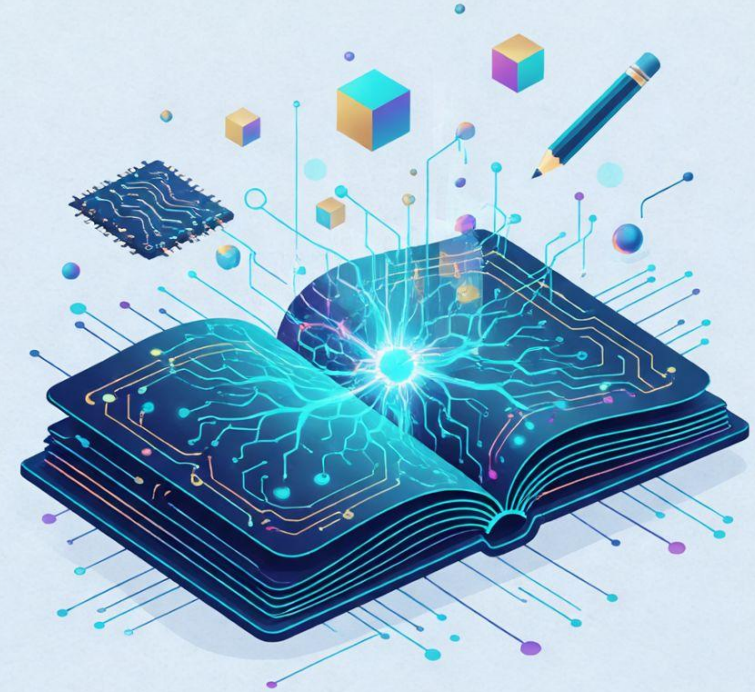


Foundations and Advances in Generative AI Technologies for Education

Ir Prof Alan Lam, JP



Introduction to Program Leader

Ir Prof Alan Lam, JP, PhD, SMIEEE, MHKIE

Adjunct Professor of CityUHK, CUHK and PolyU

2015 HK Ten Outstanding Young Person Awardee

Chairman of Sengital Group, Inventor of GenAI Platform: Poffices.ai

Email: alan@sengital.com Web: <https://poffices.ai>



- Adjunct Professor of CUHK MAE department (start teaching in 2017):
 - Course: MAEG3080 Fundamental of Machine Intelligence
 - Course: MAEG5715 Artificial Internet of Things Technology
 - Course: MAEG5735 Applied Computational Intelligence
 - Course: ROSE5780: Special Topics in Robotics – GenAI Technologies
 - Course: ROSE5790: Commercialization and Entrepreneurship in Robotics
 - Course: GESC1250 Startup Exploration
- Adjunct Professor of CityU EE department (starting teaching in 2019):
 - Course: EE5437 IoT Technologies for Future City Applications
- Adjunct Professor of CityU BME department (start teaching in 2025):
 - Course: BME6145 Applied Artificial Intelligence for Biomedical and Healthcare Applications
 - Course: BME6146 GenAI Technologies for Biomedical and Healthcare Applications
- Adjunct Professor of PolyU EEE department (start teaching in 2025)
 - Course: EEE532 Artificial Internet of Things
 - Course: Entrepreneurship in Electric and Electronic Engineering
- Adjunct Professor of PolyU MM department
- Adjunct Professor of CityUHK Academy
- Adjunct Professor of CUHK Medicine
- Advisor of KTEO of PolyU
 - Training Workshops: Business Plan and Pitching
 - Lecturer of RTTP programme
- Consultant of Accelerator Programme of University of Macau
- Senior Consultant and Lecturer of GBA Business School (2022-2024)
 - Course: Entrepreneurial Financing
 - Trainer: Entrepreneurial Project
- Senior Consultant and Lecturer of Left-Right Circle Academy (2024-Now)
 - Course: Entrepreneurial Financing
 - Trainer: Entrepreneurial Project
- Trainer and Lecturer of HKSTP Startup Lecture (2022-2024)

- **Vision**

- ✓ To establish a GenAI professional programme for school teachers, positioning City University of Hong Kong as a leader in future-oriented teacher education.

- **Target Participants**

- ✓ Primary and secondary school teachers in Hong Kong.
- ✓ Teachers from different subject areas
- ✓ School curriculum leaders, ICT coordinators, and aspiring teacher leaders.

- **Mission**

- ✓ To build teachers' foundational to advanced understanding of GenAI concepts and applications.
- ✓ To enable teachers to effectively teach students how to learn, use, and critically evaluate GenAI tools.

- **Teaching and Learning Design**

- ✓ Pedagogical Approach
- ✓ Industrial Sharing
- ✓ Professional Lectures
- ✓ Project-based Learning
- ✓ Exhibition and Competition

Introduction to GenAI in Education

March 2026

- Kickoff event to officially launch the programme.
- Engagement with schools, teachers, and key stakeholders.

Mid-July to Mid-August 2026

- Delivery of the first course titled “GenAI Teaching and Learning Professional Programme”.
- Implementation of lectures, workshops, and project-based learning.

MAR

APR

MAY

JUN

JUL

AUG

SEP

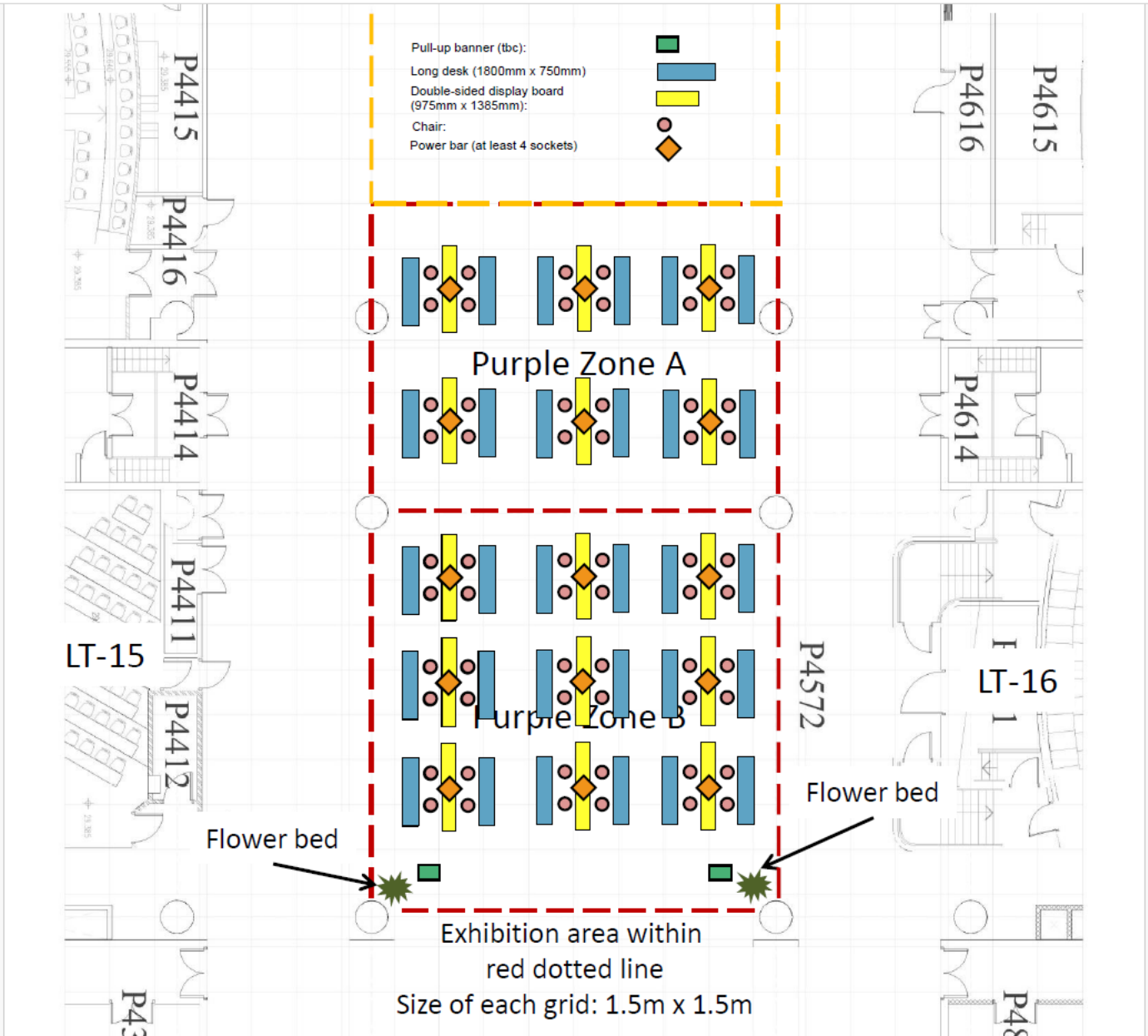
April to June 2026

- Promotion and recruitment of teachers.
- Outreach through school networks, education bodies, and professional associations.

Mid-September 2026

- Graduation ceremony.
- Awarding of Certificates and Distinction Certificates.

Demo Day for the workshop of GenAI professional programme





Institute of Future Learning

香港城市大學
City University of Hong Kong

(insert your school logo here, if appropriate)

Your Project Title

Your Name (Your Student Number)

Your School

Project Background:

- e.g., Long-hours spent on repetitive tasks i.e. preparing in-class short quizzes / pre-class readings, which refrain teachers from giving in personalized care and feedback to students



Minutes spent on preparing in-class short quizzes

Subject	Before	After
History	20	10
English Language	25	10

Students' feedback:

- "I want more interactive learning experience during History classes"
- "I think pre-class readings can help me better understand the knowledge"

Solution:

(how my solution can assist students' learning / my teaching)

- E.g., developed an AI Agent using Poffices.ai to automate the preparation of in-class quizzes
- E.g., developed an AI Agent workflow using to automate the preparation of in-class quizzes



(insert photos / figures and demonstrations, if applicable)

Reflection and Next Steps:

(How to evaluate effectiveness of the AI agent and expand to other aspects of work)

- E.g., Efficiency in preparing in-class quizzes sped up by 15-minutes per class, Teacher's role now focuses more on student rather than repetitive tasks
- Possibility of extending to administrative duties such as generating school notices



Contact: Your Name & email (optional)

Understanding Artificial Intelligence (AI)

Ir Prof Alan Lam, JP



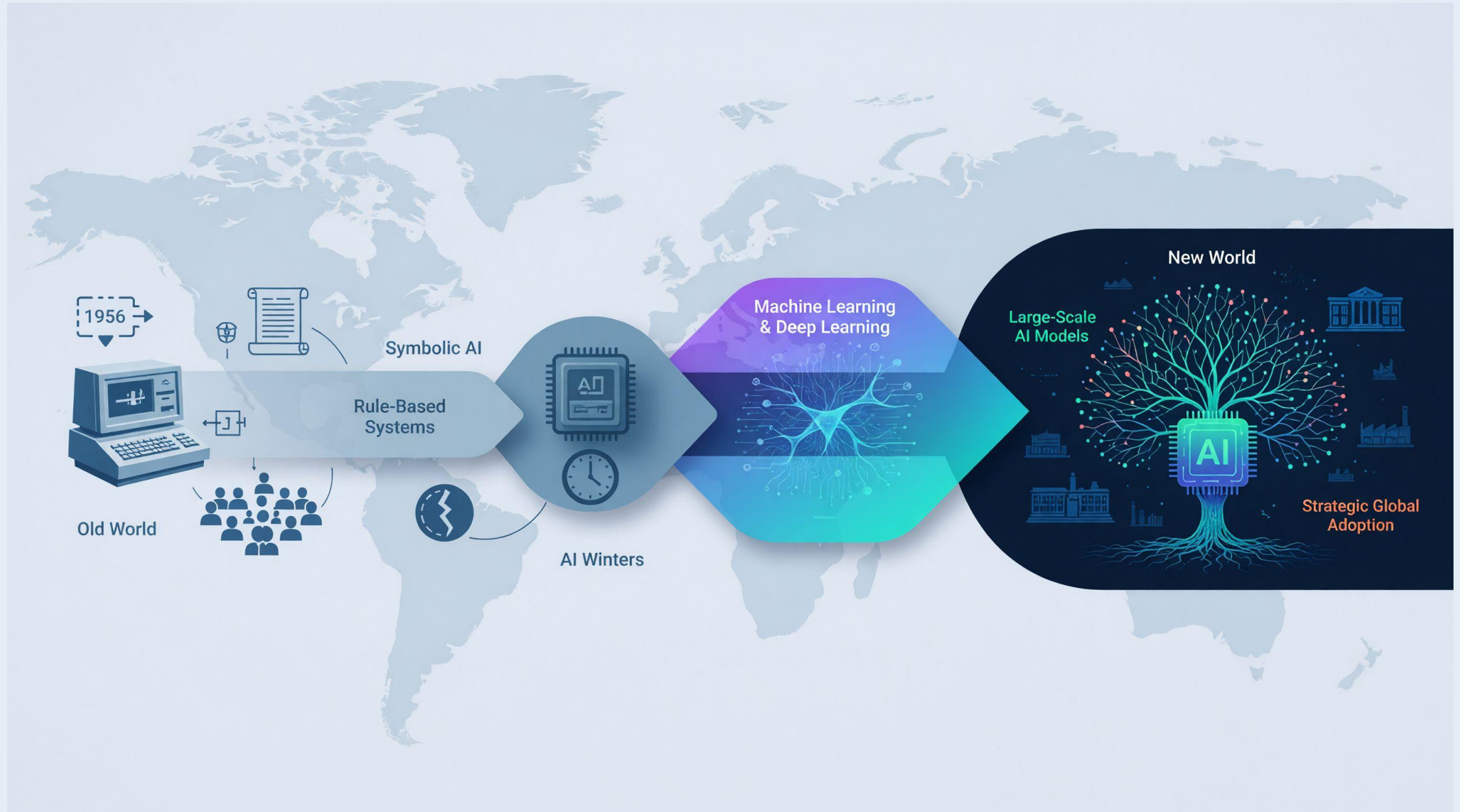
Definition and Scope of AI



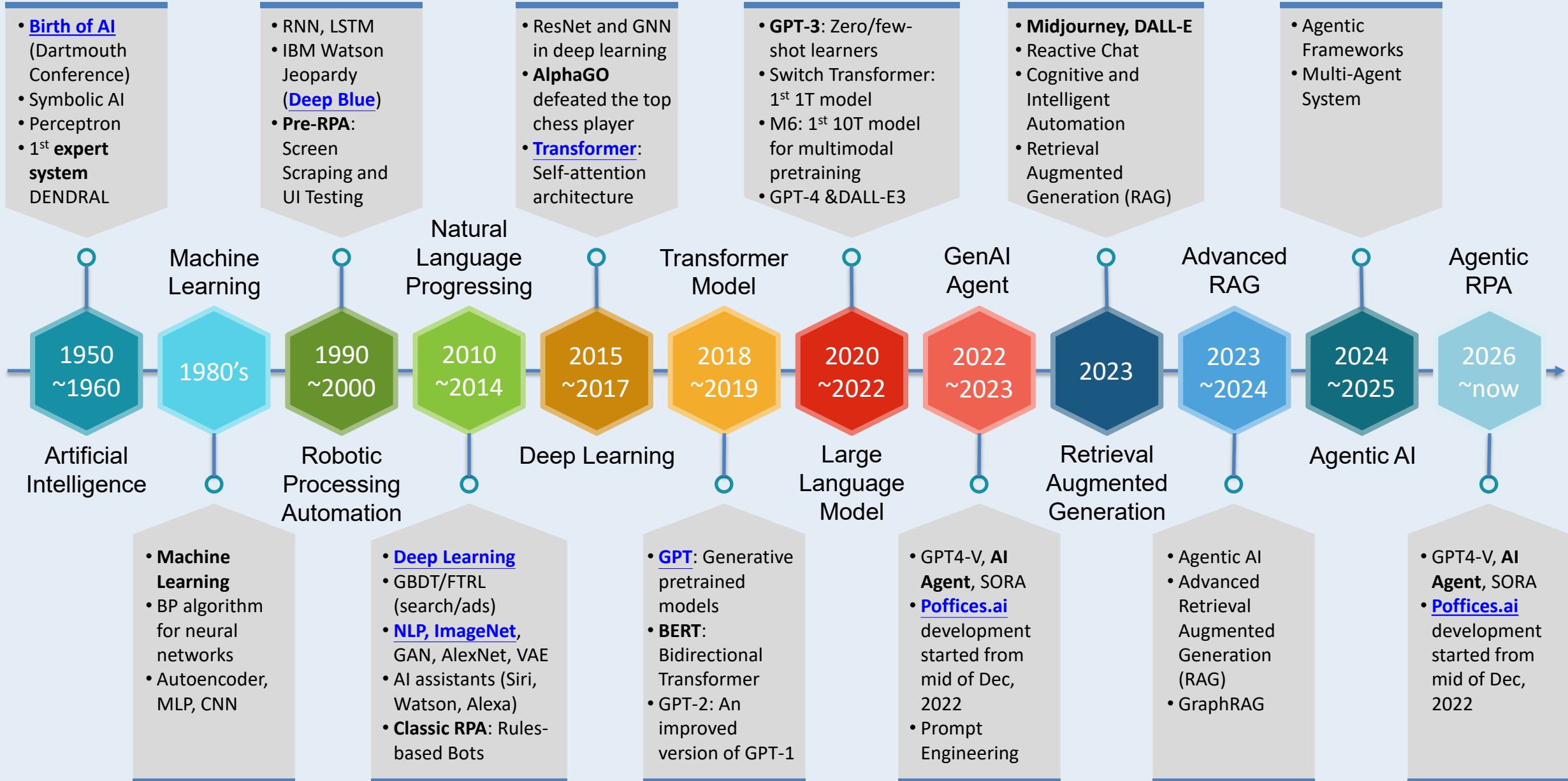
Simulating Human Cognitive Functions:
Learning, Reasoning, Perception, Decision-Making.



