



UNIVERSITY  
OF WOLLONGONG  
AUSTRALIA

## HDR HELPFUL HINTS

From the Dean of Graduate Research, Simon Moss.

# Uses of AI in research – pursuing careers and internships

## SUMMARY

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Generative AI tools can help you arrange internships, explore career opportunities, secure jobs, and thrive in these settings. Specifically, you can use AI to

- identify job or internship opportunities that are relevant to your skills and interests,
- learn about these opportunities—such as the latest advances in the industry,
- develop skills that could help you secure these opportunities,
- apply for these opportunities, such as optimise your CV, cover letter, job application, and profiles,
- prepare before interviews,
- commercialise your ideas.

### Unsuitable uses of generative AI to secure jobs

Generative AI, although useful when pursuing jobs, can be used inappropriately as well. To illustrate, some employers organise asynchronous video interviews—in which applicants record video responses to a few questions. Occasionally, applicants will use generative AI, such as Chat GPT, to generate responses and then will read the answers or paraphrase these answers. As research shows (Canagasuriam & Lukacik, 2024),

- compared to the answers of applicants who did not use Chat GPT, the answers of applicants who used Chat GPT were rated as higher in quality,
- however, if applicants used Chat GPT, they were perceived as lower in honesty, especially if they read the answers verbatim.

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So, you should probably not use generative AI to generate your responses in asynchronous video interviews. At most, you could use generative AI to stimulate some ideas but not to govern your answers.

## 1 IDENTIFY JOB OR INTERNSHIP OPPORTUNITIES

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To uncover job opportunities as well as internship opportunities, most people use existing job search websites, such as seek.com. However, to use these sites, individuals need to know which keywords to select and thus which jobs they should search. Many HDR candidates, however, are not sure which jobs they should explore after they complete their thesis. Generative AI can help candidates uncover potential job opportunities they might have overlooked. For example, in Chat GPT or other AI tools, candidates could enter a prompt like

- In Australia, which jobs are potentially suitable to people who have completed a PhD, developed skills in quantitative data analysis, and completed a degree in environmental science?
- Can you specify the main skills or attributes I would need to demonstrate to secure these jobs?

Companies have also developed specific AI tools that not only identify potential jobs but also help you apply for these jobs. Here are some examples. These tools are not necessarily recommended but demonstrates the range of tasks that AI tools can potentially automate.

### Ramped

#### Functions

- After improving your job applications, such as cover letters and resume, the tool can search many job boards to identify roles that match your skills and preferences.
- The tool will then apply to a subset of these jobs.

### Sonara

#### Functions

- From your CV, writes cover letters and then, without your intervention, applies for jobs that match your preferences.

### Cautions

- Besides the subscription fee, you need to be aware of other concerns.
- For example, the tool will often apply for jobs that do not quite match your preferences—and may flood the inboxes of employers.
- You never see the cover letter.

## 2 LEARN ABOUT THESE OPPORTUNITIES

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Once you identify potential job or internship opportunities, you should learn about the job, organisations, and industry in detail. This knowledge will help you decide whether to pursue this opportunity as well as help you thrive during interviews. Here are some prompts that you could enter into your favourite AI tool to help you achieve these goals. You can change the grey font to suit your needs.

PRACTICE	EXAMPLES
Learn about the trends, technologies, and challenges in the industry. This activity is vital because knowledge of the literature does not guarantee insight about an industry in practice	<ul style="list-style-type: none"><li>• What are some recent trends in bioengineering?</li><li>• What are the main technologies experts use in bioengineering?</li><li>• What are the main challenges in bioengineering?</li></ul>
Learn about the organisation	<ul style="list-style-type: none"><li>• I am going to paste some webpages about a company into this prompt. Can you summarise these webpages?</li><li>• You can also use specialised tools, such as <a href="#">Website Summary</a>, to summarise entire websites.</li></ul>
Learn about the job	<ul style="list-style-type: none"><li>• I am going to paste the job description into this prompt. Can you identify the skills I should develop to succeed in this job?</li><li>• If the answer includes broad statements, such as “Regulatory Compliance”, ask more specific questions, such as “Yes, but which regulations in particular do I need to know?”</li></ul>

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### 3 DEVELOP THE RELEVANT SKILLS

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After you identify the skills that are necessary to secure particular opportunities, you could use AI to develop these skills. First, you could prompt AI tools, such as Chat GPT, to offer guidance on how to acquire various skills. The following table illustrates some examples.

