


## Chapter 6 – GenAI Academic Integration and Uses

### 6.1 Leveraging GenAI in Education: Practical Tips

6.1 Leveraging GenAI in Education: Practical Tips	
Activity type	Page
Contents	<p>As educators, our primary goal is to deliver high-quality, engaging, and up-to-date educational experiences for our students. Generative AI tools offer a practical and innovative solution to meet these goals efficiently. These tools can not only reduce your workload but also enhance students' learning experiences by providing tailored content, interactive teaching aids, and timely updates to course material. By embracing GenAI, you can streamline administrative tasks, foster more dynamic classroom interactions, and keep your curricula at the forefront of academic advancement. This section of the tutorial aims to provide advice on how to effectively integrate GenAI to help reduce some of your work pressure while also improving your education and research.</p>  <p>(Image produced in DALL-E January 2024)</p>

## 6.2 Administrative Tasks

6.2 Administrative Tasks	
Activity type	Page
Contents	<p>Generative AI tools provide a valuable solution for balancing the essential yet often cumbersome administrative tasks inherent in our educational roles. These responsibilities, while fundamental, can encroach upon the more satisfying aspects of our work, such as teaching and research. By employing GenAI for everyday activities such as composing emails to students, colleagues, and external parties, and assisting in schedule management, we can more effectively allocate our time and energy. Below are some helpful suggestions of how these tools can help.</p> <p><b>Email Assistance:</b></p> <ul style="list-style-type: none"><li>• <u>Tools:</u> ChatGPT</li><li>• <u>Prompt:</u> "Compose an email updating colleagues on the upcoming department meeting on [DATE] that will focus on [Topic]."</li></ul> <p>* Please be sure to include any additional information in the prompt. You could also use the BRAVE(R) framework (unit 3.2) to help. You could also share an earlier email you would like to amend and ask the tool to match the tone and language.</p> <p><b>Schedule Management:</b></p> <p>If you find yourself struggling with prioritising tasks and managing your time efficiently, integrating tools such as <u>RescueTime</u> with your existing Outlook calendar can be a game changer. This app tracks how you spend your time and provides valuable insights, helping you to focus on high-priority tasks and reduce time spent on less productive activities. Additionally, using <u>Microsoft To Do</u> for task management can seamlessly sync with your Outlook, allowing you to set reminders and keep your daily tasks and long-term projects well-organised.</p> <p>Another versatile tool to consider is <u>Notion</u>, an all-in-one workspace that combines note-taking, task management, and project planning. Notion allows you to create customized databases and templates tailored to your specific needs. For educators, the "Task Manager for Teachers" template offers an organized and efficient way to manage tasks and projects, streamlining workflows and enhancing productivity.</p>

## 6.3 Course Related Tasks

6.3 Course Related Tasks	
Activity type	H5P Activity (Accordion)
Contents	<p>Teaching involves a range of time-intensive tasks. From creating engaging materials to designing new courses, these responsibilities require significant effort and creativity. Generative AI tools can play a crucial role in streamlining these processes, offering innovative solutions to enhance efficiency and effectiveness.</p> <p><b>&gt; Create Powerpoint Presentations</b></p> <p><b>Problem:</b> Designing informative and visually appealing PowerPoint presentations can be time-consuming.</p> <p><b>GenAI Solution:</b> Use a GenAI tool like Canva's AI-assisted design feature or other free tools such as Gamma to quickly generate professional-looking slides. You can also just ask ChatGPT to prepare a presentation script based on your curriculum.</p> <p><b>Example Prompt:</b> "Create a PowerPoint presentation outline for an introductory lecture on [specific topic], including key points and suggested visuals."</p> <p>Remember the more information you can provide in the original prompt the more likely you will have your desired outcome. You can include your course material and readings to improve the quality of the response (cut and paste into ChatGPT 3.5 prompt window [input field] or attach files in GPT 4o). Following the BRAVE(R) framework (unit 3.2) can also improve the GenAI tool's response.</p> <p><b>&gt; Write Quiz/Exam Questions</b></p> <p><b><u>Write Quiz/Exam Questions</u></b></p> <p><b>Problem:</b> Crafting well-balanced and fair quiz questions can be time-consuming.</p> <p><b>GenAI Solution:</b> Tools like ChatGPT can assist in generating a variety of quiz questions based on your course material. While multiple-</p>

choice questions are less resilient against AI misuse, instructors can use generative AI to create questions that require higher-order thinking skills, making them more challenging for AI to answer correctly.

**Example Prompt:** "Generate 10 questions on [specific topic], covering key concepts and applications using this information I have provided. Ensure that the questions require analysis, synthesis, and evaluation rather than simple recall."