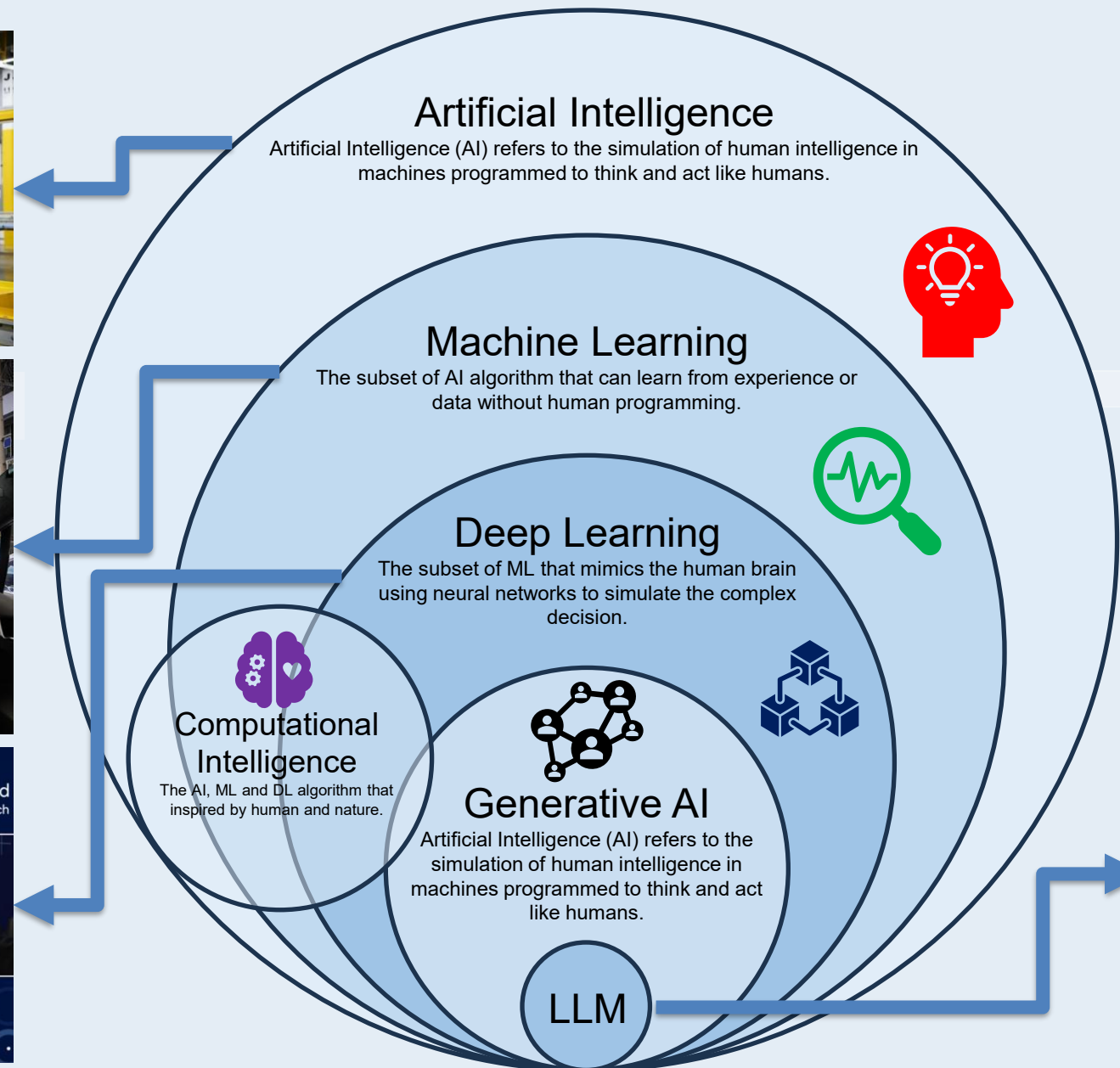
Historical Development



Development Timeline



Types of AI

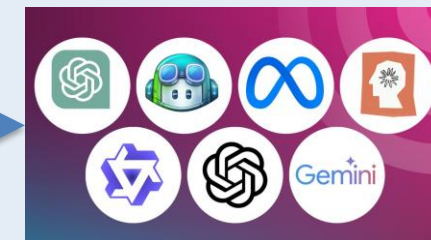


An AI agent refers to a system or program that is capable of autonomously performing tasks on behalf of a user or another system.

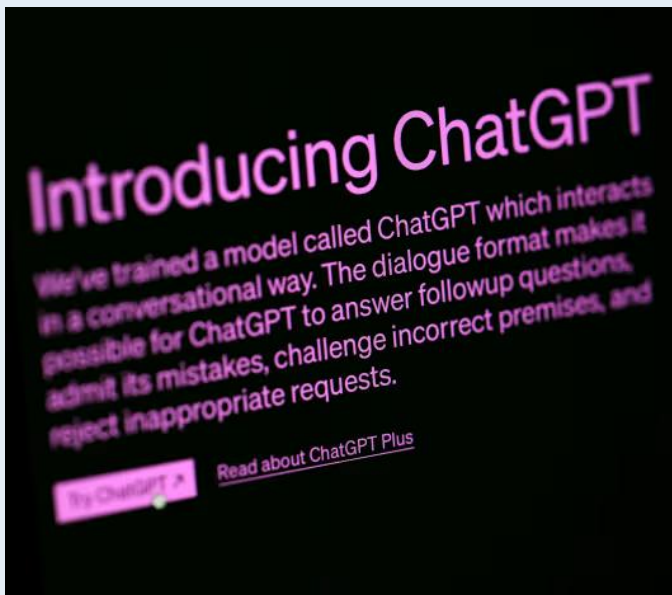


LLM

A large language model (LLM) is a type of machine learning model designed for natural language processing tasks such as language generation.



Key Milestone in AI Development – GPT



ChatGPT Launched
on 30th Nov, 2022



Ir Prof Alan Lam, JP's
research team completed the
evaluation of ChatGPT in Mid Dec,
2022

- ChatGPT (Chat Generative Pre-trained Transformer) is a chatbot software developed by OpenAI
- ChatGPT includes real-world conversations, has the ability to know astronomy and geography, and can interact according to chat situations, which is highly similar to real humans
- The industrialization direction of ChatGPT: inductive text work, code development-related work, image generation field, intelligent customer service work

- It is a chatbot requiring conversation
- Cannot complete the task
- Creation of unreal information
- Non-updated information
- Incorrect Information
- Text output or single output only
- The output cannot be used directly



- Need a Taskbot (Agent) to complete the task
- Started Development in Mid Dec, 2022
- Launched Poffices.ai in 1st Jan, 2025

What is GenAI?



Functions of GenAI

Language and Content Generation

Text, essay, article, code and etc.

Human-machine interface

Information Retrieval

Language-based conversation

Natural questions and answers

Language Translation

Automatic Translation for multiple languages

Text Summarization

Summarizing contents into point form or short paragraphs

Writing Assistance

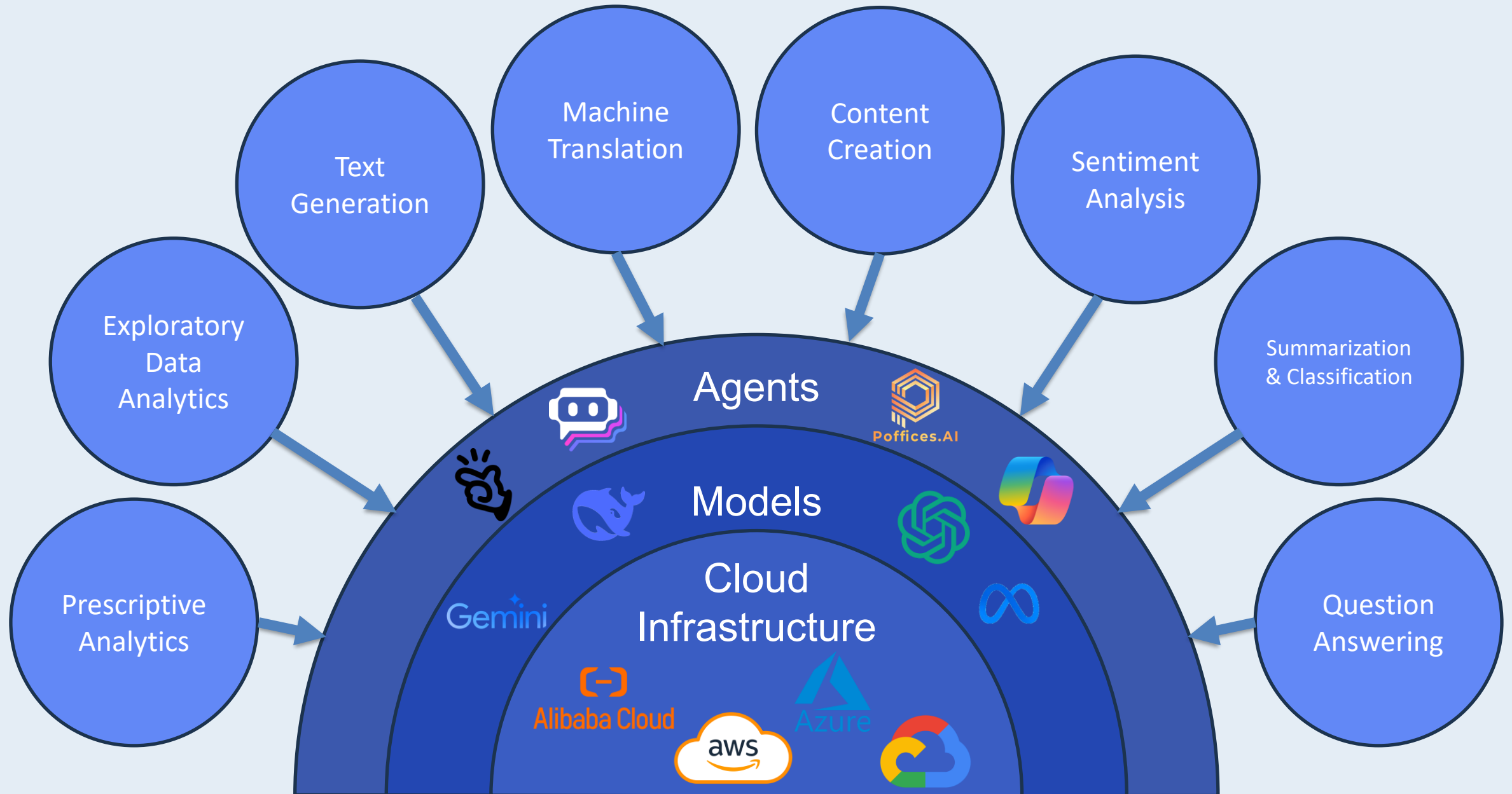
Article drafting based on users' requirements

Conversational Assistance

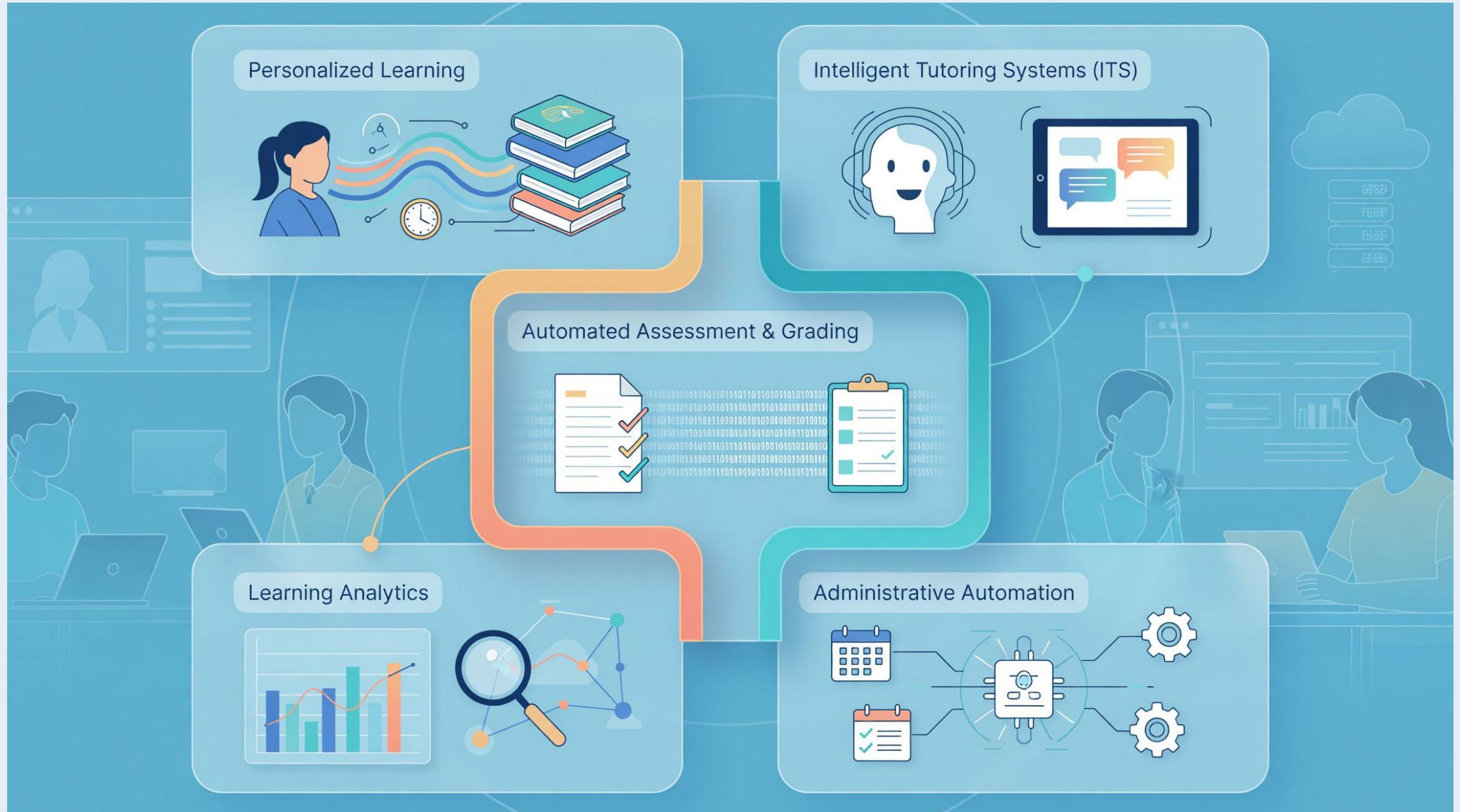
Generating ideas based on users' problem statement