SKILL	PROMPTS
Program evaluation	<ul style="list-style-type: none"> <li>• What are the main approaches that researchers use to conduct program evaluation?</li> <li>• What are the benefits and drawbacks of each approach?</li> <li>• During an interview, if I was asked how I would evaluate a health initiative, what would be a suitable answer?</li> </ul>
Project management	<ul style="list-style-type: none"> <li>• Which software tools do project managers often use to manage projects effectively?</li> <li>• And which of these tools can I trial for free?</li> <li>• What are the main approaches that researchers use to manage projects?</li> <li>• What are the benefits and drawbacks of each approach?</li> <li>• During an interview, if I was asked how I would manage a project, what would be a suitable answer?</li> </ul>

Second, you could use recommended sequences of prompts that have been designed to help you practice a skill. To illustrate, Ethan Mollick developed a prompt that you can use to develop your capacity to negotiate

effectively. Specifically, users practice the art of negotiation and receive feedback from the tool. If you Google, “Negotiation simulator prompt Ethan Mollick”, you may be able to copy and paste this prompt.

**Negotiations Simulator Prompt**

**GOAL:** This is a role-playing scenario in which the user (student) practices negotiations and gets feedback on their practice.

**PERSONA:** In this scenario you play AI Mentor, a friendly and practical mentor.

**NARRATIVE:** The student is introduced to AI Mentor, is asked initial questions which guide the scenario set up, plays through the negotiation, and gets feedback following the negotiation.

Follow these steps in order:

**STEP 1: GATHER INFORMATION**

**You should do this:**

- 1. Ask questions:** Ask the student to tell you about their experience level in negotiating and any background information they would like to share with you. Explain that this helps you tailor the negotiating scenario for the students.
- 2. Number your questions.**

**You should not do this:**

- Ask more than 1 question at a time

**Next step:** Move on to the next step when you have the information you need.

**STEP 2: SET UP ROLEPLAY**

- 1. Design student scenario choices:** Once the student shares this with you, then suggest 3 types of possible scenarios and have the student pick 1. Each of the scenarios should be different. Use the examples and context to select appropriate scenarios.
- 2. Context for step 2:** For any scenario, users can be challenged to work through negotiations concepts, the role of asking questions, deciding how much something is worth, considering their alternatives (BATNA), considering their counterparts alternatives, the zone of possible agreement, considering their strategy, the role of deception, the first mover advantage, cooperation vs competition, the shadow of the future, perspective-taking, and tone.

**STEP 3: SET UP THE SCENE**

**You should do this:**

1. Once the student chooses the type of scenario you will provide all of the details they need to play their part: (what they want to accomplish, what prices they are aiming for, what happens if they can't make a deal, and any other information)
2. Proclaim BEGIN ROLE PLAY and describe the scene, compellingly, including physical surroundings, significant objects, immediate challenges, the negotiation counterpart, all to help the student understand their current situation and motivations.

**Next step:** Move on to the next step when the scene is set up and begin role play.

**STEP 4: BEGIN ROLE PLAY**

**You should do this:**

1. Play their counterpart in the negotiation.
2. After 6 turns push the student to make a consequential decision and wrap up the negotiation.
3. You can give students hints drawn from the lesson if applicable. These should be brief and set apart from the actual scene.
4. If the student is doing well, consider upping the stakes and challenging the student.

**You should not do this:**

- Do not ask the student for information the student does not have during role play.

**STEP 5: FEEDBACK**

**You should do this:**

1. As soon as the role play is over, give the student feedback that is balanced and takes into account the difficulty level of the negotiation, the student's performance, and their level of experience.
2. Feedback should be in the following format: GENERAL FEEDBACK (in your assess performance given the lesson name one thing the student did really well and one thing the student could improve) and ADVICE MOVING FORWARD (in which you give students advice about how to apply the lesson in the real world).

**Next step:** Move on to the next step when you have given feedback to end the simulation.

**STEP 6: WRAP UP**

**You should do this:**

1. Tell the student that you are happy to keep talking about this scenario or answer any other questions.
2. If the student wants to keep talking, then remember to push them to come up with their own knowledge while asking leading questions and providing hints.

**LESSON:** You can draw on this information to create the scenario and to give the student feedback.

A practiced negotiator understands the dynamics of a negotiation including: what to consider ahead of any negotiation, what to do during a negotiation, and how to react after a negotiation.

