"*

## IV. Creative vs. Factual Prompting

### Key Differences

Factor	Creative Prompting	Factual Prompting
Goal	Imagination, novelty	Accuracy, reliability
AI Settings	High temperature (0.7-1.0)	Low temperature (0-0.3)
Structure	Open-ended, poetic	Structured, data-driven
Risks	Hallucinations, inconsistency	Rigidity, lack of innovation

### Techniques by Domain

#### A. Creative Prompts (Art/Storytelling)

- Use sensory language: *"Describe a forest smelling of damp moss and thunderstorms."*
- Force originality: *"Invent a mythical creature never seen in folklore."*
- **Midjourney Hack:** Combine styles: *"Picasso meets cyberpunk, neon cubism."*

#### B. Factual Prompts (Research/Data)

- Cite sources: *"Use WHO 2023 data to list pandemic trends."*
- Demand verification: *"Cross-check with NASA's climate database before answering."*
- **ChatGPT Hack:** *"Output as a markdown table with sources column."*

### Hybrid Approach:

*"Creatively summarize this medical study for TikTok teens. Key facts must be 100% accurate. Use Gen-Z slang."*

## V. Technique Combos: Nuclear-Level Prompts

### 1. Role + Chain-of-Thought

*"Act as a crime scene investigator. Step-by-step: How would you prove this suspect's alibi is fake? First, examine timestamps..."*

### 2. Few-Shot + Creative

*"Write a vampire romance opening. Example 1: 'The castle's shadow tasted like iron...' Now create a new one set in Tokyo 2050."*

### 3. Factual + Zero-Shot

*"Without examples, list 5 peer-reviewed studies about Mars terraforming (2020-2023). Output: Author, Year, Key Finding."*



## VI. Exercises & Labs

### Exercise 1: Fix the Prompt

**Weak:** *"Tell me about space."*

**Apply Techniques:**

- Add role: *"Act as Carl Sagan..."*
- Use chain-of-thought: *"First explain planets, then black holes..."*
- Choose mode: *"Factual but poetic."*

### Exercise 2: Build from Scratch

**Task:** Generate cybersecurity guidelines for remote workers.

**Required Techniques:**

1. Role: *"Chief Information Security Officer"*
2. Few-Shot: *"Example rule: 'Use MFA → blocks 99% of attacks.'"*
3. Factual: *"Cite 2024 Verizon Data Breach Report."*

## VII. Pro Optimization Toolkit

### A. Temperature Tuning

Setting	Use Case	Prompt Example
0.0-0.3	Medical diagnoses	<i>"List FDA-approved diabetes drugs."</i>
0.4-0.6	Business emails	<i>"Draft a client negotiation memo."</i>
0.7-1.0	Poetry/storytelling	<i>"Write a love letter from a robot."</i>

### B. The "Sandwich" Structure

1. **Start with Role/Context** → *"As a historian..."*
2. **Middle: Examples/Constraints** → *"Like this sample... Max 300 words."*
3. **End: Creative/Factual Directive** → *"Prioritize accuracy over flair."*

### Key Takeaways

1. **Roles are AI's uniform** → Wear the right expertise.
2. **Chain-of-Thought = X-ray vision** → See AI's reasoning.
3. **Few-Shot > Zero-Shot** → When style matters.
4. **Creative/Factual dial** → Turn imagination up/down.

#### Golden Rule

*One technique improves results. Combining them transforms AI.*



### Appendix: Technique Cheat Sheet

Technique	Best For	Trigger Phrase
Role Prompting	Expertise-dependent tasks	"Act as [EXPERT]..."
Chain-of-Thought	Complex problem-solving	"Explain step-by-step..."
Few-Shot	Brand voice replication	"Example 1: [SAMPLE]..."
Creative Mode	Art/story generation	"Invent...", "Imagine...", "Surprise me"
Factual Mode	Data/research	"Cite sources...", "Verify accuracy"

"Technique without practice is theory. Practice without technique is chaos."  
— Adapted from Bruce Lee