Generating reports or proposals based on users' requirement

Cloud, LLM, Agents and Applications



Applications of AI in Education



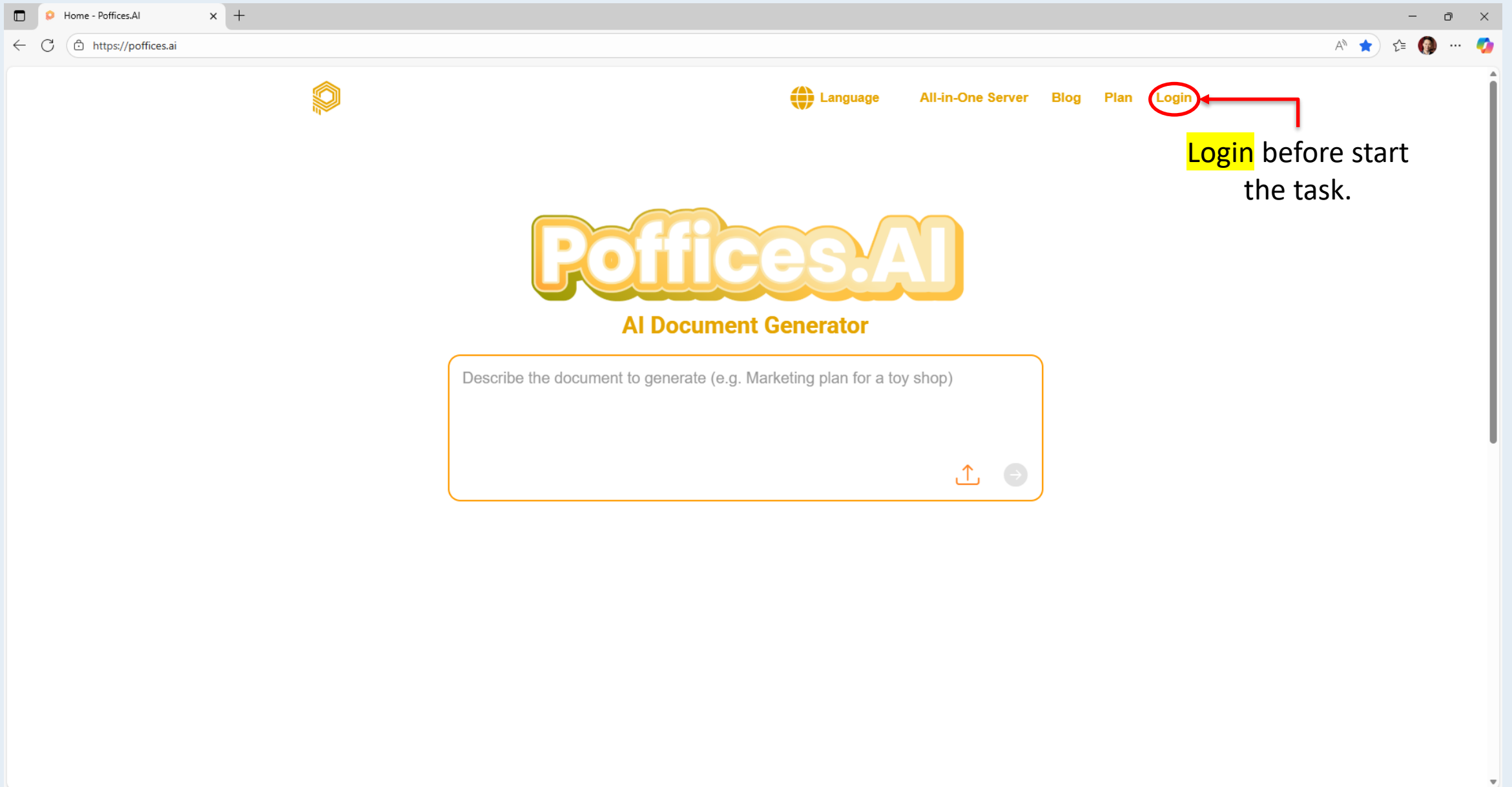
Practical Exercise

1. Open browser and visit <https://Poffices.ai>
2. Register account using your email
3. Think about some topics and input to Poffices.ai for testing
4. Explore functions in <https://Poffices.ai>



(2) Click Generation Button

Introduction to Poffices.ai



Introduction to Poffices.ai

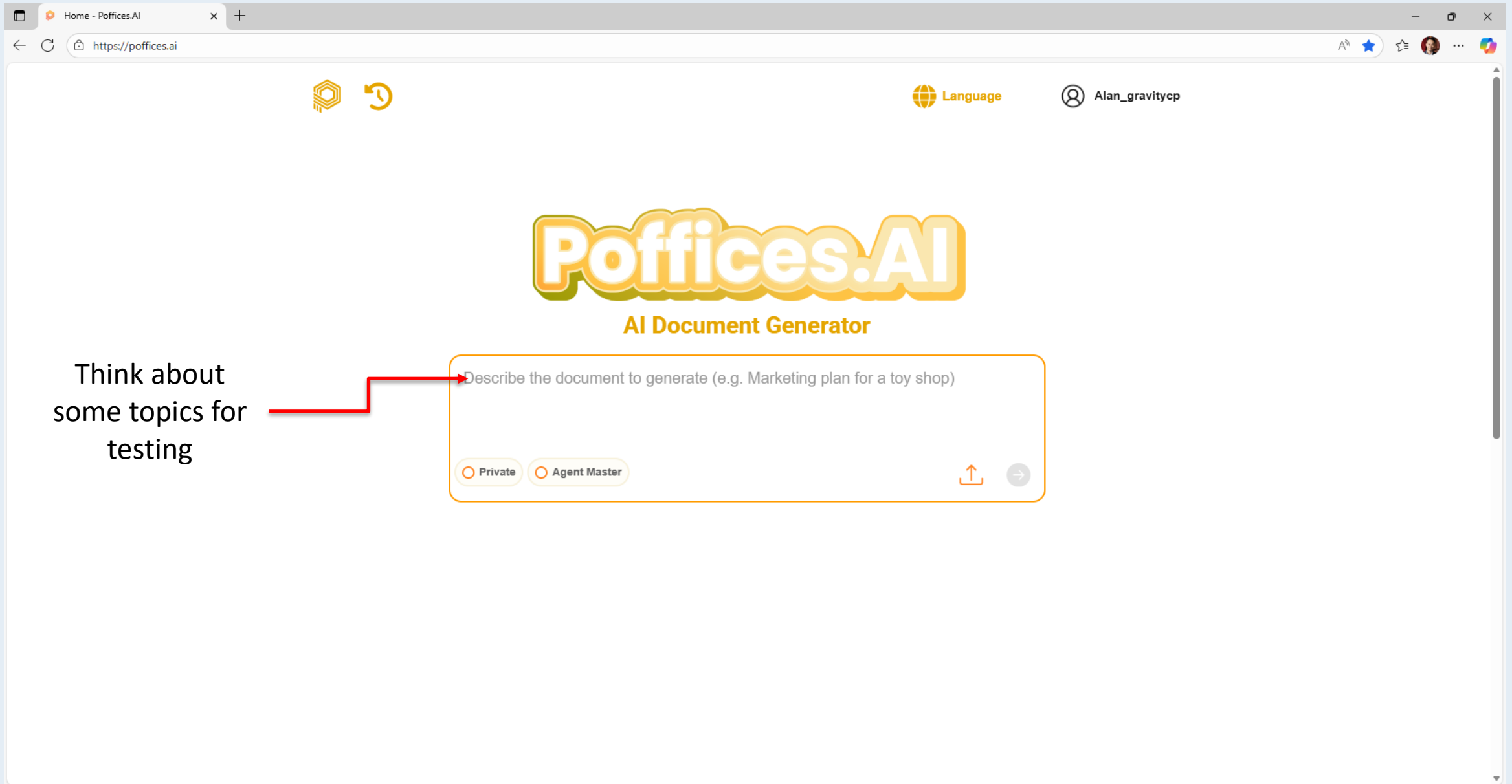
The screenshot shows the Poffices.ai website with a login modal open. The modal contains the following elements:

- Title:** Please log in to enjoy Poffices.AI
- Username or Email:** Input field containing "alan_gravitycp".
- Password:** Input field with masked characters "*****".
- Login:** Orange button.
- Continue with Google:** Button with the Google logo, circled in red.
- LocoBike User (First-Time Browser Login):** Button.
- Forgot Password?:** Link.
- Create an account:** Link at the bottom, circled in red.

Annotations with red arrows point to the following elements:

- Input the account info:** Points to the Username or Email input field.
- Then click login button:** Points to the Login button.
- Or click this button to login by google account:** Points to the Continue with Google button.
- Or click this to create an new account:** Points to the Create an account link.

Introduction to Poffices.ai



Introduction to Poffices.ai

The screenshot shows the Poffices.ai web interface with the following annotated features:

- Home button** for go back to poffices.ai (points to the Home icon in the top left).
- History button** for checking 100 records (points to the History icon in the top left).
- Language** (points to the Language dropdown menu in the top right).
- Login** before start the task. Showing user name, credit, blog and setting information (points to the user profile icon in the top right).
- Choose Language** e.g. English or Traditional Chinese for web UI (points to the Language dropdown menu).
- Input box** to receive user instruction of the document generation task (points to the text input area).
- Private Mode** allows user enquiry and data to be no record (points to the Private radio button).
- Agent Master** allows user to choose single or multiple agents to complete the task (points to the Agent Master radio button).
- Upload button** allows user to upload files as attachment of the task including docx, pdf, .csv files (points to the Upload icon).
- Generation button** to be clicked for starting the task (points to the Generate icon).

The central part of the interface displays the **Poffices.AI** logo and the text **AI Document Generator**. Below the input box, there are two radio buttons labeled **Private** and **Agent Master**. To the right of the input box, there are two icons: an **Upload** icon (a square with an upward arrow) and a **Generate** icon (a circle with a rightward arrow).

Introduction to Poffices.ai

The screenshot shows the Poffices.ai web interface. A modal titled "Select Multi-Agents" is open in the center. The modal has a "Clear" button at the top right and an "OK" button at the bottom. It lists two categories of agents: "Poffices Agent Platform" and "Business Office". Under "Poffices Agent Platform", there are three options: "General", "Chatbot", and "LLM ONLY". Under "Business Office", there are six options: "Problem Statement", "Ideation", "Feasibility Analysis", "Market Analysis", and "Competitive Analysis".

Annotations with red arrows point to specific elements:

- An arrow points to the "Agent Master" button in the background interface, with the text: "Click Agent Master button to enable the agent list that includes 100+ agents".
- An arrow points to the "Clear" button in the modal, with the text: "Click Clear to quick cancel all the selected agent".
- An arrow points to the "OK" button in the modal, with the text: "After selecting the agents by sequence and then click 'OK' to process".
- An arrow points to the list of agents in the modal, with the text: "Select agents by sequence one by one. Agent Master will process the task following the agent sequence one by one".

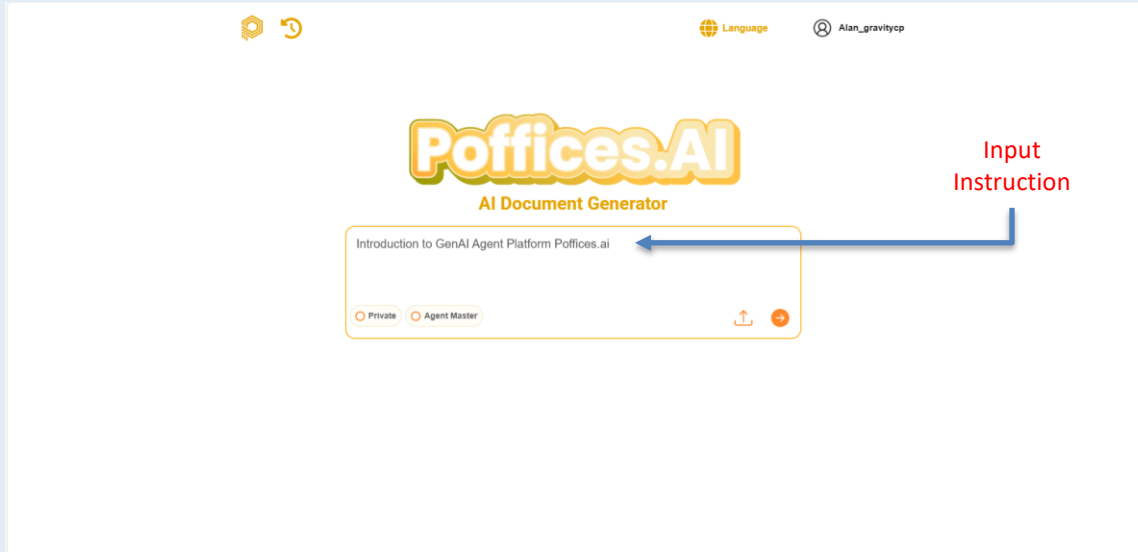
Introduction to Poffices.ai

The screenshot shows the Poffices.ai website interface with several key features highlighted by red arrows and yellow labels:

- Subscription Plan for user selection:** Points to the 'Subscription Plan' link in the top navigation bar.
- News about Poffices.ai:** Points to the 'News' link in the top navigation bar.
- FAQ about how to use Poffices.ai:** Points to the 'FAQ' link in the top navigation bar.
- AI Document Generator:** Points to the central text input area with the placeholder 'Describe the document to generate (e.g. Marketing plan for a toy shop)'.
- Account and Setting information:** Points to the 'Private' and 'Agent Master' toggle buttons below the document generator.
- Account Name:** Points to the user profile 'Alan_gravitycp' in the top right corner.
- Remained Credit:** Points to the 'Credit' balance of '34,208' in the user profile dropdown.
- All-in-one Server:** Points to the 'All-in-One Server' link in the user profile dropdown.
- Blog Post:** Points to the 'Blog' link in the user profile dropdown.
- Payment record for user:** Points to the 'Payment' link in the user profile dropdown.
- Logout for Poffices.ai account:** Points to the 'Logout' link in the user profile dropdown.