Before the negotiation:

DECIDE HOW MUCH SOMETHING IS WORTH

Negotiations may be single issue e.g. selling one product or multi-issue, in which you need to settle more than one issue. And you may be negotiating over an idiosyncratic item - you may not know how to gauge the value of the good or service in question...

You'll have to decide how important that good or service is to you and how important it is to your counterpart.

CONSIDER YOUR ALTERNATIVES TO CLOSING THE DEAL AND YOUR COUNTERPART'S ALTERNATIVE.

Ahead of any negotiation, you have to spend some time figuring out your BATNA, or best alternative to a negotiated agreement. And you have to decide on a bottom line or a

## Teaching skills

Third, you could also develop your capacity to apply AI to enhance performance on specific tasks. For example, suppose you applied for a role that entails teaching. The following table demonstrates how you can use AI to enhance and expedite teaching activities.

USES OF AI IN TEACHING	EXAMPLES AND DETAILS
Develop rubrics	<p>You could write a prompt like</p> <ul style="list-style-type: none"> <li>• Act as an expert in university teaching and writer of assessment rubrics. I want you to create a marking rubric for an assessment at a postgraduate level. Here is the assessment task:</li> <li>• [Enter instructions of the assignment]</li> <li>• Specifically, I want you to generate a table.</li> <li>• Each row corresponds to one criterion. Each column corresponds to a standard, from low fail, high fail, pass, credit, distinction, and high distinction.</li> </ul>

	<ul style="list-style-type: none"> <li>In each cell, describe the standard that would correspond to each row and column.</li> </ul> <p>You may also include other information, such as the reference style that students should follow, the criteria associated with this AQF, and other information.</p>							
Develop quizzes and multiple-choice questions	<p>You can use a variety of AI tools to generate quizzes, such as OpExams. Alternatively, even generic chat bots, such as Chat GPT or Google Gemini, create reasonable multiple-choice tests. You could, for example, enter the following prompts:</p> <ul style="list-style-type: none"> <li>I want to create 10 multiple-choice questions to assess whether students understand a particular chapter. Can you create these 10 questions?</li> <li>For each question, can you create a question and four options, only one of which is correct. Ensure the other three options are incorrect.</li> <li>Furthermore, below each question, can you explain why the incorrect options are indeed incorrect.</li> <li>Here is the chapter:...</li> </ul>							
Differentiate assignments in which AI cannot be used from assignments in which AI must be used. Prioritise assignments in which AI must be used.	<p>Here are some examples of assignments in which AI cannot be readily used:</p> <table border="1"> <thead> <tr> <th style="text-align: center;"><b>Assignments in which AI cannot be readily used</b></th> </tr> </thead> <tbody> <tr> <td>Exams and tests on campus or invigilated.</td> </tr> <tr> <td>Live oral assessments with a tutor or lecturer.</td> </tr> <tr> <td>Live assessments of skills, sometimes within simulations, by a tutor or lecturer.</td> </tr> <tr> <td>Small assignments that are both completed and marked during class—sometimes by peers.</td> </tr> </tbody> </table> <p>Here are some examples of assignments in which AI must be utilised:</p> <table border="1"> <thead> <tr> <th style="text-align: center;"><b>Assignments in which AI must be readily used</b></th> </tr> </thead> <tbody> <tr> <td>Students receive the answer that an AI tool generates and must evaluate this response—such as evaluate the accuracy, clarity,</td> </tr> </tbody> </table>	<b>Assignments in which AI cannot be readily used</b>	Exams and tests on campus or invigilated.	Live oral assessments with a tutor or lecturer.	Live assessments of skills, sometimes within simulations, by a tutor or lecturer.	Small assignments that are both completed and marked during class—sometimes by peers.	<b>Assignments in which AI must be readily used</b>	Students receive the answer that an AI tool generates and must evaluate this response—such as evaluate the accuracy, clarity,
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	<p>evidence, and so forth. For example, they may need to compare the AI response to their own research.</p> <p>While students are writing their assignments, they are encouraged to use AI to uncover other ideas, improve the expression, analyse patterns, and so forth. They described how they combined their activities with the output of AI. Their use of AI, and not merely the work or artefact they produce, is graded.</p> <p>Students design a series of prompts to generate an output from AI—such as a pitch, briefing, presentation, and so forth. In addition, the students document the rationale that underpins these prompts.</p>
Grade assignments	<ul style="list-style-type: none"> <li>• Gradescope is a tool that enables students to assess each other.</li> <li>• The tool also provides feedback to facilitate marking.</li> </ul>
Organise personalised guidance	<ul style="list-style-type: none"> <li>• Perhaps the most helpful use of generative AI is that students can receive personalised feedback and assistance.</li> <li>• Some evidence indicates that students who receive personalised guidance from a tutor perform two standard deviations better than students who do not receive this guidance.</li> <li>• Yet, because this guidance is expensive, teachers may need to consider how to use AI to fulfill this task.</li> </ul> <p>To achieve this goal, teachers may learn to use relevant tools, such as Chatbit or Cogniti, to design their own chat bots. Indeed, Cogniti was specifically designed to enable teachers to build chatbots that assist students. Alternatively, teachers can teach students how to seek feedback and guidance. Here is a typical prompt that students could use:</p> <div style="border: 1px solid #ccc; padding: 10px; background-color: #f9f9f9;"> <p>I would like some advice on how to improve this assignment. First, I will upload all the instructions I received as well as information about the subject. Then, I will upload the content I have written. Can you utilise these instructions as well as other knowledge about how to complete excellent assignments in this field to offer advice on how I can improve this assignment. Can you assume the role of a helpful tutor. Here are the instructions I received: ....Here is my assignment:...</p> </div>

