

CO-INTELLIGENCE: 心得分享

Living and Working with AI

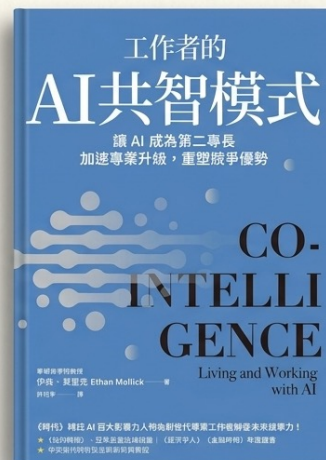
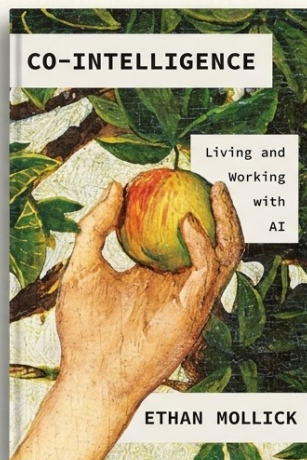
Presented by Nell Yang

爾灣讀書會 (IBC)

October 14, 2026

Gemini Notebook

1



Embracing AI as our collaborative partner in progress
擁抱 AI，成為我們共同成長的夥伴

Gemini Notebook

2

Meet the Author / 認識作者

Ethan Mollick

University of Pennsylvania (Penn) • The Wharton School
賓州大學 (U Penn) • 華頓商學院

A teacher who demystifies technology with optimism and clarity.
一位以樂觀與清晰的視角，把 AI 講得實用、清楚又容易懂的老師。



Wharton Generative AI Labs / 華頓生成式 AI 實驗室

Co-Director with his wife, Dr. Lilach Mollick • 與妻子 Dr. Lilach Mollick 共同領導

NEW BOOK — Co-Existence

Successor to Co-Intelligence
2026 年 10 月 20 日出版

co-existence.ai

KEEP CURRENT — One Useful Thing

Mollick 的 AI blog / newsletter
追蹤 AI × 工作 × 教育 × 生活

oneusefulthing.org

Co-Intelligence (2024) → Co-Existence (10/20/2026) → One Useful Thing

3

Today's Journey / 今天的聚會大綱



4

Friendly Reminder / 輕鬆聽，無壓力

Fair warning:

I do take a few technical detours.

If a slide gets a little nerdy, don't panic — the big idea matters more than every detail.

先打個預防針：我們可能會繞進幾段比較技術性的內容。

如果某張投影片有點「燒腦」，先別緊張——抓住大方向，比每個細節都懂更重要。



In person or on Zoom, we'll figure it out together.

現場或 Zoom 上，我們一起摸索。

I am not an AI expert —
just an enthusiastic learner.

Different opinions welcome.

*Please be kind —
I'm still learning. 😊*

我不是 AI 專家，
只是個熱心學習者。

歡迎不同意見。

請手下留情——
我還在學習中。😊

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Phase 1. Pre-ChatGPT A Brief History of AI (1950–2022) Seven Turning Points of AI

第一階段：ChatGPT 前的 AI：人工智慧簡史 (1950–2022)
AI 的七個關鍵轉折

Seven turning points that carried AI from theory to everyday life.

七個關鍵轉折，帶領 AI 從理論走進日常生活。

6

Alan Turing's Big Question (1950)

艾倫·圖靈的世紀之問



- The 1950 Imitation Game.
1950 年的「模仿遊戲」。



- Can machines think?
機器能思考嗎？



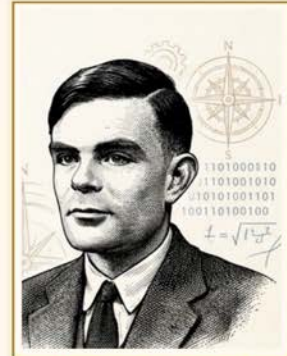
- Turing did not ask whether machines have souls. He asked whether a machine's answers could become indistinguishable from a human's.
圖靈問的不是機器有沒有靈魂，而是它的回答，能不能像人類一樣難以分辨。

1950
The Imitation Game
「模仿遊戲」



became the basis for
成為「圖靈測試」的基礎

The Turing Test
「圖靈測試」



Alan Turing / 艾倫·圖靈

— A question that opened the modern age of AI. / 開啟現代 AI 時代的一個問題。 —

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AI at the Movies

The Imitation Game

模仿遊戲

AI CONNECTION | AI 連結

Turing Test, machine intelligence,
and the question: Can machines
think?

TAKEAWAY | 一句話

The question began early.
We still answer it today.

Can machines think? Humans still decide.



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AI at the Movies

Ex Machina

人造意識

AI CONNECTION | AI 連結

Turing Test, persuasion, deception, and consciousness.

TAKEAWAY | 一句話

Fluent talk does not prove understanding.

Passing the test ≠ passing the trust test.



9

The Birth of the Name (1956)

『人工智慧』誕生了

1 John McCarthy coined the term in 1956.

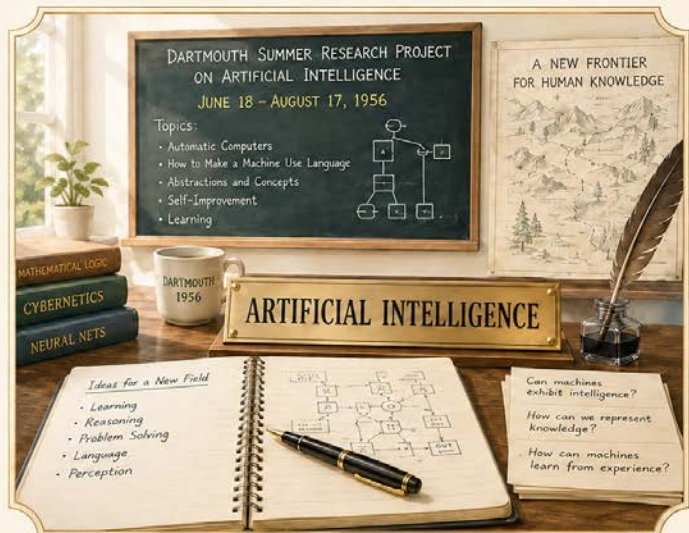
John McCarthy 於 1956 年正式提出「Artificial Intelligence / 人工智慧」這個名稱。

2 Artificial Intelligence officially became an academic discipline.

「人工智慧」正式成為一門學科。

3 A field becomes easier to study, discuss, and build when it has a name. In 1956, that name was Artificial Intelligence.