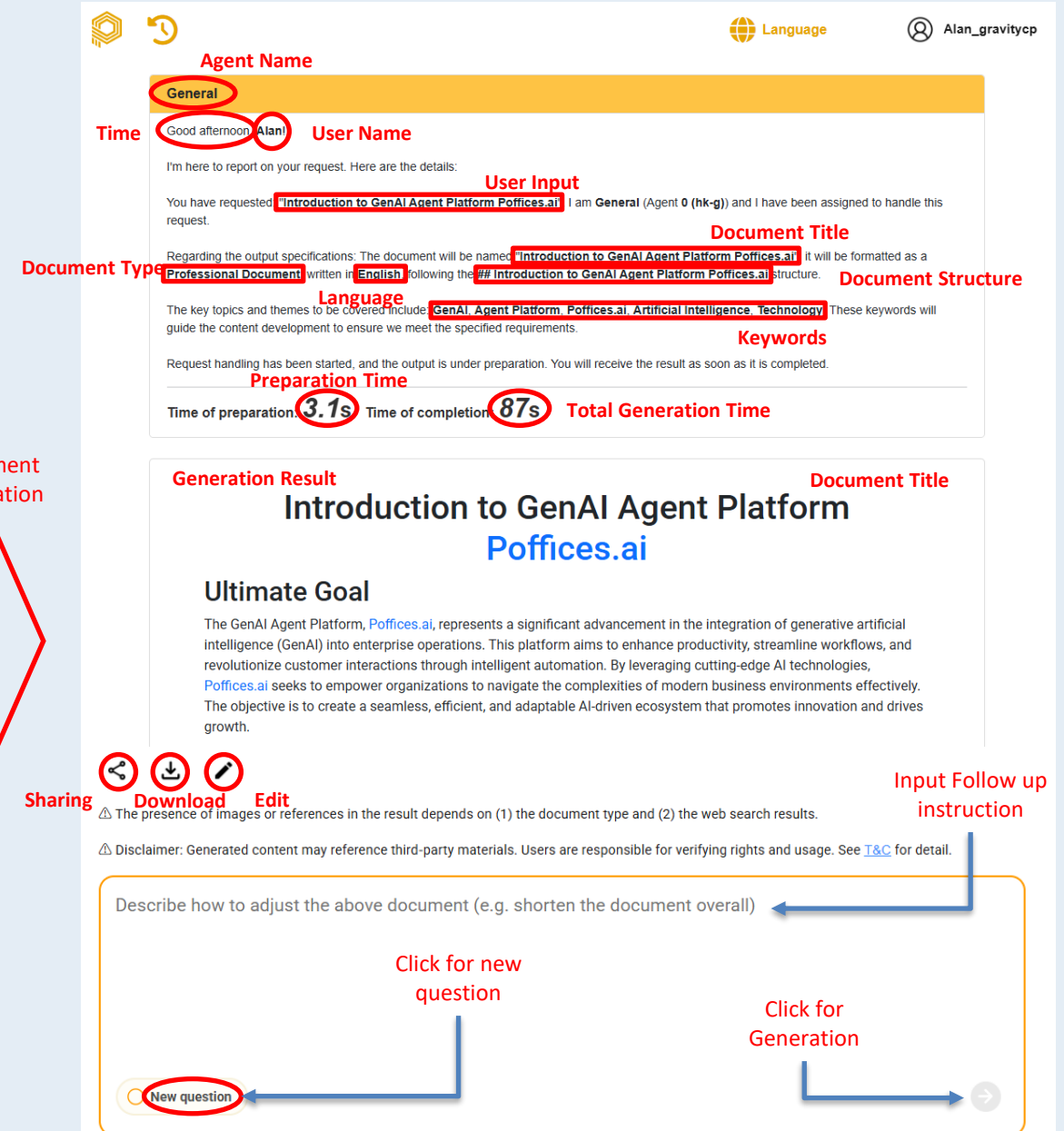
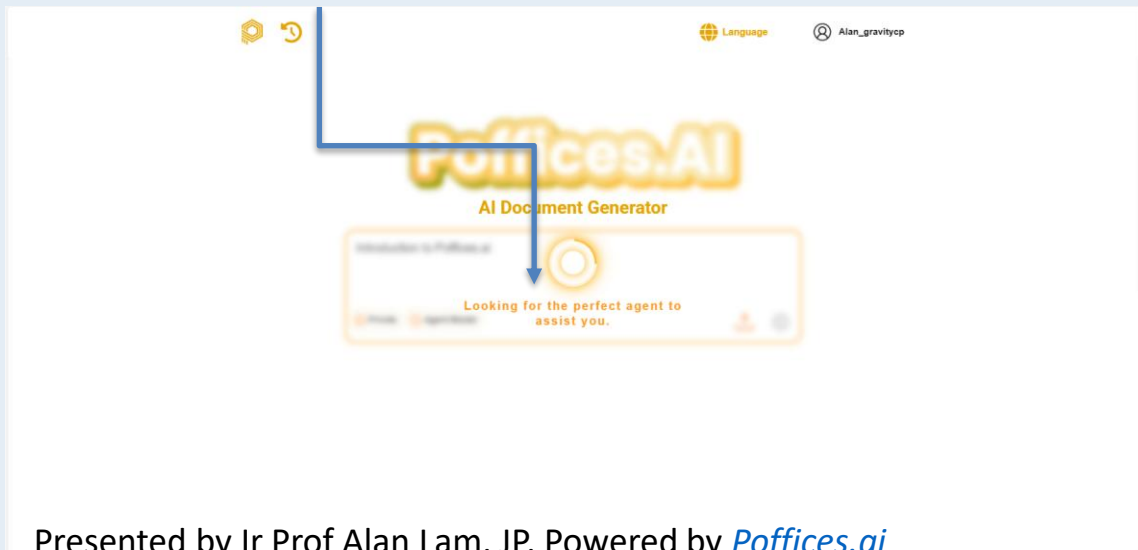
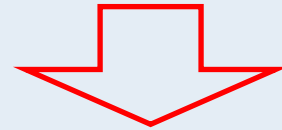
The website also features a large 'Poffices.ai' logo and a 'Language' selector in the top right.

Introduction to Poffices.ai



Checking

- Time, Location, User's Name and Attachment
- Private or History Record
- Language and Instruction Analysis
- Finding suitable Agent

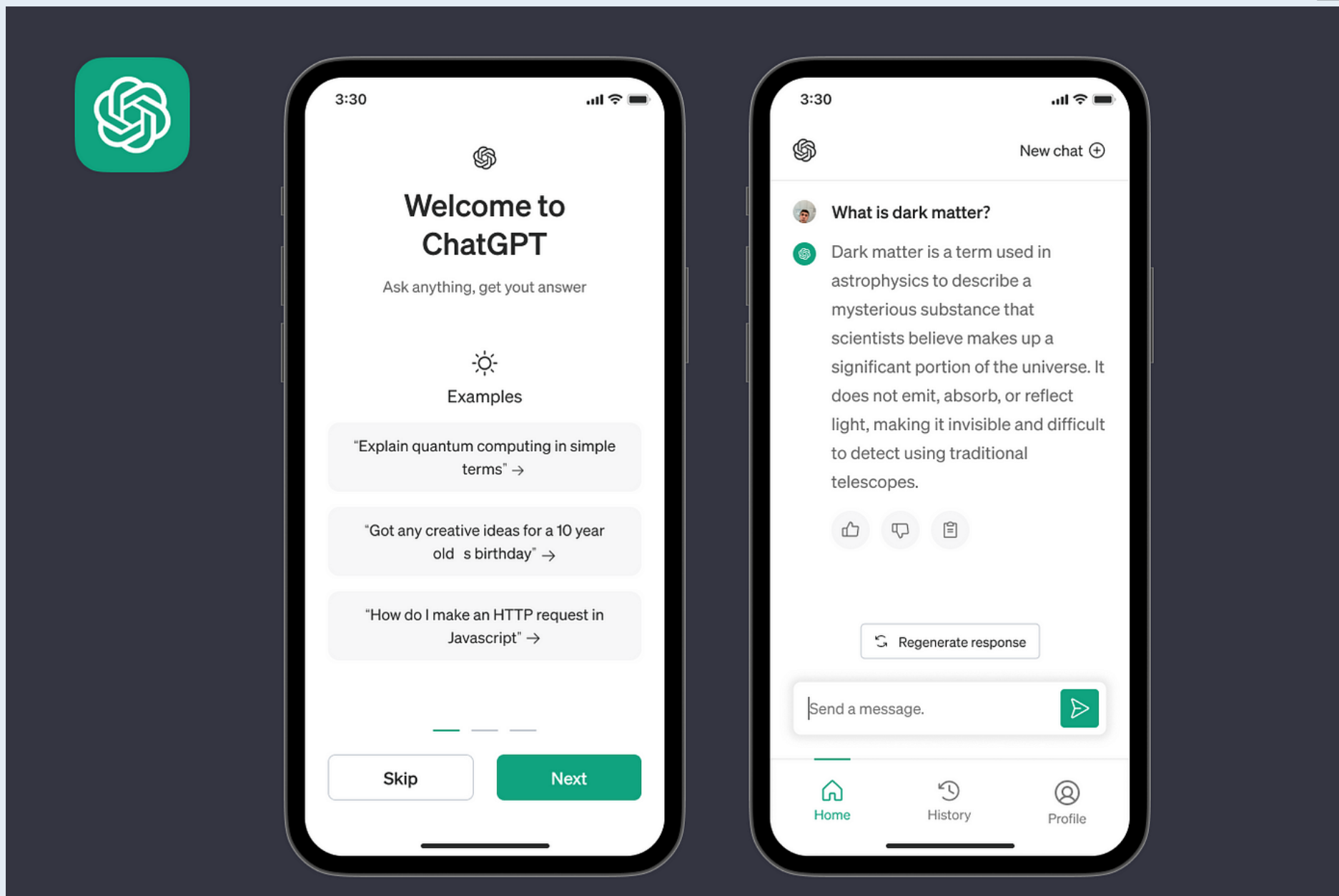


Large Language Models (LLMs) Explained

Ir Prof Alan Lam, JP



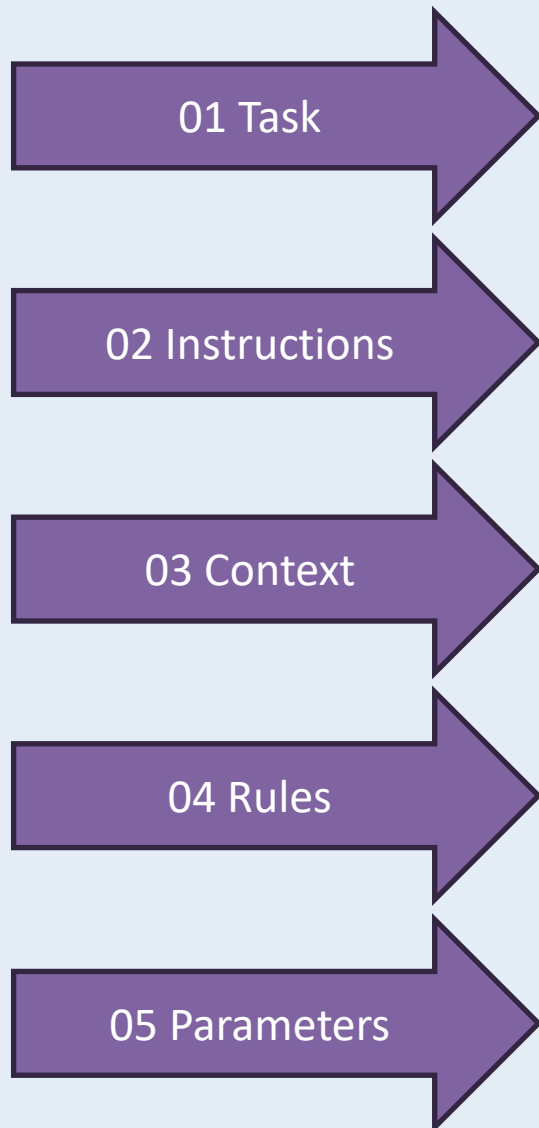
Example of LLM and AI Agent



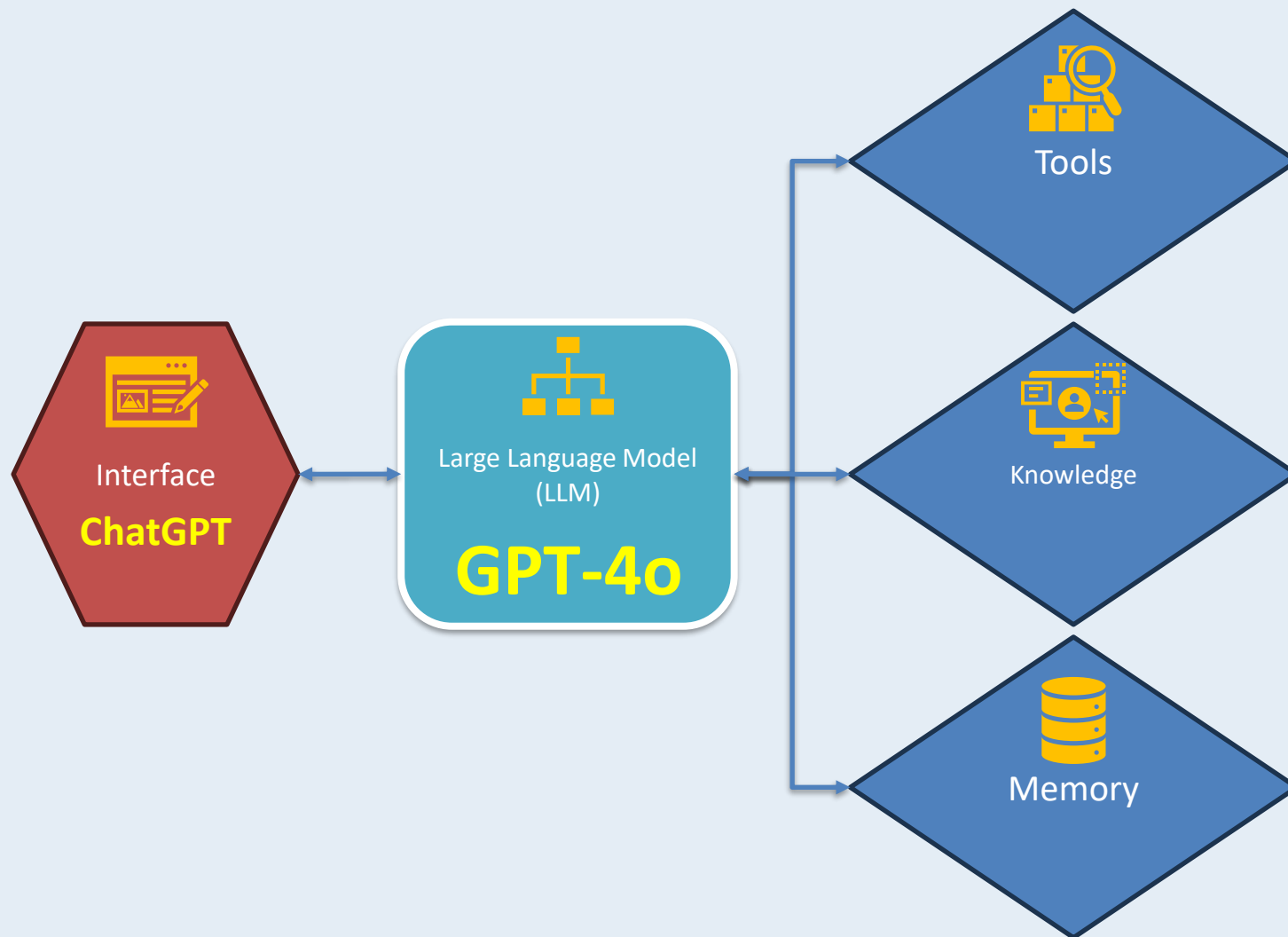
What are LLM and Agents?