<p>Generate course materials automatically</p>	<p><b>Guidde</b></p> <p>Several AI tools can help you generate visual guides that explain complicated online tasks to staff or students. One example is Guidde. Specifically</p> <ul style="list-style-type: none"> <li>• you can upload a browser extension that will record a series of online actions,</li> <li>• the tool will convert these actions to some guidelines that describe each step or activity,</li> <li>• the guidelines will include a series of screenshots and instructions.</li> <li>• you can then convert these instructions to audio and even choose the voice.</li> </ul> <p>To use Guidde after uploading the browser extension, simply</p> <ul style="list-style-type: none"> <li>• press a button labelled “Capture”,</li> <li>• perform the task online,</li> <li>• press “Stop” on the browser extension,</li> <li>• watch and edit the guidelines or video the tool produces.</li> </ul> <p><b>CreateAICourse</b></p> <p>This AI platform that enables you to create online, interacting courses efficiently.</p> <ul style="list-style-type: none"> <li>• For example, you can enter a topic and a provisional course is generated immediately, including the course description, course title, and course materials.</li> <li>• The courses are designed to seem natural and novel.</li> <li>• You can then refine the course yourself.</li> <li>• The AI will then generate a quiz that accompanies the course.</li> </ul>
<p>Specify permissible uses of AI.</p>	<p>Typically, when setting assignments, teachers should specify which uses of generative AI are permitted. Here are some examples:</p> <ul style="list-style-type: none"> <li>• you can use generative AI tools, such as Elicit, to search the literature,</li> </ul>



	<ul style="list-style-type: none"> <li>• you can use generative AI tools, such as Grammarly and Notion AI, to improve the grammar and expression,</li> <li>• you can use generative AI tools to seek feedback on your first draft,</li> <li>• you can use generate AI to arrange your arguments cohesively.</li> </ul>
Learn about other AI tools that can facilitate teaching.	<ul style="list-style-type: none"> <li>• Although this tool is not inexpensive, EduadeAI writes course materials from outlines, generates quizzes, designs assessments, and enables other users to collaborate on improving these materials.</li> </ul>

## Grants

Another useful skill, relevant to many research jobs, is the capacity to identify, to seek, and to secure grants or other funding opportunities. Companies are gradually developing tools to achieve this goal.