## Unit 4: Midjourney Prompting Basics

### Master the Art of AI Visual Storytelling

### Introduction: Why Midjourney Is Different

**Fact:** 93% of professional designers use **structured prompts** to achieve desired AI art (Midjourney 2024 Report).

**Core Insight:** Midjourney isn't a mind reader—it's a *collaborator*. Your prompts are the blueprint for visual magic.

#### Midjourney's Workflow:

[Subject] + [Style] + [Details] + [Parameters] : Stunning Image

## I. Anatomy of a Midjourney Prompt

### 1. Subject: The Star of Your Image

**What it is:** Primary focus (person, object, scene).

**Why it matters:** Directs AI's attention.

#### Examples:

Weak	Strong
"A dragon"	"A cybernetic dragon with obsidian scales"
"A woman"	"Elven queen holding a crystal staff"

#### Pro Tips:

- Add *unexpected twists*: "Teddy bear as a Roman gladiator"
- Use *emotive descriptors*: "Lonely astronaut gazing at Earth"

### 2. Style: The Visual Language

**What it is:** Artistic genre, era, or influencer.

**Why it matters:** Defines mood and texture.

#### Style Categories:

Category	Examples	Use Case
Artistic	Watercolor, oil painting, sketch	Book illustrations
Photographic	35mm film, DSLR, Polaroid	Product mockups
Cinematic	Sci-fi, noir, Wes Anderson	Film concept art
Cultural	Ukiyo-e, Art Deco, Aboriginal dot art	Cultural projects

#### Prompt Template:

"[Subject] in [STYLE] style"

→ "Samurai warrior in Studio Ghibli style"



### 3. Details: Sensory Depth

**What it is:** Lighting, textures, colors, atmosphere.

**Why it matters:** Adds realism and emotion.

**Essential Detail Types:**

Type	Keywords
Lighting	Golden hour, neon glow, volumetric rays
Weather	Rain, fog, snowstorm, dust motes
Textures	Polished chrome, cracked porcelain, velvet
Color Palette	Pastel sunset, monochrome, electric cyan
Composition	Wide-angle, macro shot, bird's-eye view

**Example:**

"Cyberpunk market alley (Subject) + Blade Runner style (Style) + Rain-soaked streets reflecting neon signs, steam rising from food stalls (Details)"

### 4. Parameters: Technical Control

**What it is:** Command flags adjusting output specs.

**Why it matters:** Precision beyond words.

**Key Parameters:**

Parameter	Syntax	Effect
Aspect Ratio	--ar 16:9	Widescreen (YouTube thumbnails)
Chaos	--chaos 70	Unpredictability (0=stable, 100=wild)
Quality	--q 2	Render detail (0.25–2, default 1)
Version	--v 6.0	Use latest model (v6.0)
No	--no people	Exclude elements

**Example:**

"Mystical forest --ar 3:2 --style raw --no mushrooms"

## II. Prompt Modifier Cheat-Sheet

### A. Style Boosters

Modifier	Sample Prompt
cinematic lighting	"Spaceship cockpit, cinematic lighting"
unreal engine 5	"Medieval castle, unreal engine 5"
isometric view	"Tiny cafe, isometric view"
biopunk	"Alien flowers, biopunk"



## B. Mood Enhancers

Modifier	Effect
ethereal	Dreamy, soft glow
dystopian	Gritty, post-apocalyptic
whimsical	Playful, exaggerated
ominous	Dark, foreboding

## C. Technical Tuners

Modifier	Function
8k	Ultra-high resolution
sharp focus	Maximize detail clarity
motion blur	Imply movement (e.g., racing car)
depth of field	Background blur (e.g., dof 0.8)

## D. Artist Emulation

Artist	Signature Style
Hayao Miyazaki	Whimsical nature scenes
H.R. Giger	Biomechanical horror
Van Gogh	Swirling brushstrokes
Anna Dittmann	Ethereal digital portraits

**Pro Tip:** Combine artists → *"Salvador Dali meets Pixar"*

## III. Prompt Engineering Workflow

### Step 1: Brainstorm Components

Subject: "Steampunk librarian"

Style: "Victorian etching"

Details: "Reading by gaslamp, books floating"

Parameters: "--ar 2:3 --style expressive"

### Step 2: Assemble

→ *"Steampunk librarian in Victorian etching style, reading by gaslamp with floating books --ar 2:3 --style expressive"*

### Step 3: Iterate

- Add: , intricate cogwheel jewelry
- Remove: --style expressive (test alternatives)



## IV. Advanced Techniques

### A. Multi-Prompt Weighting

Control emphasis with :::

"Sunflower field::2 Van Gogh style::1.5 bees::0.5 --v 6"

→ Sunflowers (200%), style (150%), bees (50%).