Prompts



Example: ChatGPT using GPT-4o LLM



LLM Models Training Procedure



The Rise of Large Language Models



**Mastery in
Mimicking
Human Text**

**Affordable
Computing
Power**

**Shifting
Consumer
Preferences**

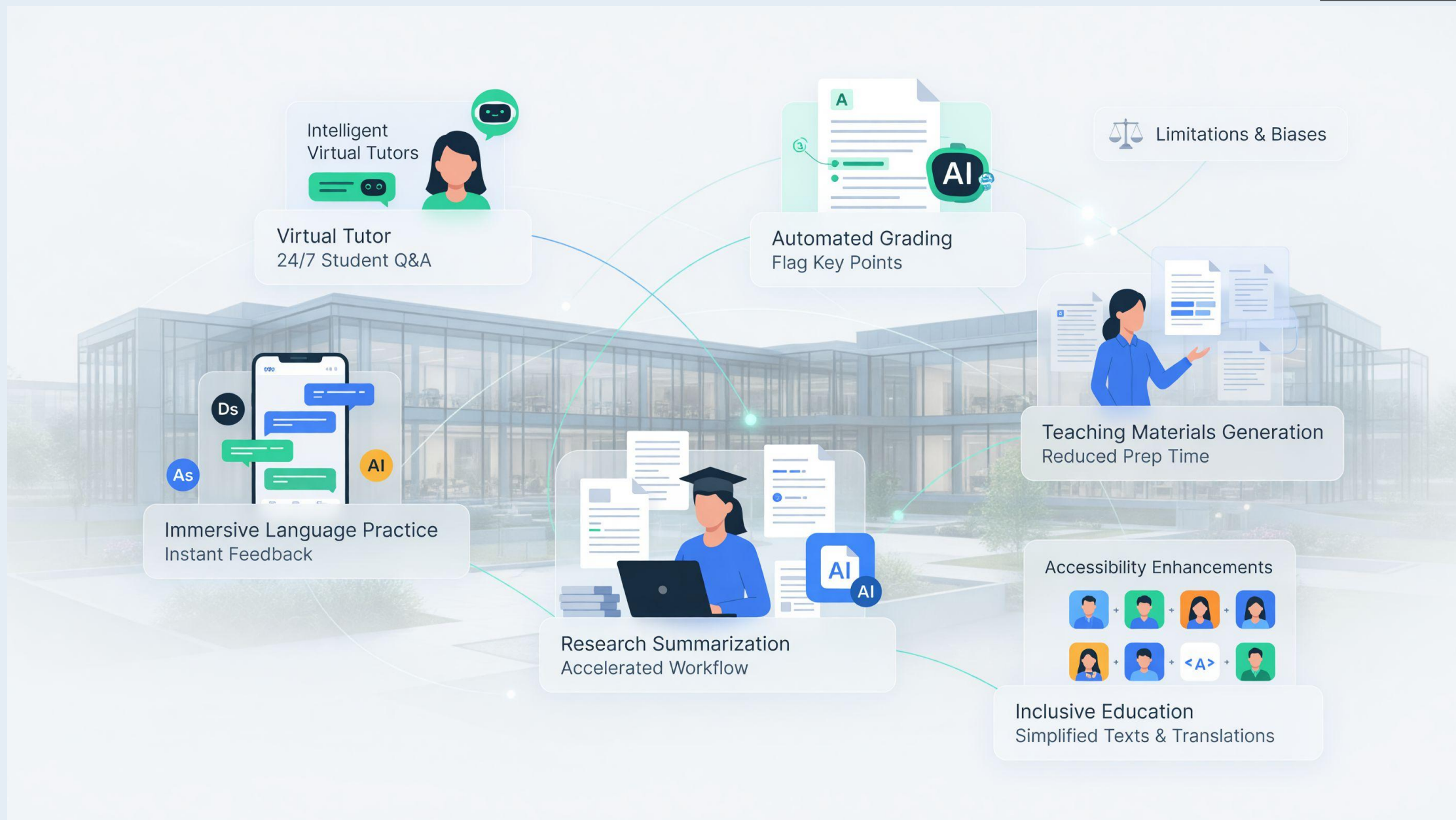
**Unstructured
Data
Goldmine**

**Expanding
LLM for NLP
Market**

Limitations and Ethical Considerations



Practical Use Cases



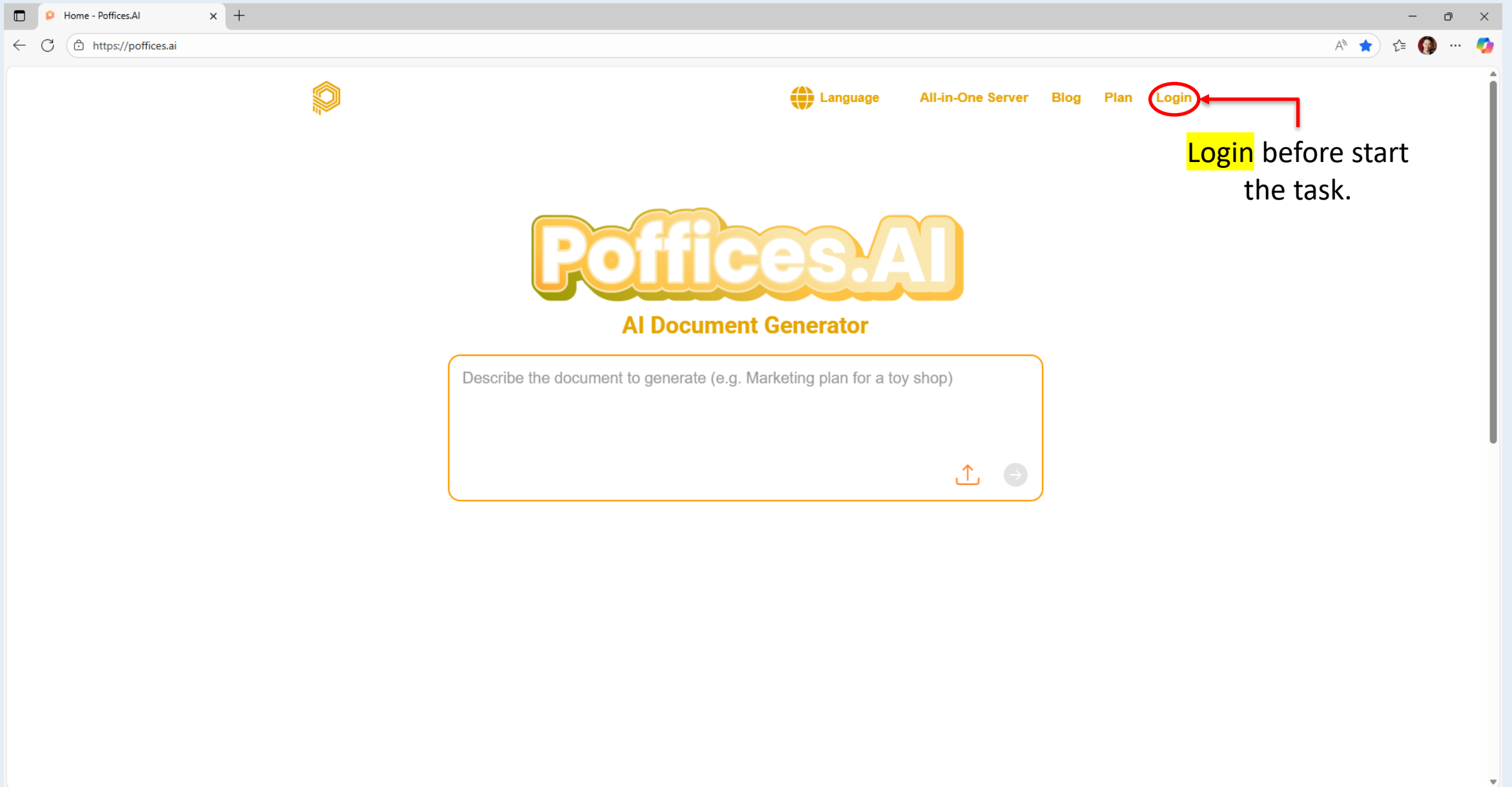
Practical Exercise

1. Keep this note confidential. You must NOT share to others or release to public.
2. Login <https://Poffices.ai>
3. Using Agent Master function to test “LLM only” to generate project proposal with same input.
4. Comparing these answer (from Poffices.ai and LLM ONLY)
5. Discuss your findings.



(2) (3) Click **Agent Master** to choose “Chatbot” and “LLM ONLY”, then input your request.

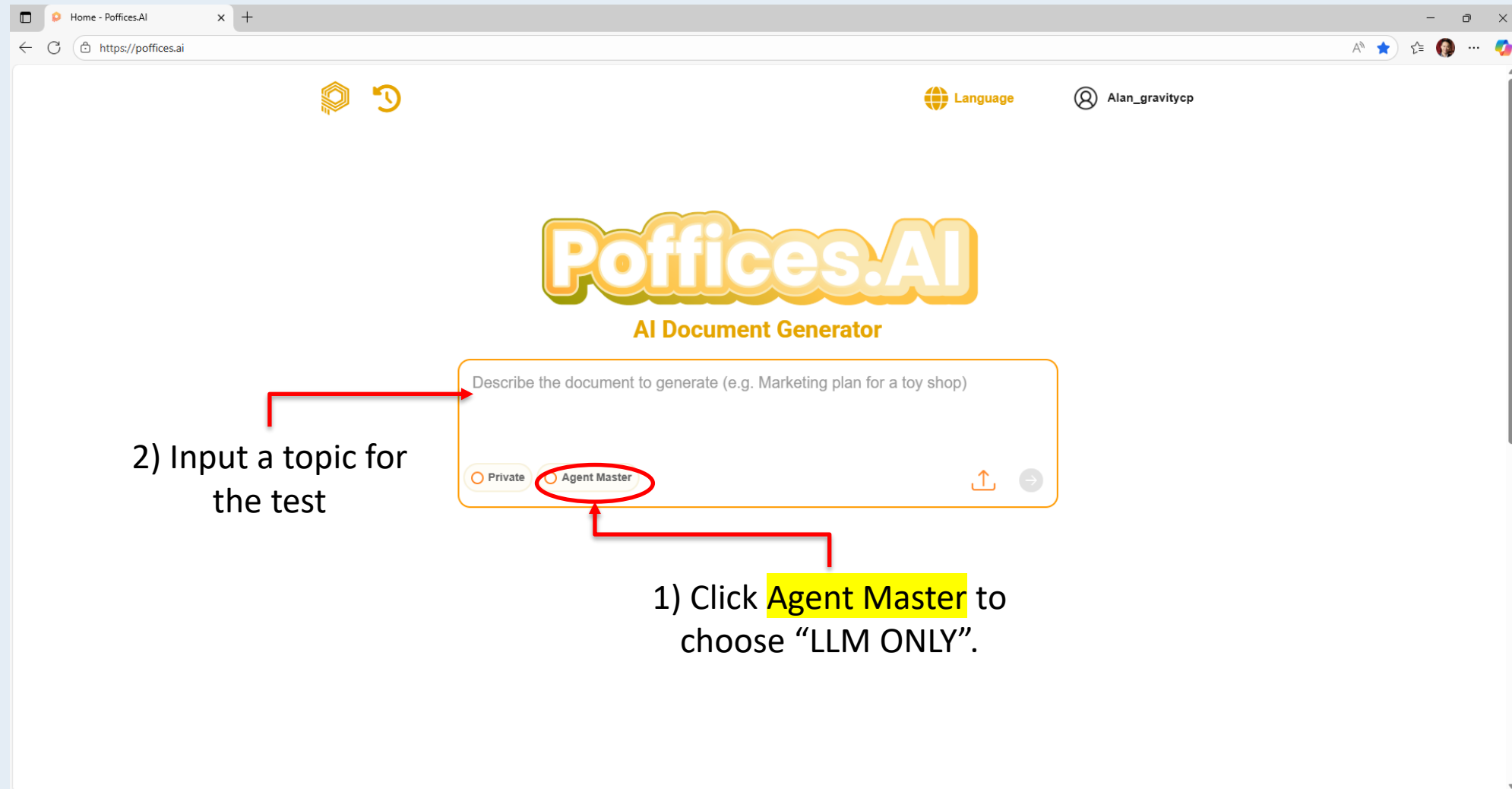
Testing LLM Agents in [Poffices.ai](https://poffices.ai)



Testing LLM Agents in [Poffices.ai](https://poffices.ai/)

Input your instruction in Poffices using LLM ONLY

<https://poffices.ai/>



Testing LLM Agents in Poffices.ai

Input your instruction in Poffices using LLM ONLY

<https://poffices.ai/>

The screenshot shows the Poffices.AI website interface. At the top, there's a navigation bar with a logo, a 'Language' selector, and a user profile 'Alan_gravitycp'. The main heading is 'Poffices.AI AI Document Generator'. Below this is a large text input area containing the text 'Business Plan for Rescue Robot'. To the left of the input area, there are two buttons: 'Private' and 'Agent Master' (which is selected). To the right of the input area, there are two icons: an upward arrow and a rightward arrow. A red box on the right side of the input area contains the text 'Prompt: Business Plan for Rescue Robot'. Two red arrows point to the input area and the rightward arrow icon, with corresponding numbered instructions.

1) Input a topic such as Business Plan for Rescue Robot

2) Click Generation Button

Testing LLM Agents in Poffices.ai

Input your instruction in Poffices using LLM ONLY

https://poffices.ai/generation-history/?share_id=690b45899ae9e

The screenshot shows the Poffices.ai web interface. At the top, there's a navigation bar with a logo, a 'Language' dropdown, and a user profile 'Alan_gravitycp'. Below the navigation bar, there's a yellow bar labeled 'LLM ONLY'. Underneath this bar, there's a text area containing the following text:

Good evening, Alan!

Update briefing on your request:

The request you submitted: "Business Plan for Rescue Robot". LLM ONLY (Agent 122 (llm-agent)) is managing this request.

Your request is processing against the set criteria, with the response arriving shortly after completion.

Time of preparation: 2.8s Time of completion: 25.2s

Below this text area, there's a section titled 'Business Plan for Rescue Robot' with a sub-section 'Executive Summary'. The 'Executive Summary' text reads:

The Rescue Robot project aims to develop an innovative and reliable robotic solution for emergency rescue operations, particularly in disaster-stricken areas, collapsed buildings, or hazardous environments. Our advanced robot will be equipped with various features, including autonomous navigation, obstacle detection, communication systems, and advanced sensors to assess victims' conditions. This business plan outlines the market opportunity, target audience, technology development, marketing strategy, and financial projections for the Rescue Robot initiative.

Below the 'Executive Summary', there's a section titled 'Business Description' with the following details:

Business Name: RescueBot Technologies

Location: Hong Kong, with plans to expand to international markets.

Mission Statement: To enhance the effectiveness and efficiency of rescue operations through robotics technology, saving lives and minimizing risks to human rescuers.

Vision Statement: To become the leading provider of rescue robotics solutions globally by innovating and integrating next-generation technologies for emergency response.

Red arrows point from the following labels to the interface:

- 1) LLM ONLY (GPT-4o-mini) points to the 'LLM ONLY' bar.
- 2) Generated Outcome points to the 'Business Plan for Rescue Robot' section.
- 3) Extra Information from system points to the text area below the 'LLM ONLY' bar.

Introduction to Generative AI Agents

Ir Prof Alan Lam, JP



GenAI Agents Overcome AI Hallucinations Problem



General Chatbot

- Creation of unreal information
- Hallucinations
- No Source References



Poffices.AI

Real Reference Links



Press to
play the
video



Poffices.AI

- Human Logic Framework
- Data from Trusted Source Link
- By simply clicking the reference links, users can explore the original sources of the content in greater detail
- Seamless References: Auto-generated citations + clickable links for fact-checking.

GenAI Agents Support all Formats and Symbols



General Chatbot

- Even if they solve the maths, you'll waste hours fixing formatting after copy-pasting



Poffices.AI

Content Generation With Professional Maths Formulas & Equation

Poffices.AI

- Insert perfectly formatted maths equations & formulas directly into editable Word (.docx)—no more messy symbols or broken layouts!
- Perfect for professionals needing polished documents with math formulas



Press to
play the
video

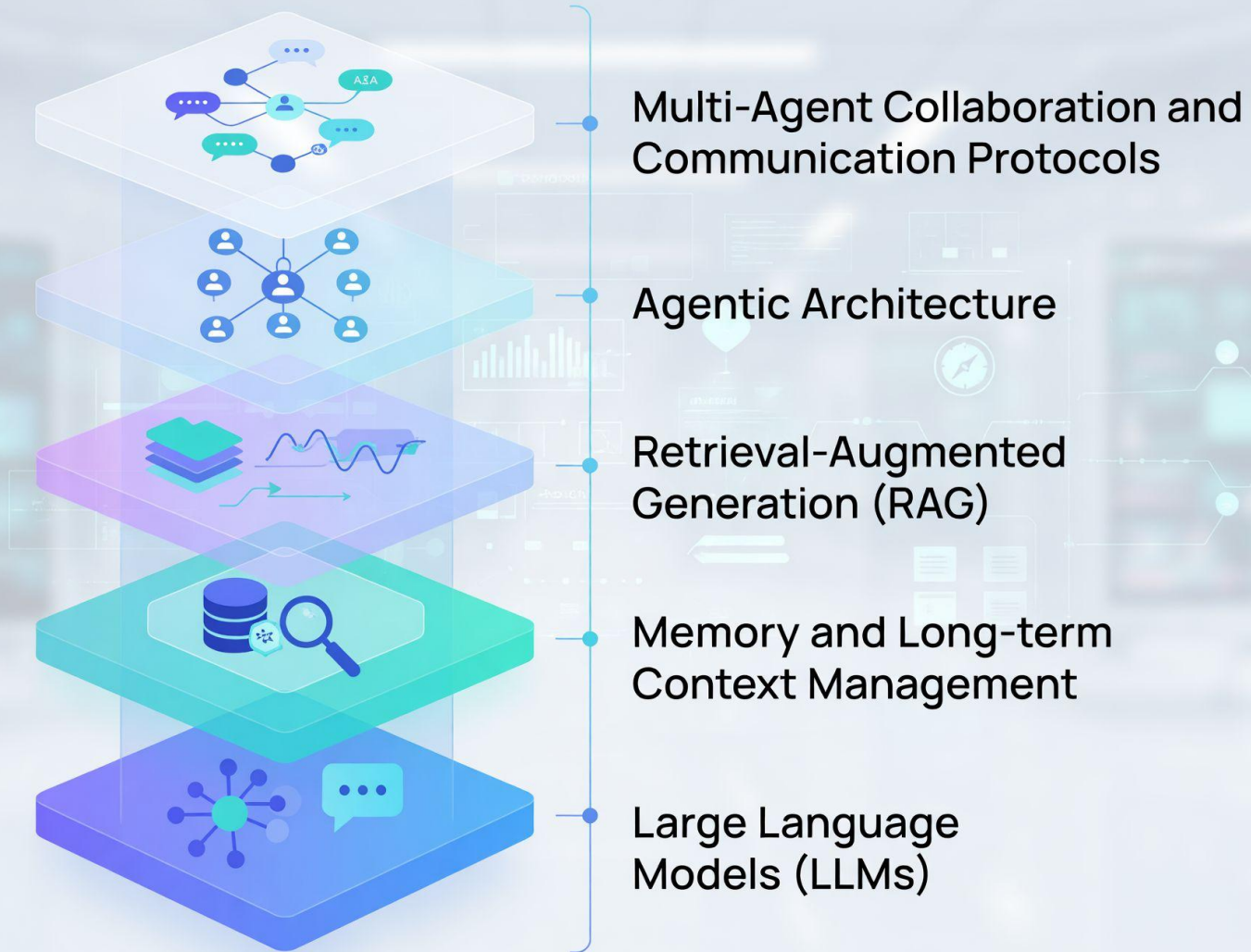


How does Generative AI work?