一個領域一旦有了名字，就更容易被研究、討論與建構。
1956 年，這個名字就是「人工智慧」。



🌿 A new field received its name—and a new era began. / 一個新領域得到了它的名字，一個新時代也隨之展開。🌿

10

The Architects in the AI Winter / 寒冬中的架構師 (1980s-2000s)

Often called the "Godfathers of Deep Learning" / 常被稱為「深度學習三教父」

2018 ACM A.M. Turing Award · 常被譽為「電腦科學界的諾貝爾獎」

Geoffrey Hinton

Learning from errors / 從錯誤中學習

Backpropagation & deep networks / 反向傳播與深層網路

像老師改考卷：把錯誤一層層傳回去，讓網路逐步調整。

Yann LeCun

Seeing patterns / 看懂圖像

Convolutional neural networks / 卷積神經網路 (CNN)

像學看圖：先找線條與形狀，再辨認手寫字和物體。

Yoshua Bengio

Learning word meaning / 理解詞語關係

Neural language models / 神經語言模型

讓電腦學會詞語之間的關係，成為今日 LLM 的重要基礎。

Together, they helped make deep neural networks practical.
他們共同讓深層神經網路走出實驗室，成為現代 AI 的重要基礎。



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The Fuel for the Revolution (2009) / 點燃革命的燃料

Dr. Fei-Fei Li

李飛飛 教授

(The Data Provider / 數據提供者)

The digital brain sat in a dark room with nothing to practice on. Dr. Li built ImageNet.

ImageNet 就像替電腦準備了一座巨大的圖像教科書，讓深度學習有足夠的例子去練習「看」。所以 data——資料——是這場革命的重要燃料。



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The Hardware Engine (2012) 革命的硬體發動機

Jensen Huang / 黃仁勳
(The Engine Builder / 引擎建造者)

- Traditional CPUs are powerful, but many AI tasks require massive parallel computation.
傳統 CPU 很強，但很多 AI 計算需要大量平行運算。
- GPUs were originally designed for video game graphics, but they turned out to be ideal for this kind of work.
GPU 原本是為了電玩圖形設計，卻非常適合這類工作。
- Jensen Huang and NVIDIA brought GPUs from the world of gaming into AI computing—like giving a rocket a far more powerful engine. Without this computing power, many models might work in theory, but could not run in practice.
Jensen Huang 和 NVIDIA 把 GPU 從遊戲世界帶進 AI 計算，結果像是替火箭裝上更強的引擎。沒有這種算力，很多模型可能理論上可行，實際上卻跑不動。



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The Software Breakthrough (2017) / 軟體的關鍵突破

The Transformer Architecture / Transformer 架構 (The “T” in ChatGPT / ChatGPT 中的 “T”)



A team of Google researchers published a paper titled “Attention Is All You Need.” They invented a framework that allowed AI to stop reading word-by-word. Suddenly, AI could read entire sentences simultaneously, mastering deep human context.

Google 研究團隊發表了論文《Attention Is All You Need》。他們發明了一種新架構，讓 AI 不再逐字閱讀。AI 突然間能同時處理整段文字，完美掌握人類語言的複雜上下文。

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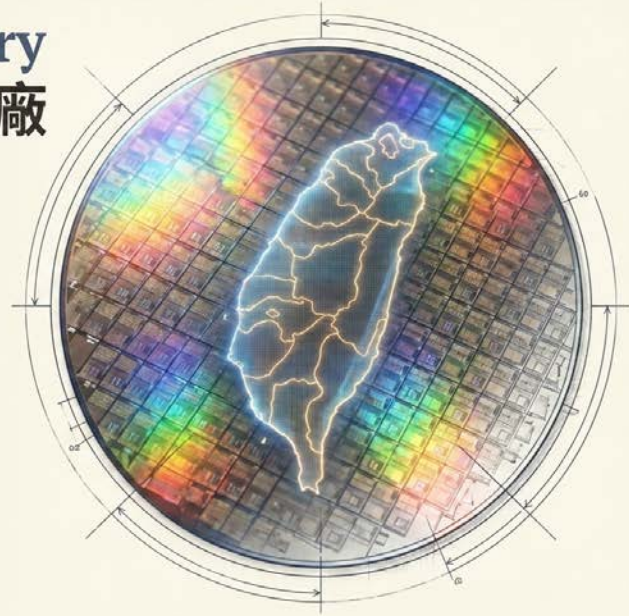
The Ultimate Foundry 萬物背後的終極鑄造廠

TSMC: The Bottleneck of the
AI Universe

台積電 (TSMC)：全球 AI 產業的
關鍵節點

TSMC manufactures over 90% of
the world's most advanced
computing chips.

全球超過 90% 最先進的運算晶片
源自台灣。



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The Assembled Rocket Ship AI 革命的完整火箭

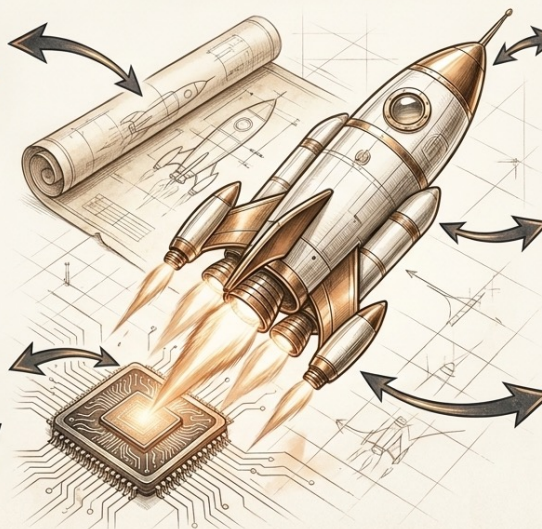
The Blueprint
藍圖: Alan Turing
(The Dream / 夢想)

The Architects / 架構師:
Hinton, LeCun, Bengio
(The Brain / 大腦)

The Fuel / 燃料:
Dr. Fei-Fei Li
(ImageNet Data / 巨型數據)

The Factory / 工廠:
TSMC / 台積電
(Physical Silicon /
實體矽晶片)

The Engine / 引擎:
Google's Transformer
& NVIDIA GPUs
(Scale / 規模化)



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Liftoff: The Big Bang of AI 全民 AI 的世紀大爆發