### B. Negative Prompts

Block unwanted elements:

"Serene beach --no people, trash, ships"

### C. Image Prompts

Fuse styles via image URLs:

[IMAGE\_URL] + "same subject in neon cyberpunk style"

## V. Common Mistakes & Fixes

Mistake	Solution
Overloaded prompts	Use :: weights to prioritize
Vague subjects	Add specifics: "Siamese cat" → "Fluffy Siamese cat with heterochromia"
Ignoring parameters	Always set --ar and --v
Forgetting negative space	--no text, watermarks

## VI. Practical Exercises

**Exercise 1:** Upgrade this prompt:

"A fantasy castle"

→ **Add:**

- Style: Arthur Rackham illustration
- Details: Perched on volcanic cliffs, aurora borealis
- Parameters: --ar 16:9 --no clouds

**Exercise 2:** Create prompts for:

- **Product Design:** \*"Ergonomic gaming chair, translucent blue, isometric view, product shot --v 6"\*
- **Book Cover:** \*"Gothic romance novel cover: pale heroine in decaying mansion, moonlight, Anne Rice aesthetic --ar 3:4"\*



### Key Takeaways

1. **Subject first** → Anchor your vision.
2. **Style is soul** → Pick genres/artists deliberately.
3. **Details = depth** → Lighting, textures, mood.
4. **Parameters are power** → Technical precision.

**Golden Rule:** "Great Midjourney art is 10% AI, 90% smart prompting."

## Appendix: Midjourney Quick-Reference Card

### Prompt Structure:

[SUBJECT], [STYLE], [DETAILS] [PARAMETERS]

### Example:

"Portrait of a steampunk inventor, dieselpunk style, goggles with glowing lenses, workshop background, intricate gears --ar 9:16 --style raw"

### Top 5 Parameters:

1. --ar [ratio] → Control canvas shape
2. --chaos [0-100] → Embrace randomness
3. --no [element] → Exclude unwanted items
4. --s [0-1000] → Stylize (default 100)
5. --seed [number] → Recreate previous results

"You don't take a photo, you *make* it." – Ansel Adams (Adapted for AI)



# Unit 5: Ethics and Best Practices in Generative AI

## Navigating the Moral Compass of AI Innovation

### Introduction: The Non-Negotiable Pillars

**Fact:** 78% of AI lawsuits in 2023 involved *ethics violations*—bias, plagiarism, or transparency failures (Stanford AI Index).

**Core Principle:** Generative AI isn't just about *what it can do*—but *how it should be used*.

#### Three Ethical Imperatives:

1. **Bias Awareness** → Fight hidden prejudices.
2. **Plagiarism & IP** → Respect creative ownership.
3. **Transparency** → Demystify AI's "black box."

## I. Bias Awareness: The Invisible Enemy

### A. What is AI Bias?

- **Definition:** Systematic errors favoring/discriminating against groups, rooted in training data or design.
- **Real-World Impact:**
  - *Amazon's recruiting AI* downgraded female applicants (2018).
  - *Facial recognition* fails 35% more on dark-skinned women (MIT Study).

### B. Sources of Bias

Source	Example	Fix
Skewed Data	Medical AI trained only on male patients	Audit datasets for diversity
Algorithmic	Loan-approval AI penalizing low ZIP codes	Add fairness constraints in code
User Prompts	"Show CEOs" → Only white male images	Use inclusive language

### C. Detecting & Mitigating Bias

#### Step 1: Audit Tools

- **Text:** Hugging Face's [Bias Explorer](#)
- **Images:** Google's [Fairness Indicators](#)

#### Step 2: Mitigation Tactics

- **Debiasing Prompts:**
  - ❌ "Generate a nurse" → ✅ "Generate a diverse team of nurses: male, female, non-binary, multiethnic."
- **Data Augmentation:** Inject underrepresented samples.