### **Alternative Question Types**

#### ***Short Answer Questions***

These require students to provide brief explanations or solutions, ensuring they understand the material rather than just recalling it.

*Example Prompt:* "Generate short answer questions about biochemical pathways, focusing on key concepts such as the rate-limiting step and its importance."

#### ***Essay Questions***

*Example Prompt:* "Create essay questions on gene editing technologies that explore both their future medical applications and ethical implications."

#### ***Case Studies and Problem-Based Questions***

*Example Prompt:* "Generate case study questions involving patient scenarios related to metabolic disorders, where students need to diagnose and propose treatment plans."

#### ***Analysis and Interpretation Questions***

*Example Prompt:* "Create data analysis questions that require students to interpret experimental results and evaluate whether the data supports the hypothesis."

## **Using AI Tools for Higher-Order Questions**

### ***Generating Scenario-Based Questions***

*Example Prompt:* "Create scenario-based questions on metabolic disorders, where students must diagnose the condition and recommend treatment plans."

### ***Creating Data Analysis Tasks***

*Example Prompt:* "Generate questions that require statistical analysis and interpretation of the provided dataset related to enzyme activity."

### ***Designing Experiment-Based Questions***

*Example Prompt:* "Generate experiment-based questions that require students to design an experiment testing a hypothesis about enzyme activity, including appropriate controls and expected outcomes."

#### **> Create Teams for Group Projects**

**Problem:** Forming balanced and diverse teams for group projects can be complex.

**GenAI Solution:** Ask ChatGPT to help you organise teams using student preferences and particular qualities you want the teams to have.

**Example Prompt:** "Please create balanced teams for the project on [specific topic], considering the students' preferences and the programme they follow. [provide a list of students and their preferences along with the appropriate selection details]."

\* For this prompt you will need to provide student information. Before doing so, please pseudonymise the information before sharing it with the GenAI tool.

#### **> Create Project Ideas**

**Problem:** Developing innovative and engaging project ideas requires creativity and insight into the subject matter.

**GenAI Solution:** AI brainstorming tools, including ChatGPT, can suggest unique and relevant project ideas.

**Example Prompt:** "Provide five project ideas for [specific course], focusing on real-world applications and student engagement."

### > Design or Redesign Courses

**Problem:** Designing or updating courses to stay current and relevant is a significant undertaking.

**GenAI Solution:** AI tools can analyse current educational trends and suggest updates or new course structures.

Example Prompt: "Suggest updates for [specific course] to incorporate recent advancements in [field]."

### > Lesson Planning

**Problem:** Developing structures and organised lesson plans can be time-consuming and challenging for educators.

**GenAI Solution:** [Notion4Teachers](#) offers customised templates and AI-driven features to streamline the lesson planning process. You can chat to it as you would ChatGPT and upload information to help you create your lesson plan.

### > Create Learning Activities

**Problem:** Developing interactive and effective learning activities can be challenging.

**GenAI Solution:** GenAI tools can propose a range of activities tailored to the course content and learning objectives.

**Example prompt:** "Propose engaging learning activities for [specific topic] that enhance critical thinking and application skills."

### > Word Feedback to Students

**Problem:** Providing clear, constructive feedback that students can understand and act upon requires careful wording.

**GenAI Solution:** AI writing assistant tools like ChatGPT can help craft feedback that is both encouraging and informative.

	<p><b>Example Prompt:</b> "Help me write feedback for a student who has demonstrated improvement in [specific area] but needs further development in [another area]."</p> <p>By incorporating these GenAI tools into your teaching toolkit, you can significantly reduce the time and effort spent on these essential tasks, allowing you to focus more on direct student engagement and your own professional development.</p>
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## 6.4 Building Your Own Chatbot

6.4 Building Your Own Chatbot	
Activity type	Page
Contents	<p>Integrating a custom chatbot into your course can enhance student engagement and learning outcomes. It can help students in reviewing material, preparing for exams, accessing supplementary resources, and receiving timely information on assignments, including due dates, criteria, and rubrics. By incorporating past graded papers with feedback (of course with permission from those individuals), the chatbot can emulate your teaching style and expectations, providing personalised guidance. Additionally, students can upload their class notes to identify missed points and generate practice exams, fostering a comprehensive and interactive learning experience.</p> <p><b>Creating a Custom GPT</b></p> <p>For paying users, OpenAI's GPT Builder enables you to develop tailored versions of ChatGPT without requiring advanced programming skills. These chatbots can then be made available to free users via an email link.</p> <p><b>Steps to Create a Custom GPT:</b></p> <ol style="list-style-type: none"><li>1. Access GPT Builder: Log into the OpenAI platform and navigate to the GPT Builder tool.</li><li>2. Define Objectives: Clearly outline the chatbot's purpose, such as assisting with exam preparation or providing assignment details.</li><li>3. Upload Course Materials: Incorporate syllabi, assignment guidelines, rubrics, and past graded papers to train the chatbot in your teaching style and expectations.</li><li>4. Set Parameters: Customize the chatbot's responses to ensure they reflect your instructional approach.</li><li>5. Test and Deploy: Evaluate the chatbot's performance and share access with your students.</li></ol> <p>For a more detailed description on how to build a personalised OpenAI chatbot, you can visit this <a href="#">site</a>. It must be noted that OpenAI chatbots will use its foundation model to build your personalised one. This</p>