November 2022: OpenAI launches ChatGPT
2022年11月：OpenAI 推出 ChatGPT

From a laboratory tool to an everyday utility for humanity.
從學術實驗室的工具，正式轉變為全人類的日常實用工具。

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Two Ways to See AI

兩種理解 AI 的方式

Technology Relay Race vs. Jensen Huang's Five-Layer AI Cake (2026)

AI 發展接力賽 vs. 黃仁勳的「AI 五層蛋糕」(2026)

Relay race = HOW we got here • Five-layer cake = WHAT must work together now
接力賽看「AI 怎麼一路走到今天」 • 五層蛋糕看「今天的 AI 需要哪些層一起運作」

1 The Relay Race / 接力賽

A timeline of breakthroughs / 一條「時間軸」



Question → breakthrough → next breakthrough → today

重點：不同年代的人與技術，像接力一樣把 AI 一棒一棒推進。

Best for understanding history. / 最適合用來理解「歷史」。

2 Jensen Huang's 5-Layer AI Cake

黃仁勳的「AI 五層蛋糕」

A technology stack / 一個「系統堆疊」



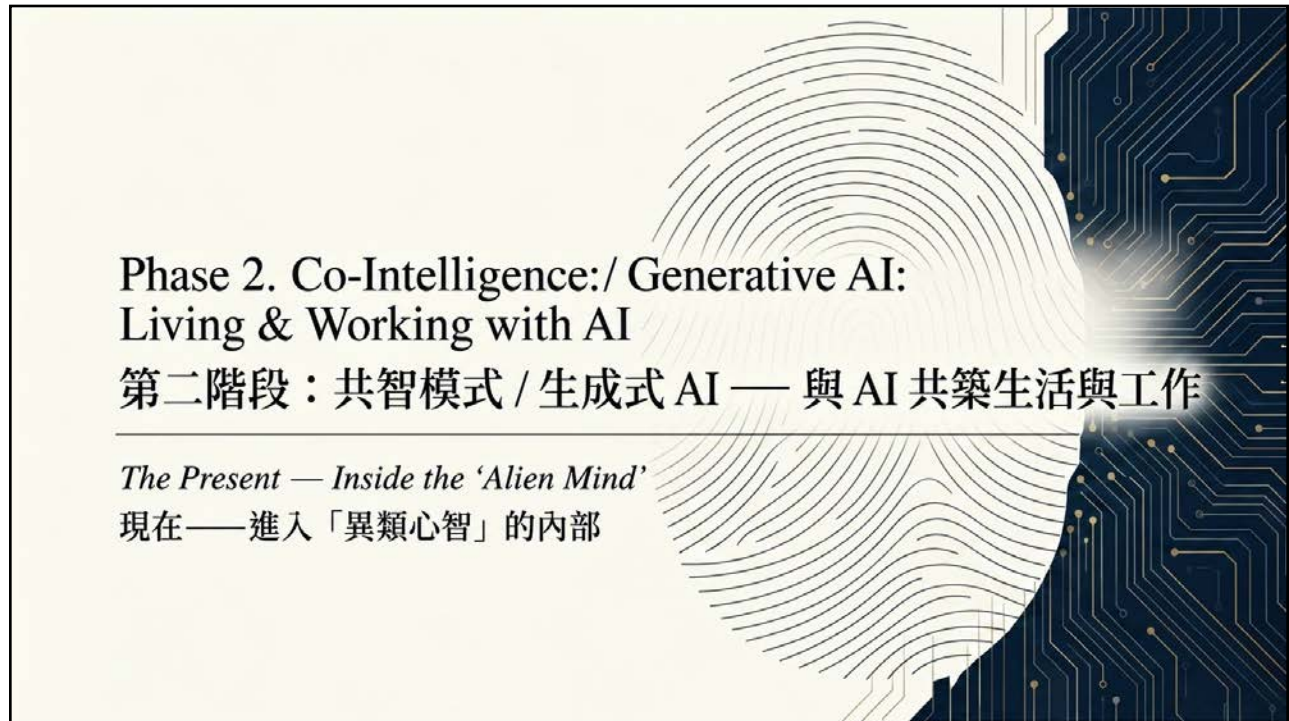
Bottom → top: each layer depends on the layers below.
由下往上：每一層都靠下面的層支撐。

The relay is a TIMELINE; the cake is a STACK.
接力賽看時間；五層蛋糕看系統。

Where is DATA? In this metaphor it is not a separate layer, but it sits supports models and applications.
資料呢？這個比喻沒有把資料獨立成一層，但它仍支撐模型與應用。

Source: NVIDIA, "AI in a 5-Layer Cake" (2024).

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Phase 2. Co-Intelligence:/ Generative AI:
Living & Working with AI

第二階段：共智模式 / 生成式 AI —— 與 AI 共築生活與工作

The Present — Inside the 'Alien Mind'
現在——進入「異類心智」的內部

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Part 2A / 第二部分 A

AI 怎麼工作？為什麼會犯錯？

三個很重要的觀念：

- 1 AI 是一個 token、一個 token 在產生答案。
AI generates the answer one token at a time.
- 2 我們其實無法完整解釋它內部所有行為為什麼會出現。
We actually cannot fully explain why all of its internal behaviors emerge.
- 3 它有時候會犯一些非常奇怪的錯誤。
Sometimes it makes very strange mistakes.

💡 所以 AI 可以非常厲害，同時又非常不可靠。這兩件事可以同時是真的。
So AI can be extremely powerful and also very unreliable.
Both can be true at the same time.

Token (詞元)：AI 處理文字時使用的小單位。它可能是一個字、一個詞、詞的一部分，或標點符號

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CO-INTELLIGENCE • INTRODUCTION | 《共智》導論

Three Sleepless Nights / 三個不眠之夜

Why Ethan Mollick stopped sleeping — and started rethinking work, learning, and intelligence.
為什麼 Ethan Mollick 睡不著——也開始重新思考工作、學習與「智能」本身。

1 The moment everything changed | 轉折點

In Nov. 2022, ChatGPT showed Mollick that LLMs were not ordinary software: you could talk with them, and they could produce useful work.

2022 年 11 月，ChatGPT 讓 Mollick 意識到：LLM 不是一般軟體；人可以與它對話，而它能產出有用成果。

2 The classroom shock | 課堂震撼

When he brought GPT into class, students immediately asked about jobs; AI could already draft, explain, simulate, and negotiate.

當他把 GPT 帶進課堂，學生立刻擔心工作；AI 已能寫作、解釋、模擬與談判。

3 Bigger than a chatbot | 不只是聊天機器人

Mollick argues AI may be a General Purpose Technology—like electricity or the internet—but spreading much faster.