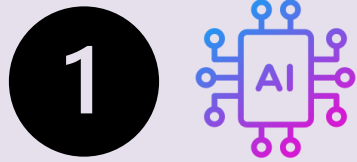


https://poffices.ai/generation-history/?share_id=68aae418cc665

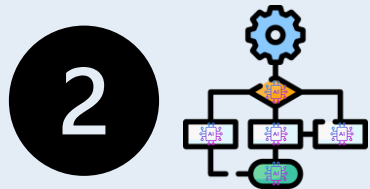
Key Components and Technologies



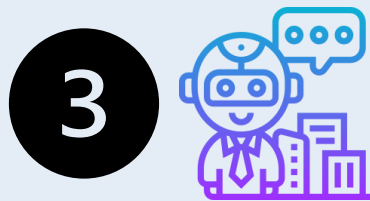
Three Types of GenAI Agents



Basic Agent
(LLM + Prompt)



Workflow
Agent



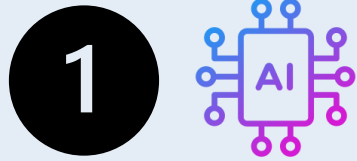
Thinking Agent

This is the most basic application level, focusing on the encapsulation of knowledge.

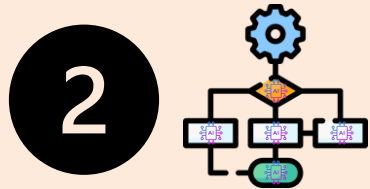
- **Core Mechanics: Define your character's personality, limitations, and areas of expertise** through granular **System Prompts**.
- **How it works:** User input -> LLMs respond based on prompts. It primarily relies on the model's built-in knowledge or simple RAG (Retrieval-Augmented Generation).
- **Limitations:** It does not have the ability to "act" and cannot actively manipulate external tools, but can only provide information within dialog boxes.
- **Example:** A chatbot set up as a "senior legal assistant" that specializes in explaining contract terms.



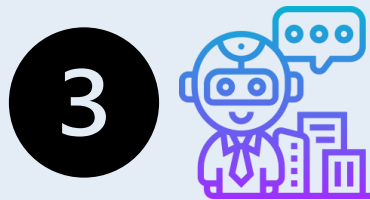
Three Types of GenAI Agents



Basic Agent
(LLM + Prompt)



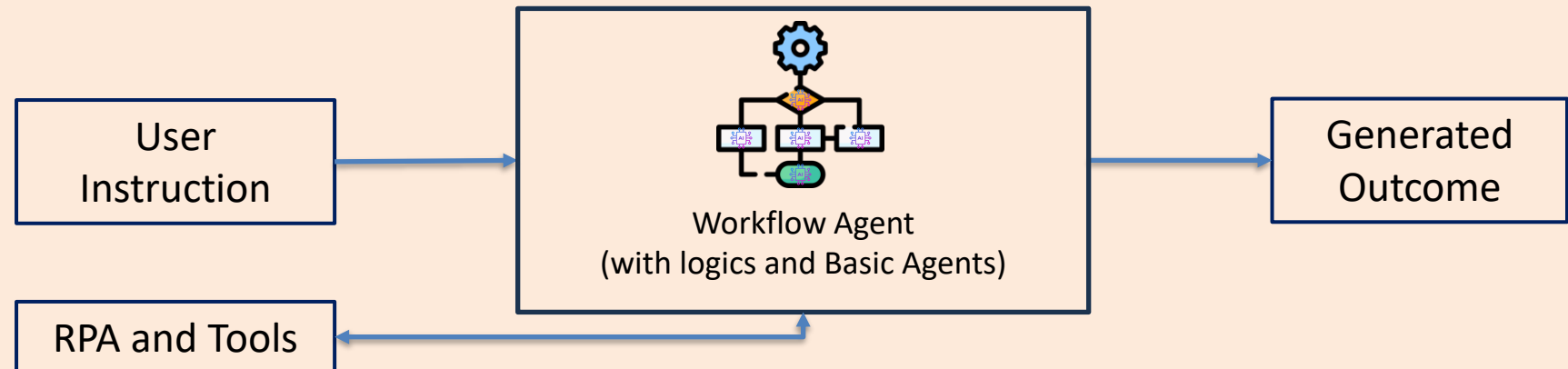
Workflow
Agent



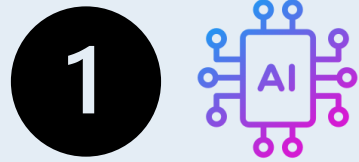
Thinking Agent

This level introduces standardized processes with a focus on reliability and automation.

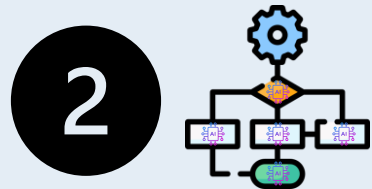
- **Core mechanism:** Break down tasks into predefined steps (DAGs, directed acyclic graphs). The developer presets "what to do in the first step, and if the result is A, then perform step two".
- **How it works:** LLMs perform specific tasks at each default node. This is often combined with program logic such as LangGraph or n8n.
- **Features:** Although tools can be called (such as sending emails and checking data), the path is planned and the behavior is highly predictable, suitable for enterprise-level fixed business processes.
- **Example:** Automated customer service system - first identify semantics, transfer manual if it is a complaint, and if it is an order check, go to the database to grab data and reply.



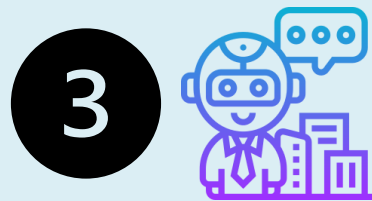
Three Types of GenAI Agents



Basic Agent
(LLM + Prompt)



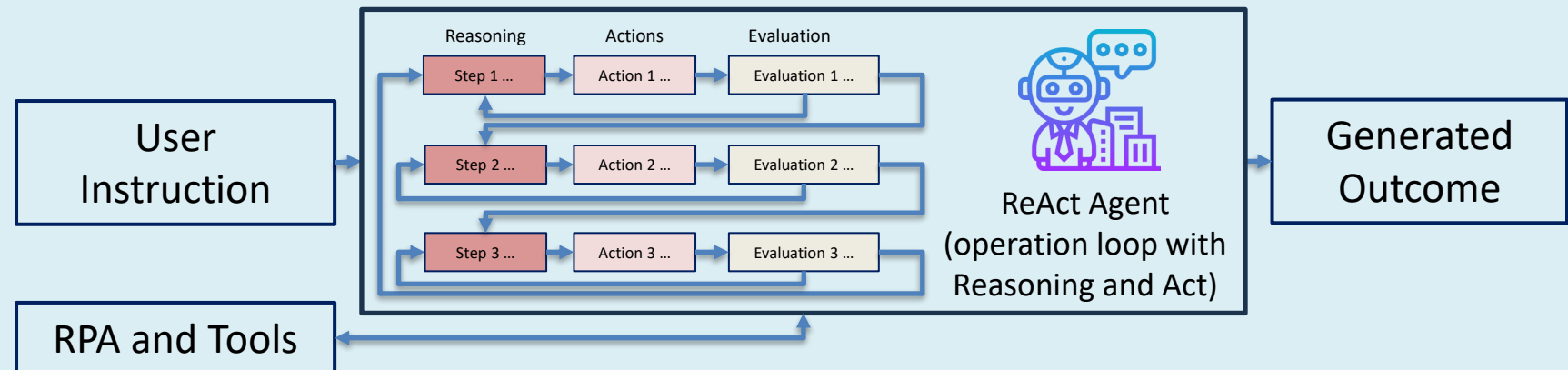
Workflow
Agent



Thinking Agent

This is the highest level of form, focusing on autonomous reasoning and dynamic paths.

- **Core Mechanism:** Adopts the **ReAct (Reason + Act)** framework. The agent performs "Thought." -> Action -> Observation".
- **How it works:** Developers don't default paths, only give tools lists and end goals. Based on the feedback from the environment, the agent will independently decide what tool to use next, and if it fails, it will self-correct.
- **Features:** Highly flexible and able to handle complex non-standardized problems, but with higher operating costs and unpredictable results.
- **Example:** AI coder (such as Devin) - it will try to write code, automatically analyze the log after running errors, correct the code before running it until it passes the test.



GenAI Agent is Advancement of Chatbot



General Chatbot

- Conversation-only
- Cannot complete the task
- Text output or single output only
- The output cannot be used directly



Poffices.AI

- One-Click Export: Save time with direct downloads to DOCX, PPT
- Embedded Visuals: Photos, charts, and diagrams auto-added to documents.
- Perfect For: Professionals, creators who need flawless, publication-ready content.
- "No more copying, pasting, or formatting chaos!"



Press to
play the
video



GenAI Agent Support Instant Real-time Information



General Chatbot

- Outdated information
- Cannot Browse the Internet
- Generic Answers



Poffices.AI Web-search Function

Poffices.AI

- Real-Time Web Search: Pulls the newest data instantly (e.g., updated news, research papers).
- Get summarized results with reliable source links
- Generate content for reports, tables, and presentations in seconds
- Save time and boost your productivity every day



Press to
play the
video



Practical Exercise

1. Keep this note confidential. You must NOT share to others or release to public.
2. Login <https://Poffices.ai>
3. Try General Agent mode, Agent Finder mode and Agent Master mode by input instruction to solve the daily life problem
4. Compare the outcome from the above 3 modes
5. Discuss your findings



(1) Enter your input

(2) (3) Click **Agent Master** to choose “General Agent”, “Agent Finder”, or “Agent Master” Mode. Then click Generation button

Basic Functions in Poffices.ai

The screenshot shows the Poffices.ai web application interface. The browser address bar displays 'poffices.ai'. The application has a sidebar with 'General', 'Agent Master', and 'Digital Assets' options. The 'Settings' window is open, showing 'General Settings'. Under 'GENERATION MODE', three options are listed: 'General Agent Mode (Default)' (selected), 'Agent Finder Mode', and 'Agent Master Mode'. Under 'OTHER SETTINGS', there is a 'Private History' section with a toggle switch. At the bottom, there are 'Cancel' and 'Apply Settings' buttons. Red circles and arrows highlight the 'Settings' button in the sidebar, the 'General Agent Mode' radio button, the 'Private History' toggle switch, and the 'Apply Settings' button. Yellow text boxes provide instructions for each highlighted element.

Settings

Setting for Mode Selection

Select General Agent Mode

Click to enable Private Mode

Confirm Setting

Cancel Apply Settings

Watch tour

Basic Functions in [Poffices.ai](https://poffices.ai)

The screenshot shows the Poffices.ai web application interface. A 'Settings' modal is open, displaying the 'General' tab. The left sidebar contains 'General', 'Agent Master', and 'Digital Assets'. The main content area is titled 'General Settings' and includes sections for 'GENERATION MODE' and 'OTHER SETTINGS'. In the 'GENERATION MODE' section, three options are listed: 'General Agent Mode (Default)', 'Agent Finder Mode', and 'Agent Master Mode'. 'Agent Finder Mode' is selected, indicated by a red circle and a yellow callout box that says 'Select Agent Finder Mode'. Below 'Agent Finder Mode', there is an 'Auto Mode' section with a description and a toggle switch. The toggle switch is turned on, indicated by a red circle and a yellow callout box that says 'Click to enable Auto Mode'. At the bottom of the settings modal, there are 'Cancel' and 'Apply Settings' buttons. The 'Apply Settings' button is circled in red, with a yellow callout box that says 'Confirm Setting'. The browser's address bar shows 'poffices.ai' and the page title is 'Home - Poffices.AI'.

Settings

General

Agent Master

Digital Assets

General Settings

GENERATION MODE

☒ **Agent Finder Mode**
Automatically find and invoke the most suitable expert.

Auto Mode
Automatically confirm and start generation without manual agent selection.

☐ **Agent Master Mode**
Manually specify a team of up to 10 AIs.

OTHER SETTINGS

Private History
Keep your conversation history private

Cancel Apply Settings

Watch tour

Click to enable Auto Mode

Select Agent Finder Mode

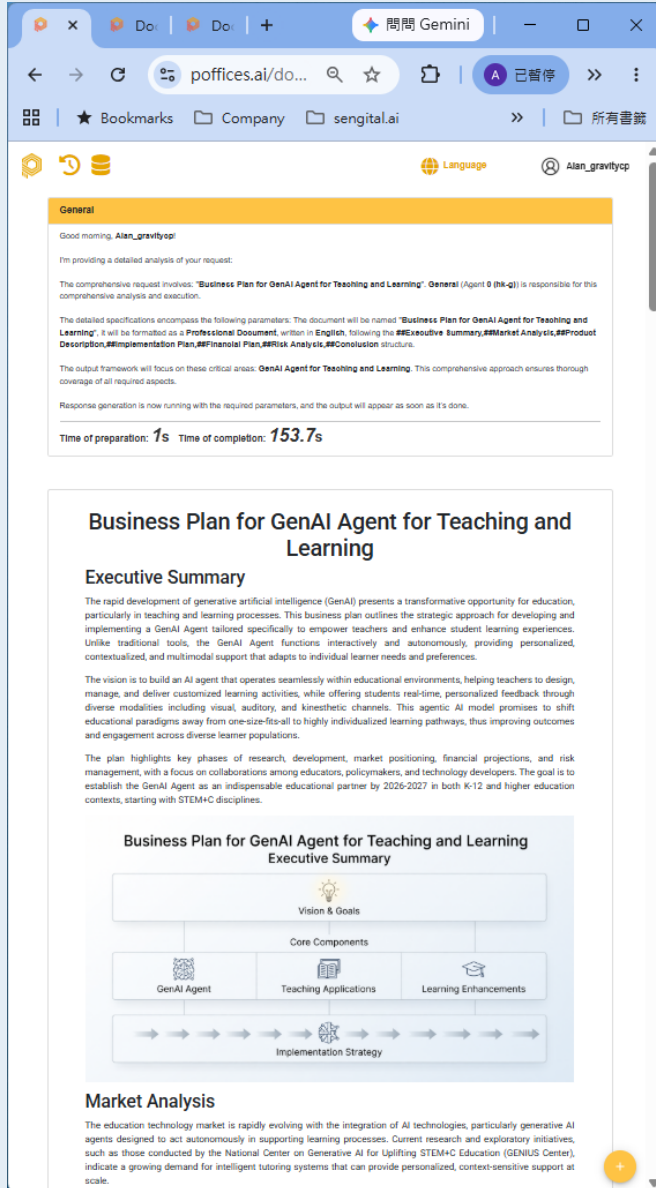
Confirm Setting

Basic Functions in Poffices.ai

The screenshot shows the Poffices.ai web interface. The browser address bar displays 'poffices.ai'. The left sidebar contains three menu items: 'General', 'Agent Master', and 'Digital Assets'. The 'Agent Master' menu item is highlighted with a yellow box and a red arrow pointing to it, with the text 'Select Agent Master Mode' next to it. The main content area is titled 'Settings' and has a sub-header 'General Settings'. Under 'GENERATION MODE', there are three radio button options: 'General Agent Mode (Default)' (disabled), 'Agent Finder Mode' (disabled), and 'Agent Master Mode' (selected, highlighted with a red circle). Below 'Agent Master Mode' is an 'Auto Mode' section with a toggle switch that is turned on (highlighted with a red circle). A yellow box with the text 'Click to enable Auto Mode' has a red arrow pointing to this toggle. At the bottom of the settings panel, there is a red warning message: 'Please select at least one agent to enable Agent Master Mode.' Below this message are two buttons: 'Cancel' and 'Apply Settings'. The 'Apply Settings' button is highlighted with a red circle and a red arrow, with a yellow box containing the text 'Confirm Setting' next to it. The background of the interface is dark grey.

Basic Functions in Poffices.ai

General Agent



The screenshot shows the Poffices.ai General Agent interface. The top bar includes a search bar with "問問 Gemini" and a status indicator "A 已暫停". The main content area displays a "General" section with a greeting from "Alan_gravitytop" and a detailed analysis of a request. The request involves a "Business Plan for GenAI Agent for Teaching and Learning". The analysis includes a comprehensive overview, defined parameters, and key focus points. The output framework focuses on critical areas like GenAI Agent for Teaching and Learning. The time of preparation is 1s and the time of completion is 153.7s.