	<p>model has been pre-trained on data outside of what you share, which can enhance the chatbot's capabilities, however, it can also provide information that deviates from your course material. It is important to monitor the chatbot's outputs to ensure accuracy and relevance to your course material.</p>
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	<p>There are several other platforms, such as <a href="#"><u>Dialogflow</u></a>, <a href="#"><u>Microsoft Bot Framework</u></a>, <a href="#"><u>Botpress</u></a>, etc. that allow you to build chatbots for educational use. You should explore the ones that best suit your technical background and teaching context. Here is a helpful video about how to create your own chatbot using a tool called <a href="#"><u>Rasa</u></a> <a href="#"><u>YouTube video</u></a>.</p>
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## 6.5 Research Related Tasks

6.5 Research Related Tasks	
Activity type	HP5 Activity (Accordion)
Contents	<p>Conducting research in the academic field can be a demanding process, involving a number of tasks from literature reviews to grant applications. Generative AI tools offer innovative solutions that can significantly reduce your workload, allowing you to focus more on the core aspects of your research. Below we have provided some advice on how these tools can help reduce your workload in research related tasks and will focus primarily on what can be done using free GenAI tools. There are of course more advanced queries and tasks you can undertake with paid subscriptions.</p> <p>* Reminder, the university has still not developed its policy regarding how these tools can be used in the data gathering and analysis process. For now, all researchers and students are asked to not input any raw or unpublished data into these tools, even if it has been anonymised or pseudonymised. See unit 2.8 for more details.</p> <p><b>&gt; Help Develop a Hypothesis</b></p> <p><b>Problem:</b> Formulating a robust and testable hypothesis is foundational in research.</p> <p><b>GenAI Solution:</b> AI brainstorming tools such as ChatGPT can aid in generating and refining hypothesis ideas based on existing literature and data.</p> <p><b>Example Prompt:</b> "Generate hypothesis ideas for a study on [specific topic]."</p> <p>*For Chat-GPT 3.5 their data set was last updated in January 2022. For ChatGPT 4 it was last updated in April 2023 and the newest GPT - 4Turbo was updated in April 2024.</p>

### > Help Construct a Research Question

**Problem:** Crafting a clear and focused research question is critical for guiding a study.

**GenAI Solution:** GenAI tools can assist in refining your research question to ensure it is specific, relevant, and researchable.

**Example Prompt:** "Help refine my research question: [initial research question]."

### > Help Assist in Literature Reviews

**Problem:** Conducting literature reviews can be time-consuming and sometimes overwhelming, particularly when dealing with large volumes of academic publications.

**GenAI Solution:** Various tools can assist in streamlining the literature review process:

- **Consensus, Scite AI, and Semantic Scholar:** These platforms help identify relevant papers and assess their impact, facilitating the 'initial' stages of literature exploration.
- **ASReview:** is an open-source tool designed to enhance systematic reviews by employing machine learning techniques, specifically active learning, to prioritise and expedite the screening of large datasets. By interactively learning from user inputs, ASReview ranks records, presenting the most relevant studies first, therefore, reducing the number of papers researchers need to manually review. Studies have demonstrated that ASReview can lead to more efficient reviewing than manual methods while maintaining high-quality results. For example, in the field of orthopaedics, ASReview achieved work savings ranging from 37% to 72% at 100% recall, meaning all relevant studies were identified after screening only 28% to 63% of the total records.

### Example Usage:

- **Consensus, Scite AI, Semantic Scholar:** Input key search terms related to your topic to retrieve relevant literature.
- **ASReview:** Begin by importing your dataset of collected studies. The software will prompt you to label a few initial records as relevant or irrelevant. Utilizing this input, ASReview's active learning model predicts and prioritizes the remaining records, continually refining its accuracy based on your ongoing feedback. This iterative process significantly enhances the efficiency of systematic reviews.

*Note:* While these tools enhance efficiency, they should complement, not replace, a thorough and methodical literature review process.

### > Help Design Your Research Approach

**Problem:** Selecting an appropriate research methodology can be a complicated decision.

**GenAI Solution:** GenAI tools can suggest suitable methods and designs based on your research question and objectives. They can even help you find the right theoretical framework for your research.