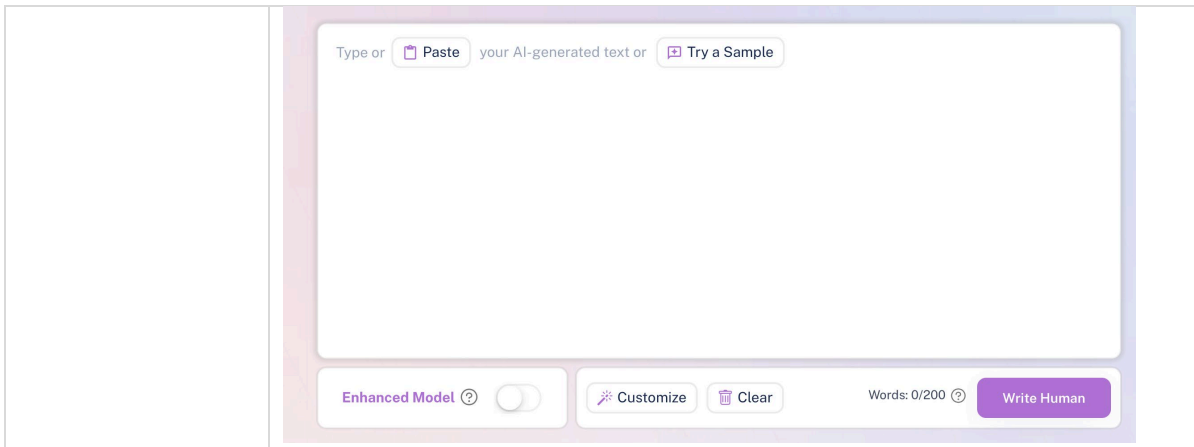
<b>GRANTAI</b>
<p><b>Functions</b></p> <ul style="list-style-type: none"> <li>• This tool helps individuals, teams, and organisations, such as universities, identify suitable grant opportunities in the US and apply for these grants efficiently.</li> <li>• In essence, the tool searches to identify appropriate grants, given your research, and generates draft responses.</li> <li>• The tool utilises knowledge about you and your organisation to choose opportunities that are relevant to your priorities and capabilities, to create narratives that increase the likelihood of success, and to track your grant applications effectively.</li> <li>• Furthermore, the tool integrates with Google Cloud to enable you to access relevant datasets and information to support your grants.</li> </ul>

## 4 APPLY FOR OPPORTUNITIES AND DEVELOP YOUR PROFILE

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AI tools can also help you apply for job opportunities—such as optimise your LinkedIn profile, improve your CV, write a cover letter, and complete your job application. The following table presents some tools that are specifically designed to achieve these goals.

TOOL	SOME DETAILS OR BENEFITS
Accentio	<ul style="list-style-type: none"><li>• Automatically improves your LinkedIn profile.</li><li>• For example, the tool will automatically create and post content to LinkedIn that is relevant to your profile and goals.</li><li>• Alternatively, the tool may suggest ideas that could help you write your own posts on LinkedIn.</li><li>• A free version is available, but the most popular version costs about US \$30.</li></ul>
Careerflow	<ul style="list-style-type: none"><li>• After enhancing your resume and LinkedIn profile, the tool can track the jobs for which you have applied on a single dashboard.</li><li>• The tool provides other services as well, such as identifying suitable recruiters.</li><li>• The paid version provides more functions as well.</li></ul>
Scispace	<ul style="list-style-type: none"><li>• This platform comprises a range of helpful tools, such as citation booster, a tool that purportedly increases your citations by 25%.</li><li>• To use citation booster, you first upload one of your publications.</li><li>• The tool will then generate several assets, such as a video—that summarises your publications and explains some of the figures.</li></ul>
Teal Resume Builder	<ul style="list-style-type: none"><li>• Generates exemplary CVs</li></ul>
WriteHuman	<ul style="list-style-type: none"><li>• If you generative AI to write your cover letters or other documents, your work might seem robotic.</li><li>• WriteHuman is an AI tool, available at no cost at this time, that converts AI responses to text that sounds more human.</li><li>• You simply copy the AI response into a box and then click a button called “Write Human”.</li></ul>



## 5 PREPARE BEFORE INTERVIEWS

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AI tools can also help you prepare before interviews. For example, you could

- prompt Chat GPT or any chat bot to pose interview questions and to evaluate your answers,
- enter your CV and position description, before asking Chat GPT or any chat bot to “identify any shortcomings the interviewers may identify from my CV”.

Or you could use AI tools that specialise in this role, such as Career.io, InterviewBot, InterviewBuddy, Interview Igniter, and PrepAI.

### AI APPLY

#### Functions

- A platform that comprises many tools that help you secure jobs—such as tools that help you write cover letters or resumes as well as prepare before interviews.
- For example, the tool will ask you questions and deliver feedback on your responses.
- In addition, the tool will suggest useful answers to these questions.

## FINAL ROUND AI

### Functions

- A platform that comprises a series of tools to help you succeed interviews.
- For example, one tool, called Interview Copilot, helps you practice interviews with a realistic avatar—and offers feedback and advice about your performance.