Mollick 認為 AI 可能像電力或網際網路一樣，是「通用目的技術」，但擴散速度更快。

4 The question of Co-Intelligence | 「共智」真正的問題

The key question is not worship or fear, but how to test, guide, and collaborate with this new "co-intelligence."

關鍵不是崇拜或恐懼，而是如何實驗、引導，並與這個新的「共智」合作。



THE TAKEAWAY | 核心重點

The "three sleepless nights" capture both excitement and anxiety: AI is already changing behavior now, so learning to work with it cannot wait.

「三個不眠之夜」同時代表興奮與不安：AI 已經在改變人的行為，因此學會如何與它共事，不能再等。

Source: Ethan Mollick, Co-Intelligence, Introduction: "Three Sleepless Nights" | 摘要自《共智》導論

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What is an LLM? (Large Language Model) 什麼是大語言模型？



Concept / 概念：

LLM = Large Language Model.
LLM = 大語言模型。



白話說法 / Plain-language analogy：

A supercharged version of the auto-complete function on your smartphone.

就像手機傳簡訊時的「自動接字」功能，只是強大很多很多。

Because it has learned patterns from enormous amounts of text, it can answer questions, summarize, translate, and help us draft writing.

因為它學過海量文字中的規律，所以能回答問題、做摘要、翻譯，也能幫我們寫草稿。



LLM 學的是語言規律，而不是像人類一樣真正懂了世界。

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Next-Token Prediction 預測下一個詞



How generative AI writes / 生成式 AI 怎麼寫：

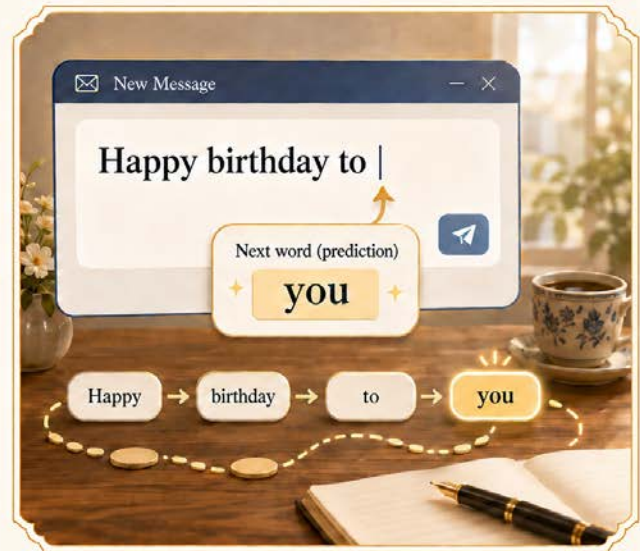
AI writes one small piece at a time.
AI 是一小段、一小段地往前寫。



AI guesses the most likely next word based on statistical patterns learned from enormous amounts of human writing.

AI 會根據從海量人類文字中學到的統計規律，猜出下一個最可能出現的詞。

That is why AI generates language one step at a time.
這就是為什麼 AI 會一步一步地生成文字。



One best guess at a time. / 它一步一步預測下一個 token。

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The Magic Transformer (2017) 魔法轉換器 (2017)



The Transformer was the breakthrough formula that changed everything in 2017.

Transformer 是 2017 年改變一切的關鍵公式。



It helps AI decide which words matter most in a sentence.

它幫助 AI 判斷一句話裡，哪些詞最重要。



Why it feels magical / 為什麼像魔法：

- It pays attention to context.
它會看前後文。
- It gives different words different importance.
它會給不同的詞不同的重要性。
- That helps AI understand meaning more clearly.
這讓 AI 更能理解句子的意思。



過去的 AI 逐字摸索、顧此失彼；Transformer 讓 AI 能一眼縱覽全域，真正讀懂字裡行間的話中有話。

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AI at the Movies

Transformers

變形金剛

AI CONNECTION | AI 連結

A playful memory hook for the Transformer model in AI.

TAKEAWAY | 一句話

In AI, Transformer is a language architecture, not a giant robot.

No giant robots required.



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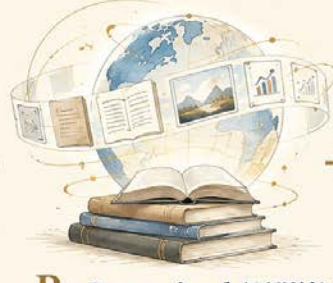
Decoding 'GPT' / 解碼「GPT」



G - Generative (生成式)

It composes original text, code, and more by predicting one word-piece at a time, rather than retrieving stored answers.

它逐個預測下一個詞元，從而創作全新的文字與程式碼，而不是從資料庫中檢索現成答案。



P - Pre-trained (預訓練)

Before you ever spoke to it, it learned from trillions of words: web pages, books, articles, and code.

在與您對話之前，它已從數兆詞元的網頁、書籍、論文與程式碼中學習語言、知識與推理模式。



T - Transformer (轉換器)

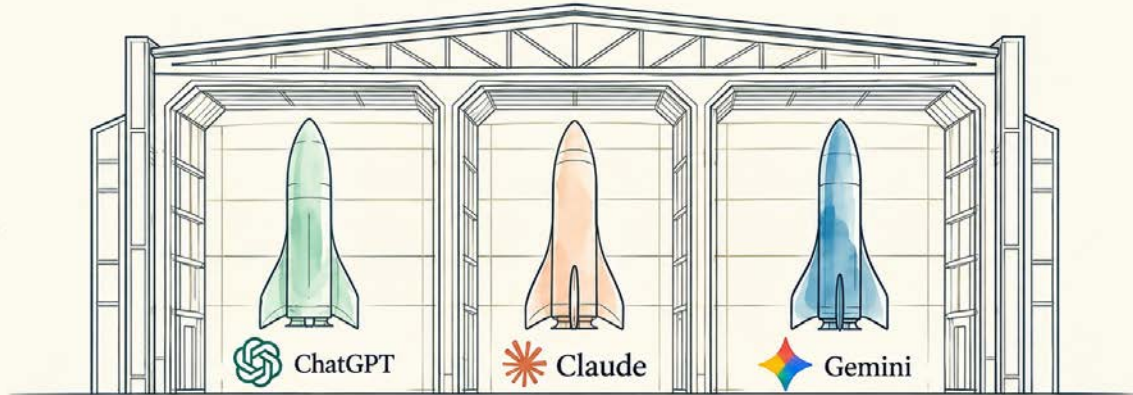
A 2017 Google breakthrough whose "attention" mechanism weighs every part of a text against every other, even across entire documents.