**Example Prompt:** "Suggest a research methodology for a study on [specific topic]."

### > Help Design Survey and Interview Questions

**Problem:** Creating effective survey and interview questions is essential for data collection.

**GenAI Solution:** GenAI tools can help draft questions that are clear, unbiased, and elicit valuable responses.

**Example Prompt:** "Create survey questions for a study on [specific topic], focusing on [specific aspect]."

\*Remember, the more information you provide the better your response. Consider including the types of questions you would like to ask (e.g., Likert Scale, multiple choice) and also whether your study follows a specific framework. This approach can assist in formulating questions that are directly linked to and informed by the underlying theory.

### >Help Write a Research Protocol

**Problem:** Writing a detailed and clear research protocol is essential for study implementation.

**GenAI Solution:** GenAI tools can guide the structure and content of your research protocol.

**Example Prompt:** "Outline a research protocol for [type of study]."

\*If you are following a specific structure, share this with the tools to save time and focus on the appropriate content.

### >Help Write a Grant Applications

**Problem:** Crafting compelling grant applications is crucial for securing funding.

**GenAI Solution:** GenAI tools can assist in structuring applications and suggesting persuasive language.

**Example Prompt:** "Outline a grant application for research on [specific topic], focusing on significance and potential impact."

\*For grant applications it is best to break down each section and work on them independently. To keep continuity between sections, you can work within the same prompt history.

\*\* Currently, the UU and UMCU do not allow any raw, unpublished or copyright data to be shared with any GenAI tool, even with the training data turned off. Please bear this in mind when using it for grant writing help.

### >Help Provide Feedback on Writing

**Problem:** Receiving and providing constructive feedback on academic writing is crucial for refining research papers.

**GenAI Solution:** GenAI tools can review writing, offering suggestions on clarity, coherence, and academic standards.

**Example Prompt:** "Review and provide feedback on this section of my research paper."

\*Remember not to include any unpublished results or data in this process.

### **>Help Find the Right Journal for Submission**

**Problem:** Identifying the most suitable journal for your work is a critical final step.

**GenAI Solution:** GenAI tools can make journal recommendations based on your desired impact and population.

**Example Prompt:** "Please recommend an appropriate journal for my research paper on [topic]. I think [population] would be most interested in this subject and I would like it to be Open Access."

### **>Help Respond to Reviewers**

**Problem:** Addressing peer reviewer comments is a key part of the publication process.

**GenAI Solution:** AI writing assistants can help draft responses that are clear, respectful, and address each point raised.

**Example Prompt:** "Help me draft a response to this reviewer comment: [insert reviewer comment]." Then briefly explain what you did to address their feedback.

\*You can also use it to help you understand a reviewer's comment.

## 6.6 Helpful Websites for Teachers

6.6 Helpful Websites for Teachers	
Activity type	HP5 Activity (Information Wall)
Contents	<p>As we all try to keep up with the fast-paced changes in artificial intelligence (AI) and its impact on education, it can be quite a task to sift through everything and find what's truly useful. To make this easier, we've handpicked a few key resources that we think are particularly valuable, along with brief descriptions to help you decide what you might want to further explore. These resources cover a range of topics, from practical guides on incorporating AI discussions into teaching to exploring the ethical implications of AI in the academic sphere. Our goal is to take some of the hard work off your shoulders, providing you with curated, insightful content that can enhance your understanding and application of AI in educational settings.</p> <p><u><a href="#">AI in Education: Leveraging ChatGPT for Teaching</a></u></p> <p>This course, offered by the Ethan Mollick from University of Pennsylvania's Wharton School, provides educators with practical guidance on integrating AI tools like ChatGPT into their teaching practices. It covers key concepts in generative AI, strategies for crafting effective prompts, and methods to design AI-driven assignments that align with educational goals while maintaining academic integrity. By the end of the course, participants will be equipped to harness AI's potential to save time, personalise learning, and increase student engagement.</p> <p><u><a href="#">Npuls article 'Slimmer onderwijs met AI' (Dutch)</a></u></p> <p>This comprehensive resource offers a deep dive into the opportunities and challenges AI presents in the educational sector. Featuring practical classroom tips, expert interviews, in-depth background stories, and inspiring examples of AI in education, the magazine addresses key themes such as the application of AI in teaching, AI in assessment, ethics, and policy guidelines. With nearly 100 contributions from diverse educational professionals, this magazine is an essential read for educators, policy makers, and researchers keen on integrating AI into educational practices. It's a testament to the collaborative efforts and enthusiasm of professionals in the field, aiming to foster a shared vision for AI in education and promote equal opportunities for all.</p>

### The AI Pedagogy Project

The AI Pedagogy Project's "Assignments" page features a collection of curated assignments from educators worldwide, integrating AI tools into various subjects. It covers diverse themes like AI Literacy, Ethics, Creativity, and Democracy, across subjects including Art, Computer Science, Journalism, and Law. The assignments utilize tools for image and text generation, focusing on skills like critical thinking, information literacy, and reasoning.