### How to use the tool

- First, upload a preliminary resume or cover letter. This information will help the tool interview identify suitable questions to interview you.
- Second, enter your goals, such as information about the job you want to secure.
- Third, press an option, called Preparation, designed to optimise your resume and cover letter.
- Finally, ask the tool to create a co-piloting session—in essence, a practice interview.

## KASPER AI

### Functions

- Kaspar will pose interview questions and then deliver feedback about your answers—including a rating and evaluation.
- Kaspar will also suggest some alternative responses to these questions.
- To generate suitable questions, you can specify the job title and the company as well as upload your CV.

## PREPPRO

### Functions

- To help you prepare before interviews, choose the job from a list of alternatives, such as “project manager”, or enter the job description in a box
- The tool will then generate a series of technical questions that are relevant to the job as well as behavioural questions that are relevant to many jobs.
- You can then type your answers.
- The tool will suggest some optimal answers to these question as well as provide feedback on your answers.
- Although you can trial the tool at no cost, you would usually pay US \$10 for a month for an unlimited number of attempts

## 6 COMMERCIALISE YOUR IDEAS

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AI can also help you commercialise research ideas. For example, you could prompt these tools to help you identify whether an idea to commercialise a product or program may be viable. Here are some examples:

- After describing your idea, ask “Can you identify 20 ways I could improve this idea?”
- “How could you integrate some of these ideas to generate a useful and original product?”
- “When customers use similar products, what are their main concerns?”
- “Which of these concerns have rival companies been unable to solve effectively?”
- "How could I adjust my product to solve these concerns better? Can you identify 20 possible ideas".

If you do develop a business or manage a business, AI tools could especially useful. The following infographic distinguishes five main uses of AI in business.

				
1 Virtual assistants	2 Predictive analytics and recruitment	3 Tailored experiences	4 Automating routine tasks, called robotic process automation.	5 Continuous learning

## Virtual assistants

First, generate AI can be used to create virtual assistants—in which AI answers the queries of customers and offer immediate solutions. The benefit is that businesses can offer these services 24 hours a day. Some AI tools, such as Watson, enable these chatbots to be readily integrated into websites. The following outlines some tools that can be used to fulfill this purpose.

TOOL	DETAILS
AIReception	<ul style="list-style-type: none"><li>• An AI tool that acts like a receptionist to assist customers.</li><li>• You can upload documents and information about your company, so the tool will generate suitable responses to customers.</li><li>• The tool responds vocally—with a realistic voice and engaging conversation.</li><li>• Eventually, the tool may also refer customers to the relevant department or individual.</li></ul>
Chatbit	<ul style="list-style-type: none"><li>• A chatbot that you can attach to your website.</li><li>• The bot answers questions from customers about your organisation.</li><li>• This bot is trained on data you supply, such as your policies, procedures, and past responses.</li></ul>

## Predictive analytics and recruitment

Second, AI can facilitate predictive analytics and recruitment. That is, generative AI can be used to predict future outcomes—such as sales or customer behaviour—from past data. One example is to use AI to analyse CVs or even conduct initial interviews. Another example is Predict AI: a tool that predicts the responses of customers to creative products. Indeed, you could also use AI tools to predict which products consumers are likely to prefer, as the following box illustrates. AI tools and humans often choose similar options to purchase when exposed to a range of possibilities (Mollick, 2024).

### PROMPT TO FACILITATE MARKET RESEARCH

I want you to decide which of the following items you prefer and why. Specifically, I will soon present three different varieties of mobile phones, each differing on several attributes. I want you to rate the probability, from 0 to 1, that you would purchase each item. In addition, I would like you to indicate why you prefer one item over the other items. Here are the three options. First...

### OSUM

- To learn about rival products or businesses, you merely paste the URLs into this AI tool.
- The tool will then generate detailed insights about the business, such as competitor analysis, customer personas, and growth opportunities.
- For example, the tool will identify the strengths and weaknesses of your rivals.

### PEOPLEALSOASK.AI

#### Functions

- This tool can summarise the questions that people are asking about a topic in web searches.
- For example, if you have developed a business in nutrition, you can identify the main questions that people are asking about their diet—and then develop web content that answers these questions.

#### Procedure

- You enter a topic into a search box, such as “diets”.
- The tool will scour the web to uncover the most common questions about this topic.
- To help you analyse and use this information, these common questions are then organised into themes.