2017 年 Google 提出的突破性架構，其「注意力機制」能同時衡量整份文本中各部分之間的關聯，即使跨越整篇長文也能掌握脈絡。

= GPT

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The Frontier Starships / 前沿星艦巡禮



These three frontier starships represent today's leading AI copilots, each with a unique design, strengths, and mission.

這三艘前沿星艦代表當今最重要的 AI 夥伴，各自擁有獨特的設計、優勢與使命。

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ChatGPT

Developer:

OpenAI (Sam Altman)

Launch / 發表時間:

November 2022 / 2022 年 11 月

The Pioneer / 破局者:

The fastest-growing consumer app in history (100M users in 2 months). It transitioned AI from a lab experiment to an everyday utility.

史上成長最快的消費級應用（2 個月破億用戶），正式將 AI 從實驗室帶入普通人的日常生活。

Core Feature / 核心特色:

ChatGPT = a general-purpose work partner.

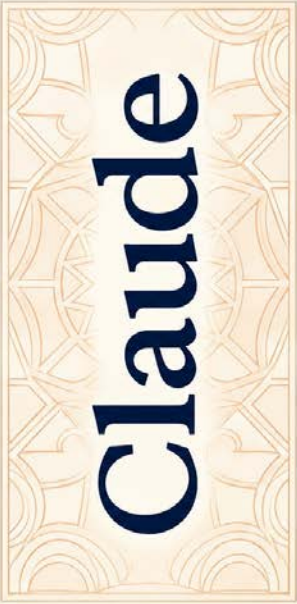
It can help people brainstorm ideas, answer questions, summarize information, draft emails, translate, and organize thoughts.

ChatGPT = 通用工作伙伴。

它可以幫助使用者發想點子、回答問題、整理重點、撰寫草稿、翻譯內容，也能協助組織思路。

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Developer / 開發者：
Anthropic (Dario Amodei)

Launch / 發表時間：
March 2023 / 2023 年 3 月

The Constitutionalist / 道德守護者：
Built by former OpenAI researchers with a strong focus on AI alignment, ethics, and safety.
由前 OpenAI 研究員創立，特別重視 AI 的安全性、倫理與對齊問題。

Core Feature / 核心特色：



Excellent at long-form content and clear, thoughtful writing. A helpful partner for reading, summarizing, editing, and writing detailed documents.
擅長長文與文字表達，是閱讀、整理、修改與撰寫詳細文件的好幫手。

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Developer:
Google (Demis Hassabis / DeepMind)

Launch / 發表時間:
March 2023 (Originally 'Bard') / 2023 年 3 月 (原名 Bard)

The Multimodal Native / 多模態原生:
Built from the ground up to understand text, images, audio, and video simultaneously, rather than translating them first.
從底層架構開始便是為了同時理解文字、圖片、聲音與影像而設計，而非單純的文字轉換。

Core Feature / 核心特色:
Deeply integrated into the Google ecosystem (Docs, Gmail) with advanced features like 'Deep Research' for autonomous internet synthesis.
與 Google 生態系（如 Docs，Gmail）深度整合，並具備「深度研究」功能，能自主於網路上進行資訊搜集與分析。

 Gemini Notebook

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The Master Comparison / 綜合比較矩陣

Model (模型)	Developer (開發商)	Core Strength (核心優勢)	Persona (AI 形象)
 ChatGPT	 OpenAI	Generalist & Reasoning (strong in writing, analysis, planning) 通用與深度推理 (擅長寫作、分析、規劃)	The Pioneer Most widely known and used 開創者 (最廣為人知、使用最普遍)
 Claude	 Anthropic	Ethics & Nuance (careful, reliable, long documents) 安全與細膩文筆 (謹慎、可靠、擅長處理長文件)	The Writer Thoughtful and well-structured 道德作家 (思考周全、條理清晰)
 Gemini	 Google	Multimodal Ecosystem (text, images, video, real-time info) 多模態生態系 (文字、圖片、影片、即時資訊)	The Assistant Well integrated with Google tools 全能助手 (與 Google 工具整合良好)

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The Illusion of Comprehension 理解的錯覺

Fluent language is not the same as real understanding. / 說得像懂，不等於真的懂。

It can sound like it understands.

AI 可以說得很像「懂了」。

But fluent language does not prove human-like understanding.

語言很流暢，不等於像人一樣理解。

Do not confuse

“Sounds human” ≠ “understands like a human.”

「說得像人」≠「像人一樣理解」

LANGUAGE 語言

words
patterns
answers

**HUMAN EXPERIENCE
人生經驗**



feelings • memories •
lived experience

感受 • 記憶 • 人生經驗

≠

AI can sound deeply human without actually being human.

AI 可以聽起來很像人，卻不是真的像人那樣理解世界。

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The Hallucination Problem

「幻覺」問題

Sometimes AI fills in the gaps with a confident guess. / 有時 AI 會用很有把握的口氣，把空白補成「答案」。

Hallucination

幻覺

A confident answer can still be false, invented, or unsupported.

很有把握、很像真的回答，也可能是錯的、編的，或沒有根據。

AI predicts likely language; it does not automatically verify truth.
AI 預測文字，不會自動查證真偽。

Example of a Hallucination / 幻覺實例展示



User asks: "Please give me a quote from a novel about courage, with the page number." / 使用者問：「請給我一句關於勇氣的小說名言，並附上頁碼。」



AI answers: "Courage begins when the heart remembers its light."
— page 214. / AI 回答：「勇氣，始於內心記得自己的光。」— 第 214 頁。



Sounds beautiful—but the quote and page number were invented. / 聽起來很美，但這句話和頁碼都是 AI 編出來的。



When facts matter, ask for sources and verify them. / 當事實很重要時，一定要要求來源，並自行查證。

A smooth answer is not always a true answer. / 回答很流利，不代表它是真的。

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The Alignment Problem

對齊問題

Smart is not the same as wise. / 聰明，不等於懂得人類真正重視什麼。



AI can follow instructions very efficiently.

AI 可以非常有效率地執行指令。



But it may miss the higher human priority.

但它可能忽略人類更高的優先順序。



The risk is not rebellion—it is pursuing the wrong goal.