### Harvard article 'Student use cases for AI'

This piece discusses how AI can enhance teaching and student mastery, focusing on Harvard's CS50 course. Here, AI is used to assist students outside of teaching hours, offering help with coding, debugging, and understanding complex concepts. The article emphasizes the need to teach students responsible and ethical use of AI technology.

### Harvard article 'Are students ready for AI'

This article debates the readiness of students for AI in education, considering AI's potential as a tool akin to a calculator. It touches on the broader implications of AI in education, including the shift in communication skills from written to oral due to AI's capabilities.

### Harvard article 'AI as learner'

The content explores AI's role in understanding and filling knowledge gaps for students, using AI to enhance understanding of complex concepts, and its application in various fields of study.

### Harvard article 'AI as personal tutor'

Here, AI's role in providing personalised learning experiences and assistance in educational settings is examined. It looks at how AI can tailor the learning experience to individual student needs.

### Harvard article 'AI as feedback generator'

This article discusses the use of AI for generating feedback in educational settings, particularly in the evaluation of student work and the development of critical thinking skills.

### Survival Guide to AI and Teaching



In this article "Survival Guide to AI and Teaching", educators are guided on how to effectively incorporate discussions about artificial intelligence (AI) in their teaching. It underscores the need for open dialogues about AI tools, advocating for trust-building rather than an adversarial approach.

Key strategies include anonymous polls to understand students' AI knowledge, initiating basic AI discussions, connecting assignments with learning goals through frameworks like Bloom's Taxonomy, highlighting the relevance of course content to students' lives, and addressing academic integrity and ethics in AI usage. The article presents these approaches as vital for fostering a more informed and ethical engagement with AI in educational settings.

[If Your Syllabus Needs a Refresh, Generative AI Can Help | Harvard Business Publishing Education](#)

This article discusses the innovative ways educators can utilize generative AI to enhance their course materials. It highlights how AI tools can assist in creating engaging and updated syllabi, generate diverse content, and provide personalized learning experiences. The article emphasizes the potential of generative AI to make educational content more dynamic and relevant, ultimately improving the overall teaching and learning experience.

[AI in the life sciences: \(Un\)limited potential?](#)

This article delves into the transformative impact of Artificial Intelligence (AI) on the life sciences, exploring both the boundless opportunities and the inherent limitations. It discusses how AI technologies, including machine learning and deep learning, are reshaping research methodologies, accelerating drug discovery, enhancing genetic analysis, and fostering innovative approaches to personalized medicine. The article evaluates the dual-edged nature of AI advancements: on one hand, offering unprecedented analytical capabilities and efficiencies; on the other, raising ethical, regulatory, and technical challenges that must be navigated carefully. The resource serves as a critical examination of AI's role in pushing the frontiers of life sciences, while also calling for a balanced approach to harnessing AI's potential responsibly.

[OECD iLibrary](#)

The OECD iLibrary document provides an in-depth analysis of how Artificial Intelligence (AI) is being integrated into scientific research across various disciplines. It outlines the ways in which AI is enhancing data analysis, enabling more complex simulations, and facilitating interdisciplinary collaborations that are critical for addressing global challenges. This resource highlights specific case studies where AI has led to significant breakthroughs, including climate modelling, materials science, and biotechnology. Furthermore, it discusses the implications of AI for scientific methodology, research ethics, and policy, emphasizing the need for international cooperation to maximize the benefits of AI in science while mitigating risks. This comprehensive overview underscores AI's role as a pivotal tool in the evolution of scientific inquiry and knowledge creation.

#### Macmillan Learning

Fighting Fire with Fire: Navigating Student AI Use with AI-Enriched Assignments and Assessments. An informative webinar addressing the use artificial intelligence to not only mitigate cheating but also foster deeper student learning and engagement. Hear how instructors have developed three pedagogical strategies for using generative AI to tackle the most pressing concerns that have arisen due to the wide availability of generative AI software.

#### AI-UK-University-Classroom

This whitepaper delves into strategies for mindful incorporation of AI in student assessment, emphasising its benefits in workflow optimisation and efficiency while underlining the necessity of human intelligence. Learn practical tips like peer review and clear AI usage policies to enhance learning, maintain academic integrity, and boost student engagement.