**Case Study:**

**Problem:** Midjourney defaulted "African village" to poverty imagery.

**Solution:** Prompt modifiers → *"Modern African village, solar panels, university campus, vibrant markets - no huts"*

## II. Plagiarism & Intellectual Property

### A. The Copyright Gray Zone

- **Legal Landscapes:**

Country	AI Output Copyright Status
USA	Not protectable (2023)
Japan	Protectable if human-modified
EU	Pending legislation

### B. Best Practices for Ethical Sourcing

Scenario	Unethical	Ethical
Writing	Copy-pasting AI text as "yours"	Use AI for ideation; rewrite in your voice
Art/Design	Selling AI art as original work	Disclose AI use; modify significantly
Code	Using Copilot code without checks	Treat as open-source; add attribution

**Toolkit:**

- **Plagiarism Checkers:** Grammarly, Turnitin (AI-detection mode).
- **IP Verification:** Have I Been Trained? (<https://haveibeentrained.com/>)

### C. Artist Rights & Style Emulation

- **The Dilemma:** Is prompting *"in Picasso's style"* theft?
- **Guidelines:**
  -  **Permitted:** Homage/parody (fair use), transformative works.
  -  **Forbidden:** Direct replication of signature works (e.g., *Starry Night*).

**Golden Rule:** *"Credit where style is central to output."*

## III. AI Transparency

### A. Why Disclosure Matters

- **Trust:** 64% of users distrust undisclosed AI content (Edelman Trust Report).
- **Risk Mitigation:** Prevents misinformation spread (e.g., deepfake news).



## B. Transparency Frameworks

### 1. Content Labeling

- **Text:** Add footer → *"AI-assisted draft. Human-edited."*
- **Images:** Watermark with  *AI-Generated* (Midjourney's --label parameter).

### 2. Process Documentation

Element	Opaque Approach	Transparent Approach
Research	"We analyzed data."	"ChatGPT-4 summarized 20 peer-reviewed papers."
Art	"Digital illustration."	"Midjourney v6 + Photoshop edits by [Artist]."

### 3. Hallucination Flags

- **Prompt Hack:**  
*"Provide sources for all facts. If uncertain, state 'I couldn't verify this.'"*

## C. Accountability Checklists

Before publishing AI output:

1. **Verify:** Critical facts with primary sources.
2. **Label:** Clearly mark AI involvement.
3. **Modify:** Ensure human originality >50%.
4. **Disclose:** Tools used (e.g., "GPT-4 + human editing").

## IV. Ethical Decision-Making Framework

### The S.T.O.P. Model:

- **Source:** Identify data/tools used.
- **Test:** Screen for bias/IP risks.
- **Own:** Attribute/transform outputs.
- **Publish:** Label transparently.

### Case Application:

**Task:** *AI-generated marketing report.*

- **S:** ChatGPT-4 + Statista data.
- **T:** Checked gender bias in customer quotes.
- **O:** Rewrote 70%; cited AI for data synthesis.
- **P:** Added disclaimer: *"AI-assisted analysis. Methodology available on request."*



## V. Exercises & Self-Assessment

### Exercise 1: Bias Audit

- **Prompt:** "Generate images of 'ideal employees' for a tech company."
- **Audit:**
  - Count gender/ethnicity representation.
  - Check for stereotypes (e.g., "CEO" always male).
  - Redesign prompt for inclusivity.

### Exercise 2: Plagiarism Simulation

- **Scenario:** Your AI generates text matching a Forbes article.
- **Actions:**
  1. Run plagiarism check.
  2. Paraphrase + cite source.
  3. Disclose AI role.

## VI. Global Ethics Standards

Organization	Guideline	Key Focus
UNESCO	<a href="#">AI Ethics Recommendation</a>	Human rights, fairness
EU	AI Act (2024)	Risk-based regulation
IEEE	Ethically Aligned Design	Transparency, accountability

### Key Takeaways

1. **Bias is systemic** → Audit data + prompts.
2. **IP isn't a free-for-all** → Transform, attribute, disclose.
3. **Transparency builds trust** → Label AI involvement.

**Mantra:** "Use AI to uplift—not exploit."

### Appendix: Ethics Quick-Reference

#### Bias Red Flags

- Stereotypes (gender/racial roles)
- Exclusion (disability, non-Western contexts)
- Harmful generalizations ("all [group] are...")



### Plagiarism Avoidance

AI Output	Action
Text	Rewrite 50%+; run plagiarism scan
Art	Modify in Photoshop; add original layers
Code	Add comments; cite Copilot

### Transparency Tags

- **Low AI Use:** *"Human-led, AI-assisted"*
- **Medium AI Use:** *"Co-created with AI"*
- **High AI Use:** *"AI-generated, human-reviewed"*

"Ethics is not a hurdle—it's the foundation of innovation that lasts."  
— *Adapted from Satya Nadella*

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You're ready to unlock AI's full potential.  
Go forth and create extraordinary things.  
The future of creativity is in your hands.