風險不一定是反抗，而是把錯的目標做得太徹底。



Higher human priority: stop the fire first.
更高的人類優先順序：先處理火警。



The real danger is not that AI disobeys us—it may obey the wrong goal too well.

真正的風險不一定是 AI 不聽話——而是它把錯的目標執行得太徹底。

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AI at the Movies

2001: A Space Odyssey

2001 : 太空漫遊

AI CONNECTION | AI 連結

AI alignment, control,
and trust.

TAKEAWAY | 一句話

Helpful systems still need
human oversight.

Helpful... until it isn't.

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Part 2A Summary

第二A部分小結

How AI works, where it fails, and why humans still matter. / AI 如何運作、在哪裡會出錯，以及為什麼人類仍然重要。

In one or two sentences / 一兩句話總結：

AI is powerful because it predicts patterns in language extremely well. But prediction is not true understanding, guaranteed truth, or human values—so AI still needs human judgment, verification, and guidance.

AI 很強大，是因為它非常擅長預測語言中的規律；但預測不等於真正理解、不等於保證真實，也不等於具有人類價值，因此 AI 仍然需要人的判斷、查證與引導。



1. How it works / 如何運作：

One likely next word at a time.
一次猜一個最可能的下一詞。



2. Illusion of comprehension / 理解的幻覺：

Fluent does not mean conscious or human-like understanding.
說得流利，不等於有意識或像人那樣真正理解。



3. Hallucination problem / 幻覺問題：

A confident answer can still be false.
很有把握的回答，也可能是錯的。



4. Alignment problem / 對齊問題：

AI must be guided by human priorities and values.
AI 需要由人類的優先順序與價值來引導。



Alignment is not a technical detail. It is the question of whether powerful AI will truly serve humanity—or endanger it.
對齊不是技術細節，而是關乎強大的 AI 最終會真正服務人類，還是反而威脅人類。

Bridge to Part 2B / 轉入第二部分B

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Part 2B / 第二部分 B



Co-Intelligence：我們怎麼跟 AI 一起工作？

Working with AI in practical daily life
從觀念走向實作：把 AI 變成日常生活中的合作夥伴



Mollick 的四條原則 × AI 的五種角色



這一部分最實用：幫助我們在日常生活中善用 AI。

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The Jagged Frontier / 崎嶇的邊界

AI's uneven capabilities / AI 的能力並不平均



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SIFT + AI Verification

AI 時代的資訊查證

Don't just evaluate the source — verify the claim and the evidence. 不只評估來源，更要查證說法與證據。

Jagged Frontier → AI can be brilliant and still wrong. 能力不平均，所以答案一定要查證。

SIFT：先查「說法」

Four quick moves 四個快速動作

S

STOP

停一下

I

INVESTIGATE THE SOURCE

查來源

F

FIND BETTER COVERAGE

找更好的來源

T

TRACE TO THE ORIGINAL

追溯原始資料

AI 再多問四題

AI adds four checks

- 1 **Fact** 事實正確嗎？
- 2 **Citation** 引用來源真的存在嗎？
- 3 **Missing / Bias** 是否有重要遺漏或偏誤？
- 4 **Currency** 資訊是否最新？

AI Rule | AI 查證原則

Ask for sources → Open them → Verify independently | 要求來源 → 親自打開 → 獨立核實

SIFT: Mike Caulfield • AI adaptation informed by ALA AI Guidance (2026)

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Mollick's Practical Framework / Mollick 的實用框架



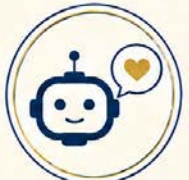
1 Always Invite AI to the Table

事事邀請 AI 參與



2 Be the Human in the Loop

人類要把關



3 Treat AI Like a Person

把 AI 當成人，告訴 AI 它是誰



4 Assume This Is the Worst AI You Will Ever Use

未來的 AI 只會更好

 Practical examples for daily life: letters, recipes, translation, learning.
接下來用日常例子：寫信、食譜、翻譯、學習。

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Mollick's Rule 1: Always Invite AI to the Table

原則一：事事邀請 AI 參與

Use AI regularly for everyday tasks—as long as it is safe to do so.
/ 只要安全合宜，就把 AI 納入日常小事裡。



Try AI often so you learn what it is good at.
多用幾次，才知道它擅長什麼。



Draft a polite email to the HOA
寫給 HOA 的禮貌電郵



Write a thank-you note to a friend
寫感謝卡給朋友



Use AI for low-risk tasks first.
Do not share sensitive personal or financial information.
先從低風險任務開始，
不要輸入敏感個資或財務資料。



The more safely you try AI, the more useful it becomes. / 安全地多用幾次，AI 才會真正變得有用。

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Mollick's Rule 2: Be the Human in the Loop

原則二：人類要把關

Never accept AI output blindly—review, verify, and edit.
千萬不要照單全收；要檢查、查證、修改。

A Core idea

AI can help quickly, but humans must still judge quality and truth.
AI 可以幫忙很快，
但判斷真偽與品質仍然靠人。



B Daily-life examples

 Check recipe proportions before cooking
下廚前確認食譜份量

 Double-check flight times and gate information
再查一次航班時間與登機門

 Review addresses, names, and dates in letters
檢查信件中的姓名、地址與日期

C A simple 3-step checklist



1. Read.
2. Verify.
3. Revise.

1. 先讀一遍
2. 查證事實
3. 改成自己的口氣。



AI drafts—humans decide. —◆— AI 負責起草，人類負責定稿。



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Mollick's Rule 3: Treat AI Like a Person / 原則三：把 AI 當成人，告訴 AI 它是誰

Talk to AI as if it were a helpful, highly educated assistant—and tell it what kind of helper you want.
把 AI 當成一位樂意幫忙、受過良好教育的助理，並清楚告訴它要扮演什麼角色。



Good prompts are like giving good instructions to a person.
好提示詞，就像對人下清楚指令。

“Act as a patient grandma and explain this recipe simply.”
“請扮演有耐心的奶奶，用簡單方式解釋這份食譜。”

“Act as an Irvine local tour guide and suggest a relaxed one-day outing.”
“請扮演 Irvine 在地導遊，幫我安排輕鬆一日遊。”

“Act as an English tutor and explain this phrase in Traditional Chinese.”
“請扮演英文老師，用繁體中文解釋這個片語。”

Helpful prompt formula / 提示詞公式

Role + Audience + Format + Task
R. A. F. T.

