

# Wise and Effective Use of Large Language Models

David I. Inouye

# The Core Question: How Should We Use AI?

Three farmers were each given a strong ox and a new plow by their master.

- The first said, ‘Oxen are too messy and unpredictable—I’ll do it by hand.’ He worked hard, but his field remained small and yielded little.
- The second said, ‘This ox can do the work for me,’ and let it run without guidance. It wandered, trampled crops, and the field became a ruin.
- But the third farmer yoked the ox, guided it with care, tilled straight rows, and prayed for rain. In the end, his field bore a rich harvest.

**Which of them was wise in the eyes of the master?**

# Section 1: Understanding the Technology

Before we can use a tool wisely, we must first understand what it is. In this section, we'll cover:

- **What an LLM is** and how it's created.
- The **key insight** into its nature.

# What is a Large Language Model (LLM)?

- An LLM (like ChatGPT) is an AI that can generate natural language, trained on massive amounts of human-written content.
- **How It's Made:**
  - **Stage 1 - Pretraining:** It reads billions of sentences to learn word patterns by predicting the next word. (e.g., “God created the heavens and the...” → earth)
  - **Stage 2 - Fine-Tuning (RLHF):** Humans rate and correct its responses to fine-tune it for helpfulness and alignment with human values.
- **Key Insight:** LLMs reflect human intelligence—which is also flawed and limited.

## Section 2: A Framework for Wise Use

To understand AI's limitations and potential, I suggest two mental models.

- **AI as a Tool** 🛠️: To pursue diligence.
- **AI as a Book** 📖: To practice discernment.

These models help us frame appropriate applications and anticipate risks.

# Mental Model 1 — AI as a Tool

## Getting Things Done (More) Efficiently

- **Concept:** AI as a tool for organizing and executing tasks more efficiently.
- **Historical Viewpoint:** Just as engines transformed physical work, LLMs are transforming knowledge work.
- **Guiding Principle:** Beware of **laziness** and pursue **diligence**. *Using AI simply to avoid effort is its easiest misuse.*

# Mental Model 2 — AI as a Book

## Personalized & Dynamic Knowledge

- **Concept:** AI as a personalized, adaptive, and dynamic book.
- **Historical viewpoint:**
  - Oral cultures → Written texts → Printing press → Internet → Google Search → ChatGPT
  - Represents a new layer of interactive knowledge distillation
- **The Storyteller Twist:** This “book” is also a creative storyteller.
  - It can produce **persuasive words**, but they **may not be true**.
  - Responses are often **plausible and confident** but could be **false**.
- **Guiding Principle: Discernment is essential.** The “book” can produce persuasive words that may be false, even though plausible and confident sounding.

# The Discernment Spectrum: You Are Responsible

- The intensity of your validation should match the stakes of the task.
- **You are always responsible for the final work.**
- Examples
  - **Brainstorming & Learning** - **Low stakes**. You don't need to scrutinize everything but remain mindful that information may be flawed.
  - **Writing & Content Generation** - **High stakes**. You **MUST** carefully validate all information and be able to justify every claim.
  - **Coding** - **Mixed stakes**. A quick prototype is low-stakes. Deployed code is high-stakes and must be validated line-by-line.

# Section 3: A Practical Guide to Effective Use

Now let's move from theory to practice. We'll learn how to interact with an LLM effectively by treating it like a personal assistant.

- Understand the **Multiplier Principle**.
- Give clear instructions with the **PARTS** framework.
- Provide rich **Context**.
- **Refine** the output through conversation.

# The Multiplier Principle: Your Knowledge is Key

The effectiveness of an LLM is directly proportional to your own understanding.

- Think of it as a **1.5x or 2x multiplier** of your abilities, not a substitute for them.
- If your own understanding of a topic is 0, then even at 2x that is still 0.
- Like any tool, its power depends on the skill of the user.
- To use an LLM effectively, you must first focus on deepening your own understanding.

# How to Use LLMs Effectively: Your Personal Assistant

The best way to interact with an LLM is to think of it like a personal assistant.

- **Your Role:** You provide clear instructions (prompts) and the relevant information (context) for the task.
- **The LLM's Role:** It uses its vast training and the context you provide to perform the task.

# PARTS Prompts for Clearer Instructions

## Framework Overview

- **P – Purpose** What is the primary goal or task you are trying to accomplish?
- **A – Audience** Who is the final output intended for? This dictates the level of complexity, language, and style.
- **R – Role** What persona or role should the AI adopt? This influences its perspective and voice.
- **T – Tone** What is the desired feeling or attitude of the response? (e.g., formal, friendly, academic).
- **S – Scope** What are the specific constraints or boundaries? (e.g., length, format, key elements to include/exclude).

## Example Prompt

Please act as a **friendly and experienced TA for an introductory AI course**. I need you to **explain the core idea behind the backpropagation algorithm**.

The explanation should be for **a graduate computer engineering student who understands the basics of neural networks but finds the calculus intimidating**. Please use a **simple, encouraging, and intuitive tone**, relying on an analogy to explain the process rather than getting bogged down in complex formulas.

For the scope, please **keep the explanation under 400 words**. **Make sure to give both intuition and the math behind backpropagation**.

# Providing Context: Better Input = Better Output

Context is any information relevant to the task, like documents on an assistant's desk. The more information you provide, the better the output will be.

- **Key Principle:** The more of your own content, outlines, and rough notes you provide, the better the LLM's output will be.
- **Practical Tip:** Don't worry about perfect formatting; you can paste in very rough notes. The substance and guidance you provide are what matter most.

# Refining the Output: It's a Conversation

- **Process:** Don't settle for the first answer. Think of it as a conversation where you clarify, add, and revise to get what you need.
- **Key principle:** It's often **easier to validate and refine** an AI's output than to **create it from scratch**.
  - *Mindset Shift:* Your role shifts from being a **creator** to an **editor**.

# Additional Guiding Questions for Wise Use

Continually ask yourself reflective questions when using AI:

- Does this change the nature or intention of my work?
- Is this making me lazier or more effective?
- Does this hinder the development of my own critical skills, or does it enhance them?

# Summary & Key Takeaways

- **Framework:** Use the mental models of a **Tool** (for diligence) and a **Book** (for discernment).
- **Discernment:** You are always responsible for the output. Tailor your validation level to the task's stakes (brainstorming vs. writing vs. coding).
- **Effectiveness:** An LLM is a **Multiplier** of your own knowledge. Deepen your understanding to use it well.
- **How-To:** Treat it like a **Personal Assistant**. Give it clear **PARTS** prompts and rich **Context**. Then, **Refine** the output through conversation.
- **Wisdom:** Continually ask guiding questions to ensure wise rather than foolish use.

Questions?