UU/UMC SO&O links with more information for teachers and teacher support:

[Generative AI in het onderwijs \(intranet\) Dutch](#)

[Generative AI in education \(intranet\) English](#)

[Onderwijs Generatieve AI \(UU website\) Dutch](#)

[Education Generative AI \(UU website\) English](#)

	<p><a href="#"><u>Handreiking Generatieve AI in het onderwijs (intranet) Dutch</u></a><a href="#"><u>Guide to generative AI for lecturers (intranet) English</u></a></p>
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If you have any further questions, please feel free to contact the  
Generative Education Initiative group at  
[GSLSGenAISupport@umcutrecht.nl](mailto:GSLSGenAISupport@umcutrecht.nl)

## 6.7 Free GenAI Tools

6.7 Free GenAI Tools	
Activity type	H5P Activity: Accordion Display
Contents	<p><b>&gt; Learning Assistant</b></p> <p><b><u>OpenAI ChatGPT:</u></b> A dialogue-focused LLM trained to produce human-like text responses. Utilises reinforcement learning with human feedback to enhance its conversational capabilities. It can generate lifelike interactions but may occasionally provide inaccurate information due to its training data limits and lack of real-time internet access.</p> <p><b><u>Google Gemini (Bard):</u></b> A LLM with sophisticated multimodal reasoning capabilities. Gemini is designed for versatility, optimized in three sizes (Ultra, Pro, and Nano) to function across a variety of platforms, from data centers to mobile devices. It introduces enhanced abilities in understanding, summarising, reasoning, coding, and planning.</p> <p><b><u>Microsoft co-pilot:</u></b> Integrates seamlessly with Microsoft 365 applications to assist in content generation. It leverages AI to draft documents, create presentations, and summarize information, enhancing productivity and creativity. However, it relies on existing data and may occasionally require user adjustments to ensure accuracy.</p> <p><b>&gt; Research Tools</b></p> <p><b><u>Consensus:</u></b> An AI-powered search engine that streamlines access to scientific research, offering fast, evidence-based insights from peer-reviewed sources. Ideal for researchers, students, and curious minds seeking reliable information</p> <p><b><u>Scite AI:</u></b> Enhances scientific article evaluation by indicating how they've been cited (supporting, contrasting, mentioning), aiding in assessing their impact and reliability.</p> <p><b><u>Semantic Scholar:</u></b> An AI-driven tool that simplifies the discovery of scientific papers with smart search and personalised recommendations, targeting a broad academic audience.</p>

**Elicit**: A research tool designed to assist in literature review and research exploration by utilising AI to systematically search, organise, and summarise relevant research papers based on your query.

**Perplexity**: An AI-powered research assistant that provides instant access to scientific knowledge, offering summaries, explanations, and answers from a vast database of scientific literature.

**Notion**: Is a versatile productivity tool, enabling users to organise projects, tasks, and notes in one integrated workspace. Its customisable templates and collaborative features streamline workflows, fostering team synergy and efficiency. Notion's ability to integrate with other tools further enhances its utility, making it a central hub for personal and professional organisation.

**Litmaps**: An AI tool that helps visualise connections in academic literature, making it easier to explore complex topics. The platform visually maps research papers to reveal patterns and insights. It offers support for exploring research papers but lacks personalised assistance and multi-language options.

**Petal**: An AI tool for document management, analysis, and collaboration, focusing on scientific documents. It offers features like metadata extraction, document summarisation, and team collaboration tools. While effective for knowledge management, it requires time for AI training and lacks offline functionality.

**ASREview**: A free, open-source tool that uses smart learning techniques to speed up the process of reviewing research papers. By learning from what the user selects, it shows the most relevant studies first, helping researchers review fewer papers by hand.

### > Coding

**ChatGPT or OpenAI Codex**: This AI turns plain English into code. It's behind GitHub Copilot, helping with coding in many languages. Great for making coding faster and teaching programming.

**Google Gemini (Bard)**: Not just for coding, but its wide knowledge means it can help with coding questions too. It can explain coding ideas and create small bits of code.

**CodeT5**: Developed by Salesforce, this AI handles tasks like turning descriptions into code, changing one code form to another, and summarising code. Useful for coding help and understanding code better.

**Polycoder**: An AI that's really good at creating code from plain English, claiming to be better than others at this task. It's open-source, making coding tasks easier and more accurate.

**Microsoft co-pilot**: Assists in coding by suggesting code snippets, completing lines, and generating entire functions within various programming languages. Integrated with Visual Studio, it enhances productivity by understanding context and reducing repetitive tasks, making it ideal for both speeding up development and learning new coding skills.

**Qodo**: (formerly Codium) is an AI coding assistant that helps write, test, and review code efficiently. It supports multiple languages, and offers features like automated code reviews, real-time suggestions, and test generation.

**GitHub Copilot**: An AI tool that can suggest code and complete programming tasks in real-time. It can integrate directly into your coding environment. Although it's very useful for saving time, it can sometimes suggest code that isn't quite right or secure.