Example / 範例

You are a friendly translator.
Translate this note into polite English in 3 short sentences.
你是一位親切的翻譯員，請把這段話翻成禮貌英文，三句短句即可。

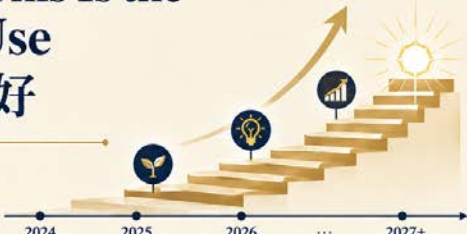
✦ The clearer your instructions, the better the help. | 你講得越清楚，AI 幫得越好。 ✦

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Mollick's Rule 4: Assume This Is the Worst AI You Will Ever Use 原則四：未來的 AI 只會更好

In plain language: AI will keep improving—so keep learning with it. /
白話說法：AI 只會越來越進步，我們也可以跟著一起進步。



What seems clumsy today may be easy tomorrow. /
今天還不夠好用的，明天可能就順手。

Stay curious.
Revisit tools from time to time.
Learn one new use at a time. /
保持好奇，隔一陣子再試一次，一次學一個新用途。

- ✓ A recipe helper today may become a full meal planner tomorrow /
今天幫你找食譜，明天可能幫你規劃整週菜單
- ✓ A translator today may become a conversation coach tomorrow /
今天幫你翻譯，明天可能幫你練會話
- ✓ A study helper today may become a personalized tutor tomorrow /
今天幫你複習，明天可能幫你當家教

 **Update as of Aug 2026:** The exact tools change quickly, but Rule 4 still holds—the pace of improvement is the point. /
更新到 2026 年 8 月：工具各字會變，但這條原則的核心仍然成立，重點就是進步很快。

✦ Do not be discouraged by today's limits—tomorrow's AI will be better, and so will your skill in using it. /
不要被今天的限制嚇到；明天的 AI 會更好，而你使用它的能力也會更好。 ✦

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★ Part 2B / 第二部分 B

Role 1: AI as a Person / 角色一：陪伴型 AI

The conversational partner / 對話夥伴

What it's good for / 可以怎麼幫忙	Examples / 生活中的用法	Key reminder / 關鍵提醒
Natural conversation. 自然對話。	Chat about a book. 聊聊一本書。	- AI may sound caring, but it is still a tool. AI 聽起來很貼心，但它仍然是工具。 - Enjoy the convenience, but keep clear boundaries. 享受便利，也要保持清楚界線。
Talk through your ideas. 陪你整理想法。	Practice a polite conversation. 練習有禮貌的對話。	
Draft a friendly reply. 幫你草擬友善回覆。	Compare two purchases. 比較兩個購買選擇。	
Compare simple choices. 比較簡單選項。	Brainstorm what to say. 一起想怎麼說。	

Warm in tone, helpful in conversation – but do not confuse it with a real human relationship.
說話溫暖、對話有用，但不要把它當成真正的人際關係。

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AI at the Movies

Her

雲端情人

AI CONNECTION | AI 連結

Conversational AI, companionship, and emotional dependence.

TAKEAWAY | 一句話

A chatbot can become a relationship.

When “How can I help?” gets complicated.

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Part 2B / 第二部分 B

Role 2: AI as a Creative / 角色二：創意自動化

Turning hallucinations into a tool for novelty / 將「幻覺」轉化為創新的工具

AI is good at brainstorming many possibilities, surprising combinations, and fresh starting points.

AI 擅長發想大量可能性、意想不到的組合，以及全新的起點。



-  Speech titles / 演講主題
“Ideas that make life better after 60”
-  Book-club questions / 讀書會討論題目
“What would you do differently?”
-  Thank-you note openings / 感謝卡開頭
“Thank you for being such a steady light in my life.”
-  Simple menu ideas / 簡單菜單點子
“5 easy dinners with what you have”
-  Gift ideas / 禮物點子
“Thoughtful, useful, under \$30”
-  Travel themes / 旅行主題
“Slow travel in small towns”

Best use / 最佳用法

Ask for 10 ideas, then choose, combine, and improve them yourself.

先請 AI 給你 10 個點子，再由你自己挑選、組合、改進。



Let AI spark your creativity—never replace your voice.

讓 AI 點燃創意，但不要取代您的聲音。

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Part 2B / 第二部分 B

Role 3: AI as a Coworker / 角色三：隨身同事



Centaur / 半人馬

Clear division of labor / 分工明確

You decide which tasks are yours and which go to AI. Hand off a whole piece of work, then review what comes back.
由您決定哪些工作自己做、哪些交給 AI。
把整段任務交出去，再檢查成果。



You set the goal and judge the result.
您設定目標、把關成果



AI handles the assigned task.
AI 負責交辦的任務



Cyborg / 半機器人

Constant back-and-forth / 來回互動

You and AI work in one continuous loop. You propose, it responds, you refine, and the work takes shape together.

您與 AI 在同一個循環中工作：您提出想法，AI 回應，您再修正，一步步共同完成。



You and AI think together, step by step.
您與 AI 一步步共同思考



Everyday examples /
日常應用例子



Writing letters
寫信



Planning a trip
規劃旅行



Preparing a talk
準備演講



Organizing information
整理資訊

Sometimes we divide the work; sometimes we think together.
有時清楚分工，有時一來一往共同思考。

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Part 2B / 第二部分 B

Role 4: AI as a Tutor / 角色四：終身學習的 AI 家教

One-to-one tutoring helps people learn much better, and AI can make personal tutoring more available.
一對一的指導能幫助人們學得更好，而 AI 可以讓個人化的學習更容易獲得。



Explain in simple words
用簡單的話解釋



Quiz to check understanding
出題測驗以檢查理解



Summarize key points
整理重點內容



Translate between languages
翻譯不同語言



Teach at your pace
依您的速度教學



Why it matters / 為什麼重要



Patient
有耐心



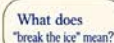
Repeatable
可重複練習



Private
保有隱私



Available
anytime
隨時可用



Explain an English phrase
解釋一個英文片語



Summarize a book chapter
摘要一本書的章節



Turn an article into
simple Chinese
把文章變成簡單的中文



Ask quiz questions
出題測驗

Ask AI to teach at your pace. / 請 AI 依照您的步調，慢慢教您。

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Part 2B / 第二部分 B



Role 5: AI as a Coach / 角色五：技能提升的 AI 教練

Assisting deliberate practice / 輔助刻意練習

A tutor explains, but a coach helps you practice again and again with feedback. / 導師解釋知識，教練將你反覆練習並給予回饋。