Business Plan for GenAI Agent for Teaching and Learning

Executive Summary

The rapid development of generative artificial intelligence (GenAI) presents a transformative opportunity for education, particularly in teaching and learning processes. This business plan outlines the strategic approach for developing and implementing a GenAI Agent tailored specifically to empower teachers and enhance student learning experiences. Unlike traditional tools, the GenAI Agent functions interactively and autonomously, providing personalized, contextualized, and multimodal support that adapts to individual learner needs and preferences.

The vision is to build an AI agent that operates seamlessly within educational environments, helping teachers to design, manage, and deliver customized learning activities, while offering students real-time, personalized feedback through diverse modalities including visual, auditory, and kinesthetic channels. This agentic AI model promises to shift educational paradigms away from one-size-fits-all to highly individualized learning pathways, thus improving outcomes and engagement across diverse learner populations.

The plan highlights key phases of research, development, market positioning, financial projections, and risk management, with a focus on collaborations among educators, policymakers, and technology developers. The goal is to establish the GenAI Agent as an indispensable educational partner by 2026-2027 in both K-12 and higher education contexts, starting with STEM+C disciplines.

Business Plan for GenAI Agent for Teaching and Learning

Executive Summary

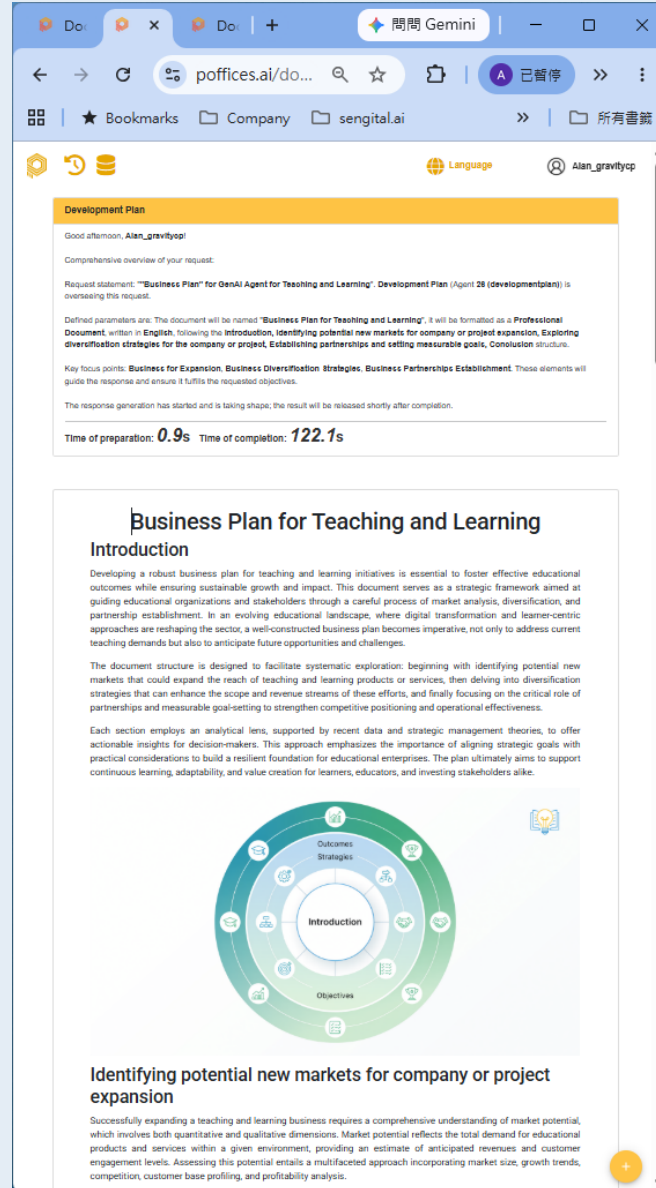


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graph TD; A[Vision & Goals] --> B[Core Components]; B --> C[Implementation Strategy]; B --> D[Market Analysis]; B --> E[GenAI Agent]; B --> F[Teaching Applications]; B --> G[Learning Enhancements]; E --> C; F --> C; G --> C; C --> D;
```

Market Analysis

The education technology market is rapidly evolving with the integration of AI technologies, particularly generative AI agents designed to act autonomously in supporting learning processes. Current research and exploratory initiatives, such as those conducted by the National Center on Generative AI for Uplifting STEM+C Education (GENIUS Center), indicate a growing demand for intelligent tutoring systems that can provide personalized, context-sensitive support at scale.

Agent from Agent Finder



The screenshot shows the Poffices.ai Agent from Agent Finder interface. The top bar includes a search bar with "問問 Gemini" and a status indicator "A 已暫停". The main content area displays a "Development Plan" section with a greeting from "Alan_gravitytop" and a comprehensive overview of the request. The request involves a "Business Plan for GenAI Agent for Teaching and Learning". The overview includes a request statement, defined parameters, and key focus points. The output framework focuses on critical areas like GenAI Agent for Teaching and Learning. The time of preparation is 0.9s and the time of completion is 122.1s.

Business Plan for Teaching and Learning

Introduction

Developing a robust business plan for teaching and learning initiatives is essential to foster effective educational outcomes while ensuring sustainable growth and impact. This document serves as a strategic framework aimed at guiding educational organizations and stakeholders through a careful process of market analysis, diversification, and partnership establishment. In an evolving educational landscape, where digital transformation and learner-centric approaches are reshaping the sector, a well-constructed business plan becomes imperative, not only to address current teaching demands but also to anticipate future opportunities and challenges.

The document structure is designed to facilitate systematic exploration: beginning with identifying potential new markets that could expand the reach of teaching and learning products or services, then delving into diversification strategies that can enhance the scope and revenue streams of these efforts, and finally focusing on the critical role of partnerships and measurable goal-setting to strengthen competitive positioning and operational effectiveness.

Each section employs an analytical lens, supported by recent data and strategic management theories, to offer actionable insights for decision-makers. This approach emphasizes the importance of aligning strategic goals with practical considerations to build a resilient foundation for educational enterprises. The plan ultimately aims to support continuous learning, adaptability, and value creation for learners, educators, and investing stakeholders alike.

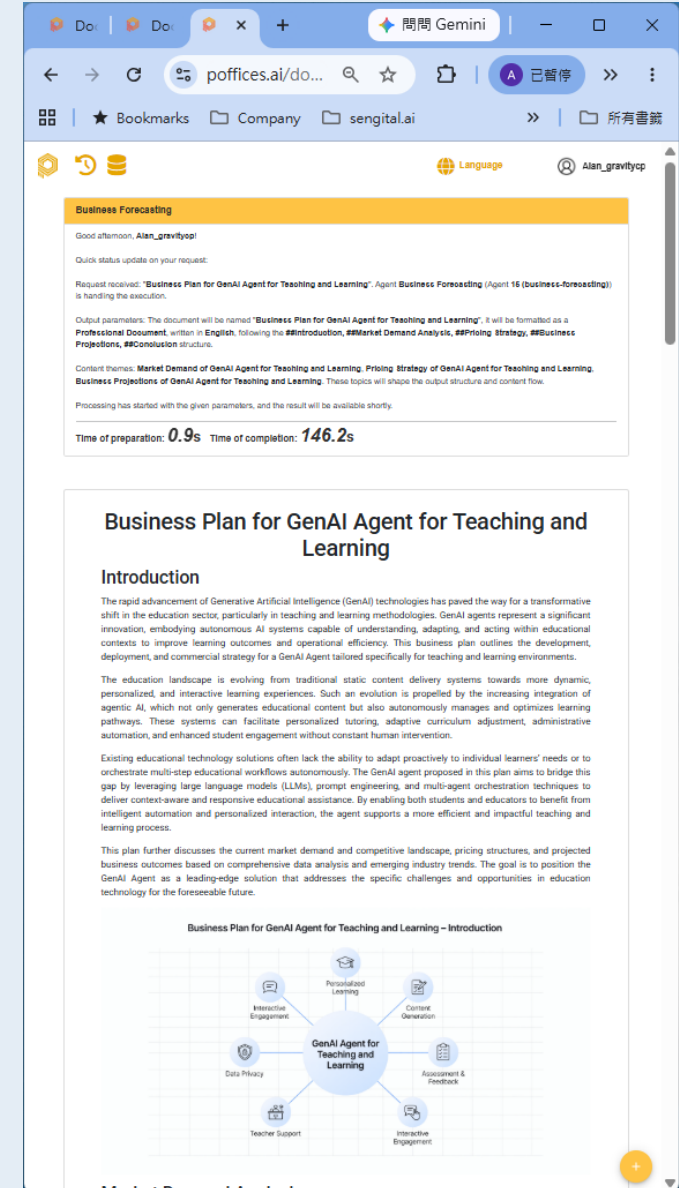


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graph TD; A[Outcomes Strategies] --> B[Objectives]; B --> C[Identifying potential new markets for company or project expansion]; C --> D[Market Demand Analysis]; D --> E[GenAI Agent for Teaching and Learning]; E --> F[Current Generation]; F --> G[Assessment & Feedback]; G --> H[Interactive Engagement]; H --> I[Teacher Support]; I --> J[Data Privacy]; J --> K[Personalized Learning]; K --> A;
```

Identifying potential new markets for company or project expansion

Successfully expanding a teaching and learning business requires a comprehensive understanding of market potential, which involves both quantitative and qualitative dimensions. Market potential reflects the total demand for educational products and services within a given environment, providing an estimate of anticipated revenues and customer engagement levels. Assessing this potential entails a multifaceted approach incorporating market size, growth trends, competition, customer base profiling, and profitability analysis.

Agent from Agent Master



The screenshot shows the Poffices.ai Agent from Agent Master interface. The top bar includes a search bar with "問問 Gemini" and a status indicator "A 已暫停". The main content area displays a "Business Forecasting" section with a greeting from "Alan_gravitytop" and a quick status update on the request. The request involves a "Business Plan for GenAI Agent for Teaching and Learning". The overview includes a request statement, defined parameters, and key focus points. The output framework focuses on critical areas like GenAI Agent for Teaching and Learning. The time of preparation is 0.9s and the time of completion is 146.2s.

Business Plan for GenAI Agent for Teaching and Learning

Introduction

The rapid advancement of Generative Artificial Intelligence (GenAI) technologies has paved the way for a transformative shift in the education sector, particularly in teaching and learning methodologies. GenAI agents represent a significant innovation, embodying autonomous AI systems capable of understanding, adapting, and acting within educational contexts to improve learning outcomes and operational efficiency. This business plan outlines the development, deployment, and commercial strategy for a GenAI Agent tailored specifically for teaching and learning environments.

The education landscape is evolving from traditional static content delivery systems towards more dynamic, personalized, and interactive learning experiences. Such an evolution is propelled by the increasing integration of agentic AI, which not only generates educational content but also autonomously manages and optimizes learning pathways. These systems can facilitate personalized tutoring, adaptive curriculum adjustment, administrative automation, and enhanced student engagement without constant human intervention.

Existing educational technology solutions often lack the ability to adapt proactively to individual learners' needs or to orchestrate multi-step educational workflows autonomously. The GenAI agent proposed in this plan aims to bridge this gap by leveraging large language models (LLMs), prompt engineering, and multi-agent orchestration techniques to deliver context-aware and responsive educational assistance. By enabling both students and educators to benefit from intelligent automation and personalized interaction, the agent supports a more efficient and impactful teaching and learning process.

This plan further discusses the current market demand and competitive landscape, pricing structures, and projected business outcomes based on comprehensive data analysis and emerging industry trends. The goal is to position the GenAI Agent as a leading-edge solution that addresses the specific challenges and opportunities in education technology for the foreseeable future.