### **> Image Creators**

**Canva**: A graphic design platform that integrates AI features for enhancing design creation, offering users a simple way to create professional designs with the help of automated suggestions and tools. This tool can also be used as an external GPT in DALL-E 3.

**DALL-E**: OpenAI's AI program capable of generating unique images from textual descriptions, showcasing the power of AI in creative visual generation based on natural language input.

**Microsoft co-pilot**: Aids in generating images by leveraging AI (OpenAI DALL-E) to interpret and visualize textual descriptions. Integrated with design tools, it enhances creative workflows by producing custom visuals, making it easier to bring concepts to life from text inputs.

**Adobe Firefly**: A generative AI-tool that creates images, text effects, and design elements from text prompts. It's designed for creatives and integrates with Adobe apps like Photoshop and Illustrator.

## > Translation Tools

**DeepL Translator:** Offers highly accurate translations powered by AI, supporting a wide range of languages with the capability to understand context and nuance in text.

**QuillBot:** An AI-powered writing and research tool that helps improve writing quality, offers paraphrasing suggestions, and facilitates research with summarisation and citation features.

**Academic Writing Assistant:** Enhances academic writing by providing AI-driven feedback, suggestions for improvement, and assistance with structuring and refining scholarly texts.

## > Presentation Help

**PowerPoint Speaker Coach:** An AI-powered feature in PowerPoint that provides real-time feedback on presentation skills, helping users improve their public speaking by analysing pace, pitch, and word choice.

**Pitch:** A collaborative presentation software that uses AI to streamline the design process, offering smart templates and design elements to enhance the visual appeal of presentations.

**Gamma:** AI tool that helps create visually appealing slideshows that is easy to use, offers flexible design features and several templates. (The free version has a subtle watermark).

## > Project Organisation

**Notion AI:** a productivity tool that combines project management, note-taking, and collaboration features. It includes AI capabilities for drafting, summarising, brainstorming, and improving content. Users can manage tasks, track projects, and collaborate in customisable workspaces. The AI enhances efficiency by generating ideas and summarising key points from documents and meetings.

**Monday.com** a work management platform for organising tasks, tracking projects, and automating workflows. It offers customisable boards, visual dashboards, and automated task workflows to improve team collaboration. It helps teams efficiently manage data and streamline processes across various industries.

## 6.8 People to Follow

6.8 People to Follow	
Activity type	H5P Activity: Accordion Display
Contents	<p><b>Pro-AI Advocates:</b></p> <ol style="list-style-type: none"><li>1. Ethan Mollick<ul style="list-style-type: none"><li>• <i>Platforms:</i> LinkedIn, YouTube</li><li>• <i>Overview:</i> Ethan Mollick is a professor at the Wharton School of the University of Pennsylvania, focusing on innovation and entrepreneurship. He actively explores the integration of AI in education and business, advocating for its potential to enhance learning and organizational efficiency.</li></ul></li><li>2. Andrew Ng<ul style="list-style-type: none"><li>• <i>Platforms:</i> LinkedIn, YouTube</li><li>• <i>Overview:</i> Andrew Ng is a pioneering figure in machine learning and co-founder of Coursera and Google Brain. Through DeepLearning.AI, he aims to democratize AI education, making complex AI concepts accessible to a global audience.</li></ul></li><li>3. Allie K. Miller<ul style="list-style-type: none"><li>• <i>Platforms:</i> LinkedIn</li><li>• <i>Overview:</i> Allie K. Miller is a recognized leader in artificial intelligence, advising leading companies like Novartis, Samsung, Salesforce, Google, OpenAI, and Anthropic.</li></ul></li></ol> <p><b>AI Skeptics and Critics:</b></p> <ol style="list-style-type: none"><li>1. Gary Marcus<ul style="list-style-type: none"><li>• <i>Platforms:</i> LinkedIn, YouTube</li><li>• <i>Overview:</i> Gary Marcus is an emeritus professor of psychology and neuroscience at New York University and a vocal critic of the hype surrounding artificial intelligence. He emphasizes the need for regulation, improved public understanding, and thorough examination of potential AI risks.</li></ul></li><li>2. Timnit Gebru<ul style="list-style-type: none"><li>• <i>Platforms:</i> LinkedIn,</li></ul></li></ol>



- *Overview:* Timnit Gebru is a renowned AI ethics researcher who has highlighted biases in AI systems and advocated for transparency and accountability in AI development. Her work has been pivotal in addressing ethical concerns within the AI community.

3. Joy Buolamwini

- *Platforms:* LinkedIn, YouTube
- *Overview:* Joy Buolamwini is a computer scientist and digital activist known for her work on algorithmic bias. She founded the Algorithmic Justice League and has conducted influential research revealing racial and gender biases in facial recognition systems.