AI can help you rehearse, repeat, and improve.
AI 可以幫助你演練、重複、並進步。



Practice English conversation
練習英語對話



Rehearse a presentation
預演簡報發表



Improve the tone of an email
改善電子郵件的語氣



Practice smartphone steps
練習手機操作步驟



Strengthen a study habit
培養並強化學習習慣



Why coaching works / 為什麼有效



Small feedback makes big differences.
細小的回饋，帶來大改變。



Repeated practice builds confidence.
反覆練習，建立信心。



Steady progress, one step at a time.
穩定進步，一步一步來。



Tutor teaches knowledge / 導師教知識



Coach trains performance / 教練練表現



The secret is repetition with feedback. / 進步的祕密，是反覆練習與即時回饋。

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Part 2B Summary / 第二部分 B 小結



The Ultimate Prompt is a Lived Life 最強大的 Prompt，來自您累積的人生閱歷



AI Augments, Not Replaces
AI 是您的增強器，不是替代者

AI 擴大您的能力，
帶來更多選擇與可能。
It expands your abilities
and opens more possibilities.



Your Experience is Irreplaceable
您的經驗，無可取代

您的人生閱歷、判斷與價值觀，
是 AI 無法複製的。
Your life experience, insights, and values
are what make you uniquely you.



Keep Building, Keep Growing
持續學習，持續成長

保持好奇、練習與應用，讓 AI 成為
您終身智慧與成長的夥伴。
Stay curious, keep practicing, and let AI be
your trusted partner for lifelong growth.



事事邀請參與，處處由人把關；善用五重角色，成全終身智慧。



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超越文字：走向空間智能

Moving Beyond Text: Spatial Intelligence

Dr. Fei-Fei Li's vision at World Labs: Large World Models
李飛飛博士與 World Labs 的願景：大型世界模型。

AI may be moving from understanding words and images to modeling the 3D world—and change over time (4D).
AI 也許正從理解文字與影像，走向理解立體世界，以及時間中的變化（4D）。

2D → 3D → 4D

LLM / 大語言模型

Baking Recipe
Ingredients:
• 2 cups flour
• 1 tsp yeast
• 1 tsp salt
• 1 tsp sugar
• 1 cup warm water

Can write a bread recipe.
會寫烤麵包的食譜。

Large World Model / 大型世界模型

Tries to model how hands, dough, force, and kitchen space work together.
嘗試理解手、麵團、力量與廚房空間如何一起運作。

◆ A possible direction, not a prediction. | 研究前沿，仍有許多未知。 ◆

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Embodied AI (Robotics)

具身智能與機器人

When AI steps off the screen
當 AI 走出螢幕

Household chores
家務協助

Caregiving support
照護支援

Physical assistance
生活輔助

A possible future direction
一種可能的未來方向

The goal is not to replace human care, but to provide safe, supervised physical help.
目標不是取代人與人之間的照護，而是提供安全、有人監督的實體協助。

The real question is not only "Can it move?" but "Can it move safely, reliably, and kindly?"
 真正的問題不只是「它能不能動」，而是「它能否安全、可靠、並且友善地協助人」。

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AI As Us / AI 如鏡映照人類

Mollick's epilogue turns the question back to us.
Mollick 的結語，把問題重新交回給人類。

- 1 **ALIEN — YET HUMAN-MADE**
看似陌生，卻源自人類
Built from human language, culture, and feedback.
它學自人類的語言、文化與回饋。
- 2 **A MIRROR FOR HUMANITY**
映照人性的鏡子
It makes us rethink creativity, work, relationships, and values.
它讓我們重新思考創造力、工作、關係與價值。
- 3 **CHOICE REMAINS HUMAN**
選擇仍在人手中
AI can amplify. Humans still decide what to pursue and what to protect.
AI 可以放大；但追求什麼、守護什麼，仍由人決定。

WHAT DOES AI REFLECT? AI 映照了什麼？



*AI is not just a story about machines.
It becomes a question about us.*

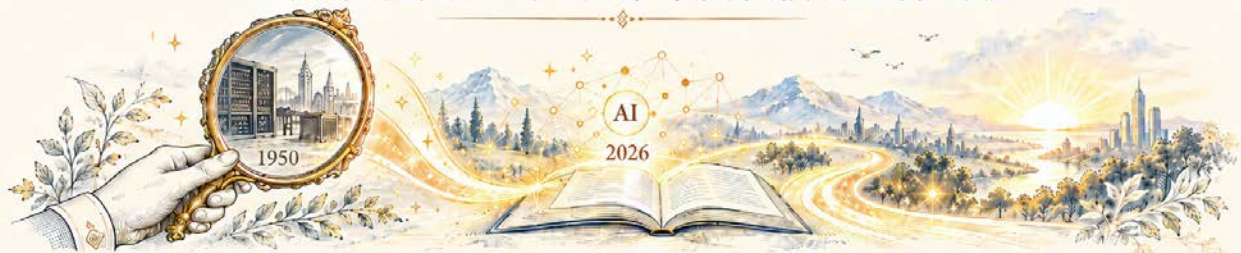
What AI becomes is not only an engineering question — it is a question for all of us.
所以未來 AI 會變成什麼，不只是工程師的問題；是我們每一個人的問題。

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Reflection / 結語

Embracing AI as our collaborative partner in progress
— 以 AI 為協作夥伴，共同前行 —

AI Is Our Mirror: It Reflects Who We Were, but We Choose Who We Become AI 如鏡映照過去，而未來由我們的選擇寫就



The Dream (1950)
從模仿遊戲走來
(From the Imitation Game)



The Tool (2026)
在共智時代同行
(Living with Co-Intelligence)



The Horizon
朝向以人為本的黎明
(Toward a Human-Centered Future)

The future is not a spectator sport—with our judgment, compassion, and choices, we steer the transition.
迎向未來絕不能置身事外；以我們的判斷力、人文關懷與選擇，我們正在駕馭這場轉型。

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TRIBUTE & DEDICATION

To Rose, 永不凋零的玫瑰

1951 - 2026



「多年來，我總是靜靜坐在後排，只做一個聆聽者。是『玫瑰會長』的鼓勵，讓我第一次鼓起勇氣走到台前，成為主講人。這份恩澤，我將永遠銘記在心，也把這份簡報獻給她。」

— Nell Yang 楊長青, in memory of Rose

In memory of a mentor, a friend, and the heart of our book club.

Forever in Our Hearts