Business Plan for GenAI Agent for Teaching and Learning - Introduction



```
graph TD; A[GenAI Agent for Teaching and Learning] --> B[Personalized Learning]; B --> C[Current Generation]; C --> D[Assessment & Feedback]; D --> E[Interactive Engagement]; E --> F[Teacher Support]; F --> G[Data Privacy]; G --> H[Personalized Learning]; A --> I[Interactive Engagement]; I --> J[Data Privacy]; J --> K[Personalized Learning]; A --> L[Current Generation]; L --> M[Assessment & Feedback]; M --> N[Interactive Engagement]; N --> O[Teacher Support]; O --> P[Data Privacy]; P --> Q[Personalized Learning];
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The Impact of AI and GenAI on Educational Practices

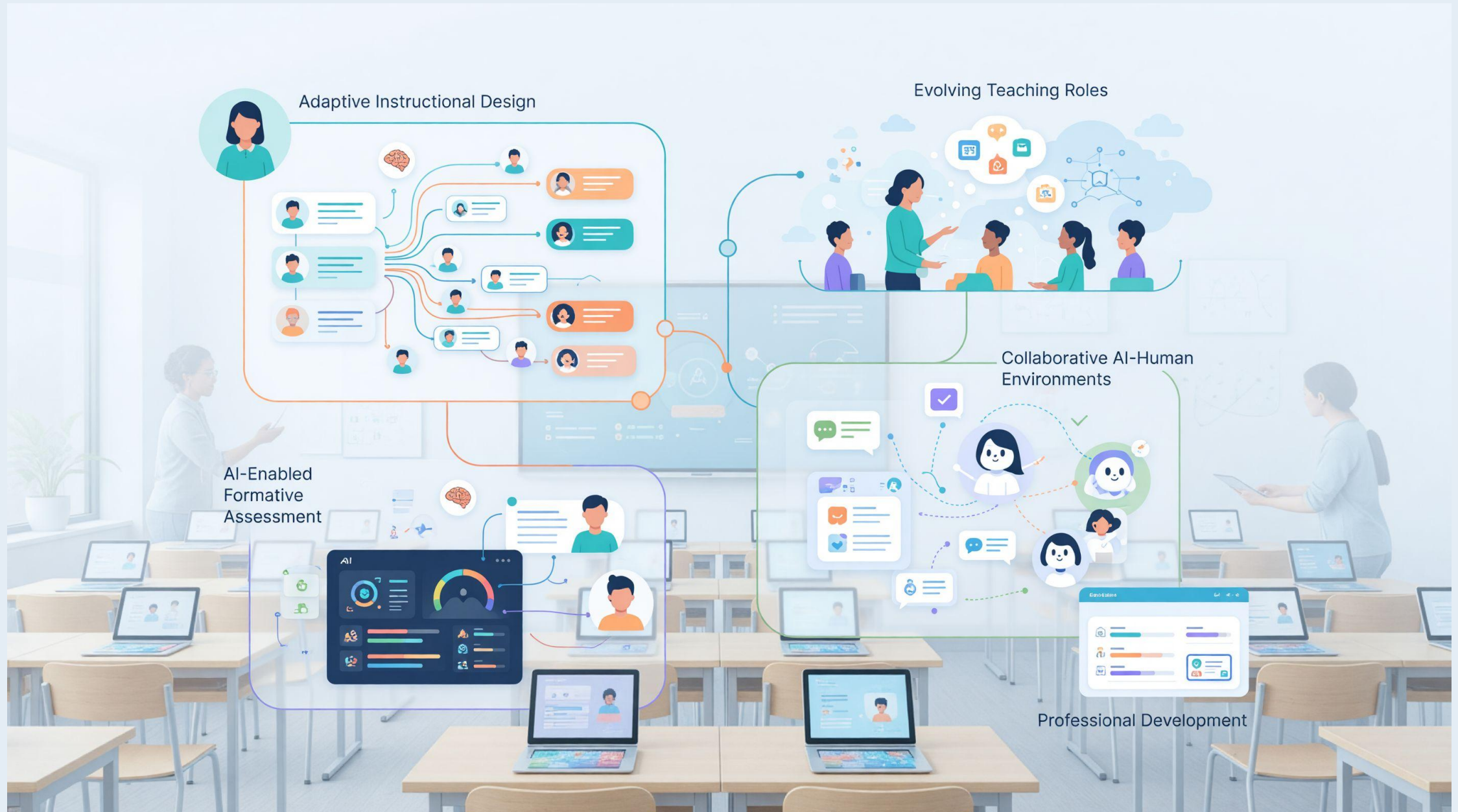
Ir Prof Alan Lam, JP



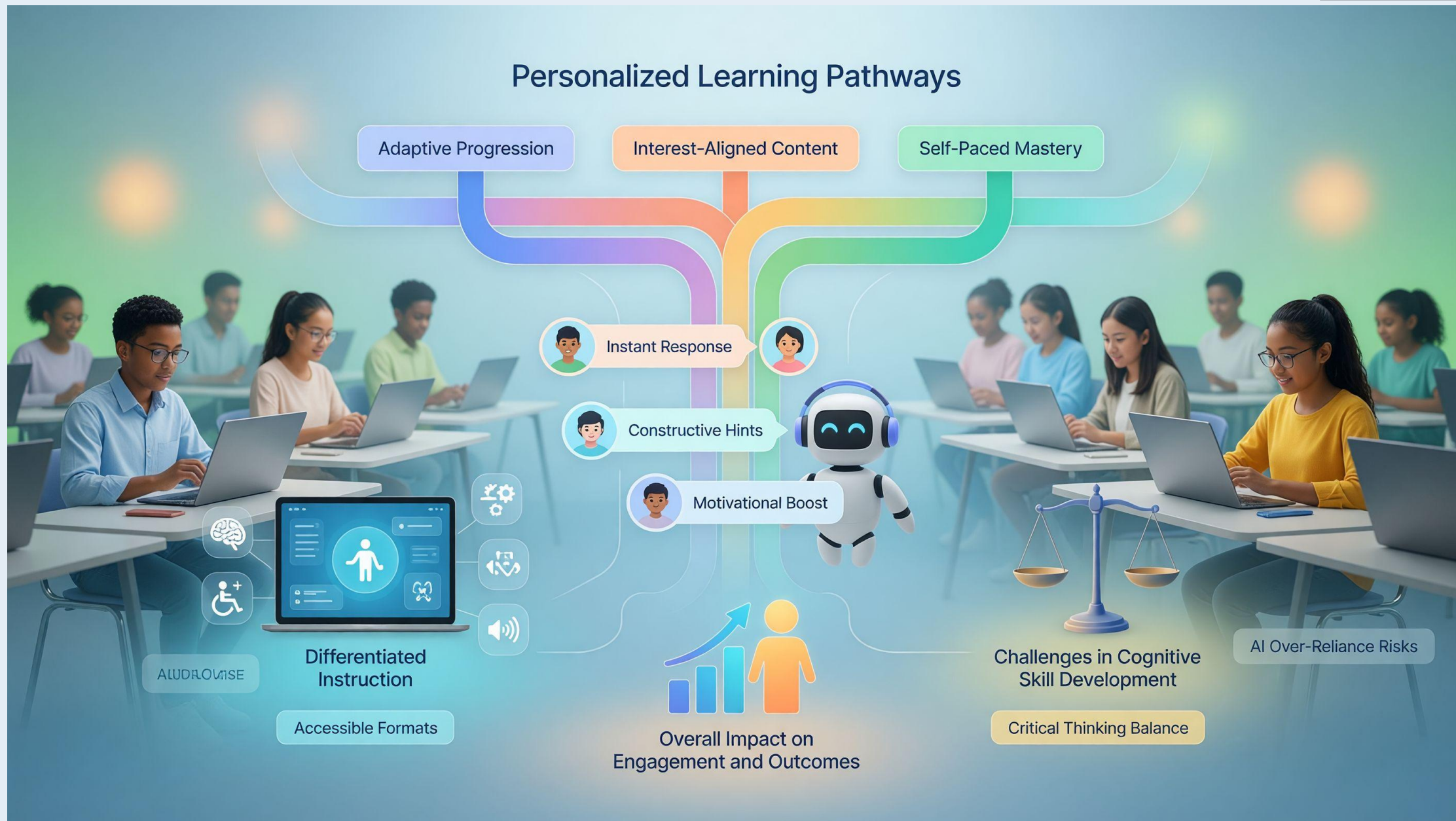
Overview of AI Impact on Education



Changes in Teaching Methodologies



Student Engagement and Learning Outcomes



GenAI Specific Effects



Tailored Instruction
& AI Explanations



AI-Enhanced &
Reflective Assessments



Accountability &
Plagiarism Concerns



Hybrid AI-Educator
Model



Adaptive Content for
All Learners



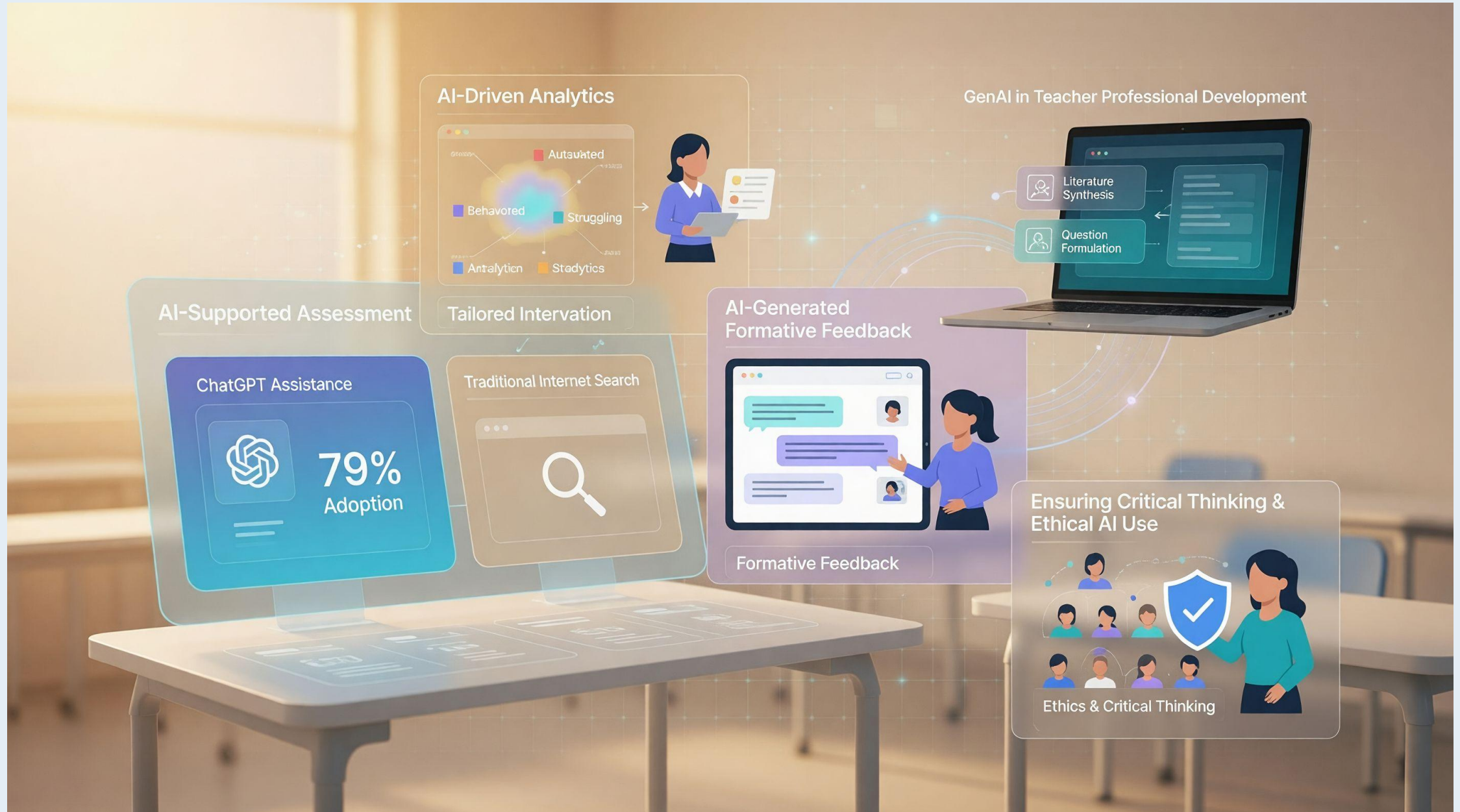
- GenAI automates content generation and scalable personalized feedback.
- Tools like ChatGPT support tailored materials and interactive concept exploration.
- Assessment evolves with AI-assisted drafting and reflective components.
- Ethical issues arise from AI-generated content complicating plagiarism detection.
- Hybrid pedagogy integrates AI literacy and critical engagement with AI outputs.
- GenAI promotes equity by adjusting content to diverse learner needs.

Challenges and Ethical Issues

- AI complicates plagiarism detection, raising academic integrity concerns.
- Embedded AI biases can harm marginalized student groups.
- The digital divide creates inequities in AI technology access.
- AI's energy demands raise sustainability and environmental concerns.
- Educator readiness requires ongoing AI literacy and ethical training.
- Overdependence on AI may undermine critical cognitive skill development.



Practical Examples in Classrooms



Practical Exercise

1. Keep this note confidential. You must NOT share to others or release to public.
2. Login <https://Poffices.ai>
3. Using Agent Master function to use “Chatbot” to generate ideas about your project such as “List out the 10 ideas to solve Learning and Teaching problems in point form”.
4. Discuss your findings.



(2) (3) Click **Agent Master** to choose “Agent Master” Mode and select Chatbot. Then click Generation button.

Future Trends and Professional Development in AI for Educators

Ir Prof Alan Lam, JP



Emerging AI Tools in Education



Generative AI Agents



Adaptive Learning Systems

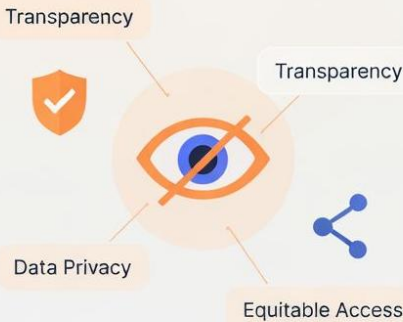


AI-powered Augmented Reality

Applications Enhancing Learning and Teaching



Operational and Assessment Advancements

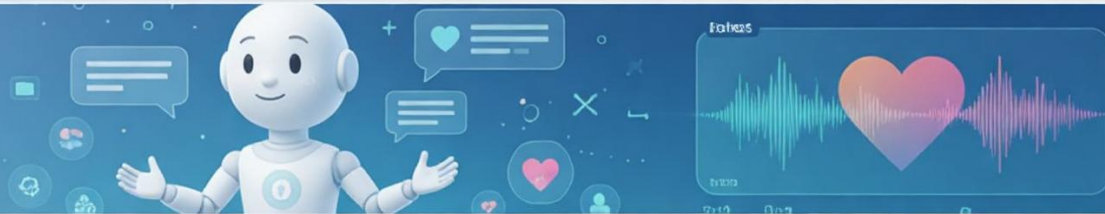


Predicted Trends in AI for Education

Accelerating AI Capabilities



Collaborative Learning Partners



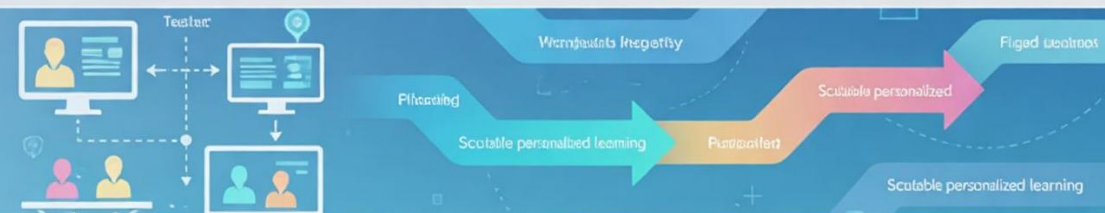
Creativity Support



Learning Analytics

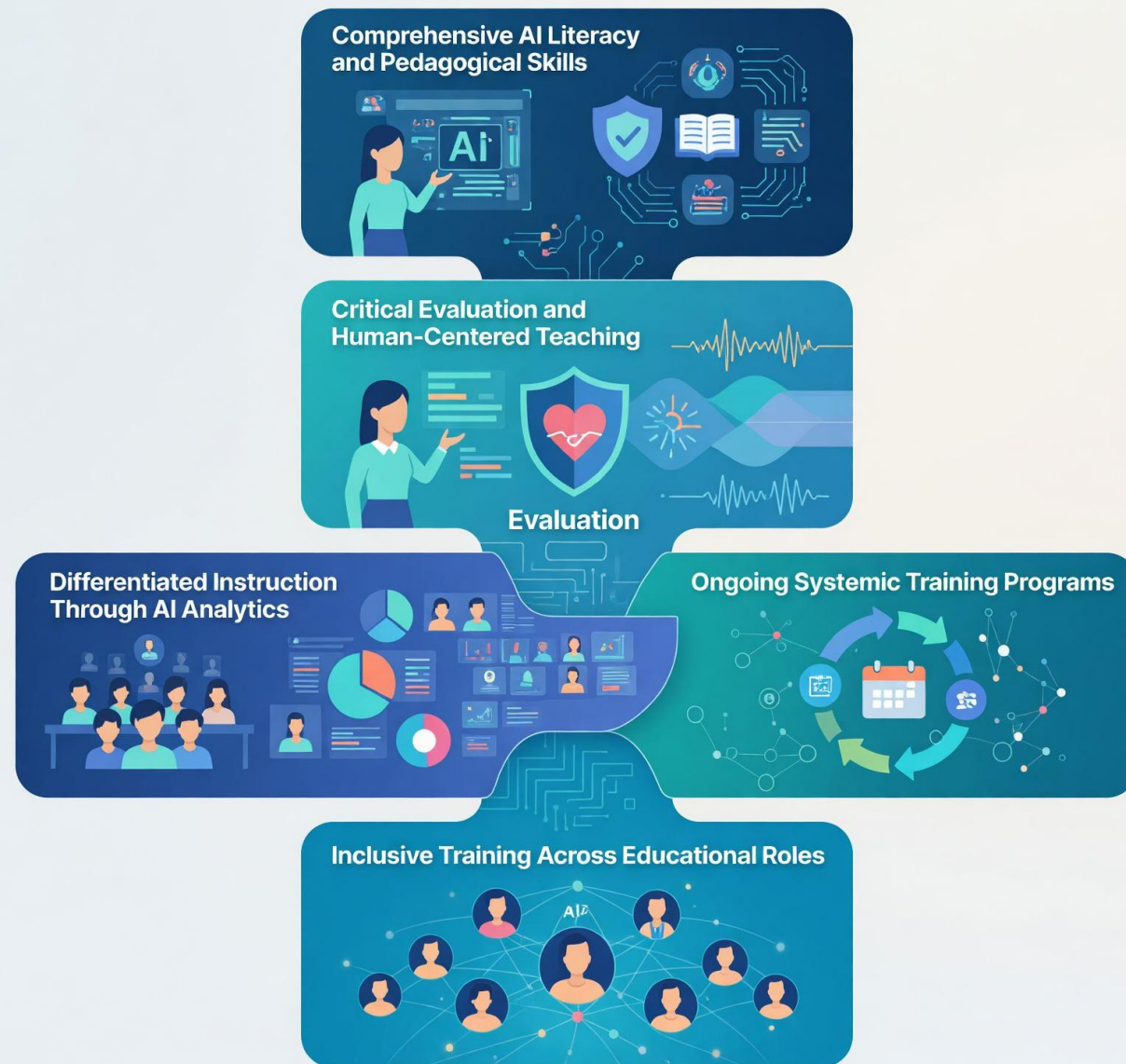


New Pedagogical Models



Professional Development Needs

- Educators need AI literacy, ethical knowledge, and instructional design skills for AI environments.
- Training must cover AI functions, data privacy, and maintaining empathy and creativity in teaching.
- Professional development includes interpreting AI analytics to support differentiated instruction.
- Ongoing training cycles with workshops and peer collaboration are essential as AI evolves.
- Training should be systemic, including administrators and support staff for cohesive AI integration.

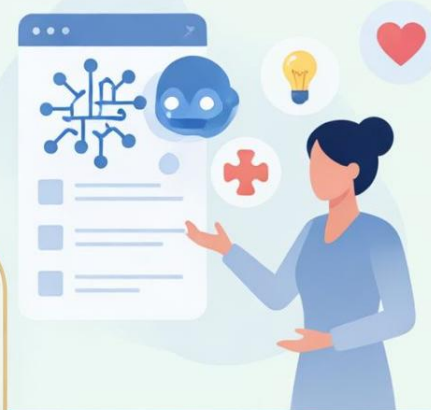


Strategies for Educators

Cultivating AI Literacy and Continuous Learning



Synergizing AI Assistance with Human Guidance



Facilitating Collaborative Learning Through AI



Contextual Adaptation and Iterative Implementation



Engaging Ethical Frameworks and Promoting Digital Citizenship

Lifelong Learning with AI



Practical Exercise

1. Keep this note confidential. You must NOT share to others or release to public.
2. Login <https://Poffices.ai>
3. Using Agent Master function to use “General Agent” to make a plan for your project such as “Write a plan for GenAI Agent for Lecture Note Generation”.
4. Discuss your findings.



(1) Enter your input

(2) (3) Click **Agent Master** to choose “Agent Master” Mode and select General Agent. Then click Generation button.

End of Presentation

Thank You