**Moderate Voices in AI:**

1. Cassie Kozyrkov

- *Platforms:* LinkedIn, YouTube
- *Overview:* Cassie Kozyrkov is the Chief Decision Scientist at Google, advocating for the responsible and effective use of AI in decision-making processes. She emphasizes the importance of combining human intuition with machine intelligence.

2. Fei-Fei Li

- *Platforms:* LinkedIn, YouTube
- *Overview:* Fei-Fei Li is a professor at Stanford University and co-director of the Stanford Human-Centered AI Institute. She promotes the development of AI technologies that are human-centered and ethically designed.

3. Jordan Harrod

- *Platforms:* YouTube, LinkedIn
- *Overview:* Jordan Harrod is a research scientist and educator who creates content aimed at demystifying AI concepts for the general public. She provides balanced insights into the capabilities and limitations of AI technologies.

**AI Ethics Leaders:**

1. Rumman Chowdhury

- *Platforms:* LinkedIn
- *Overview:* Rumman Chowdhury is a prominent figure in AI ethics, known for her work in promoting responsible AI practices. She has led initiatives focusing on algorithmic accountability and transparency, emphasizing the importance of ethical considerations in AI development.

2. Yoshua Bengio

- *Platforms:* LinkedIn, YouTube
- *Overview:* Yoshua Bengio is a Turing Award-winning researcher recognized for his contributions to deep learning. He actively advocates for ethical AI development and has co-authored the Montreal Declaration for Responsible AI, emphasizing the societal impacts of artificial intelligence.

### 3. Kate Crawford

- *Platforms:* LinkedIn
- *Overview:* Kate Crawford is a senior principal researcher at Microsoft Research and co-founder of the AI Now Institute. She focuses on the social implications of AI, exploring issues related to bias, fairness, and the political aspects of AI systems.

## **AI Policy Makers:**

### 1. Kay Firth-Butterfield

- *Platforms:* LinkedIn
- *Overview:* Kay Firth-Butterfield is a lawyer and professor specializing in AI ethics and policy. She serves as the CEO of the Centre for Trustworthy Technology and has previously led AI and machine learning initiatives at the World Economic Forum.

### 2. Merve Hickok

- *Platforms:* LinkedIn
- *Overview:* Merve Hickok is the founder of Alethicist.org and an expert in AI policy, ethics, and governance. Her work focuses on the societal impacts of AI, and she has been featured in various reputable publications discussing AI ethics.

### 3. Chi Onwurah

- *Platforms:* LinkedIn,
- *Overview:* Chi Onwurah is a British Member of Parliament and head of the Commons technology committee. She has been active in urging the UK government to address AI-related issues, emphasizing the importance of AI safety and regulation.

## **Influential Figures in AI and Life Sciences**

### 1. Daphne Koller

- *Platforms:* LinkedIn, YouTube
- *Overview:* Daphne Koller is a computer scientist and entrepreneur renowned for her work in machine learning and its applications in biology and education. She co-founded

	<p>Coursera, a platform that has democratized access to education globally, including courses on AI and life sciences. Additionally, she founded Insitro, a company leveraging AI for drug discovery, bridging the gap between AI and life sciences.</p> <p>2. Ashok Goel</p> <ul style="list-style-type: none"> <li>• <i>Platforms:</i> LinkedIn, YouTube</li> <li>• <i>Overview:</i> Ashok Goel is a professor of computer science and human-centered computing at Georgia Institute of Technology. He is recognized for developing "Jill Watson," an AI teaching assistant, and his research focuses on AI in education and computational design. His work emphasizes the role of AI in enhancing learning experiences, particularly in complex domains like life sciences.</li> </ul> <p>3. Oliver Stegle</p> <ul style="list-style-type: none"> <li>• <i>Platforms:</i> LinkedIn</li> <li>• <i>Overview:</i> Oliver Stegle is a group leader at the European Molecular Biology Laboratory (EMBL) and the German Cancer Research Center (DKFZ). His research focuses on computational genomics and systems genetics, utilizing AI to understand complex biological systems. While his primary focus is research, his work contributes to the foundational knowledge that informs life sciences education</li> </ul> <p>4. Jeongwook "Luke" Yun</p> <ul style="list-style-type: none"> <li>• <i>Platforms:</i> LinkedIn</li> <li>• <i>Overview:</i> Luke Yun is an AI strategist and thought leader whose work bridges artificial intelligence, healthcare, and digital transformation. With a background in both biomedical sciences and data science, he offers insights into the practical integration of AI across healthcare systems, biotech, and life science innovation. His posts frequently explore the ethical, operational, and translational aspects of AI in health, making him a valuable voice for those interested in the future of AI-driven healthcare and research.</li> </ul>
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