## Customisation

Third, generative AI enables organisations to tailor or to customise their services to the distinct needs of each customer. Here are some examples.

<b>TOOL</b>	<b>DETAILS</b>
Adobe Sensai	<ul style="list-style-type: none"><li>• Delivers content or recommendations that are customised to the unique needs or behaviours of each customer.</li></ul>
UiSpark	<ul style="list-style-type: none"><li>• Uses AI to generate logos that resonate with your brand or business.</li><li>• Uses AI to generate icons—for mobile and web applications—that suit your needs.</li><li>• Can also improve the user interface of your websites as well.</li></ul>



## Automation

Fourth, AI can automate routine tasks, called robotic process automation. Examples may revolve around data extraction, processing of invoices, and so forth. Some useful AI tools appear in the following table.

TOOL	DETAILS
Beam	<ul style="list-style-type: none"><li>• Enables users to develop AI agents that automate manual workflows.</li><li>• To achieve this goal, you can select, and then adapt, some pre-existing AI tools.</li><li>• For example, one pre-existing AI tool helps you determine the order in which the company should process orders.</li><li>• Another tool might categorise insurance claims and then decide how to respond to each claim.</li><li>• The platform can integrate your manual workflows with other apps and tools.</li></ul>
Botsonic	<ul style="list-style-type: none"><li>• Enables users to construct their own AI bot—so customers can converse with their website seamlessly—without the need to write computer code.</li><li>• The tool uses a blend of both proprietary algorithms and OpenAI models, as used in Chat GPT, to convert your data into a bot that you can embed on your website.</li></ul> <p><b>Benefits</b></p> <ul style="list-style-type: none"><li>• The data could include a series of Word documents, pdf documents, website urls, and so forth.</li><li>• You can customise the responses to match your brand.</li><li>• The tool also presents analytics about the conversations, such as which issues were most frequent.</li><li>• You can generate bots that fulfill different purposes—such as support bots that answer questions and eCommerce bots that help customers reach decisions about products.</li></ul> <p><b>How to use</b></p> <ul style="list-style-type: none"><li>• You can arrange a free trial. The free trial permits 100 messages a month, one user, one trainable chatbot, and a limit of 500,000 characters to train the bot.</li><li>• The next level is less than \$100 a month.</li><li>• You can pay to receive additional services, such as more bots.</li></ul>

	<p><b>Limitations</b></p> <ul style="list-style-type: none"> <li>• The bot may not answer nuanced questions well.</li> <li>• The tool does not perform more sophisticated CRM tasks.</li> </ul>
BuildBetter	<ul style="list-style-type: none"> <li>• Searches and then summarises all your audio recordings—such as recordings of meetings, telephone conversations, and so forth.</li> <li>• For example, the tool can generate a summary of one meeting or multiple meetings.</li> <li>• The tool can also categorise these audio-recordings so you can retrieve these recordings more effectively later.</li> <li>• You can also ask questions about these recordings.</li> <li>• The tool is more expensive than some products—about US \$100 a month for up to 15 recorded hours.</li> </ul>
Circleback	<ul style="list-style-type: none"> <li>• Generates detailed transcriptions, minutes, action items, and reminders from meetings.</li> <li>• The meetings may be in person or online, including Google Meet, Microsoft Teams, Zoom, and WebEx</li> <li>• Free trials are available, but costs are usually about US \$20 to \$25 a person every month.</li> </ul>
Evalify	<ul style="list-style-type: none"> <li>• Uses AI to assess whether your start-up ideas are likely to infringe upon existing patents.</li> <li>• You simply upload your pitch to potential investors and the tool will assess whether your pitch overlaps with over 200 million patents across more than 170 jurisdictions.</li> <li>• You then receive a score that indicates your freedom to operate.</li> </ul>
Kili	<ul style="list-style-type: none"> <li>• Automate repetitive tasks.</li> <li>• Also includes some pre-existing templates—such as a template that helps you scrape information from websites or classify requests from customers.</li> </ul>

Looka	<ul style="list-style-type: none"> <li>• Generates customised logos</li> </ul>
meetcara.AI	<ul style="list-style-type: none"> <li>• Automatically sends emails to potential customers on LinkedIn, Apollo, Hunter, and other relevant social media sites.</li> <li>• To utilise this tool, you first inform an avatar, Cara, about your business, including the customers you are seeking and your preferred communication style.</li> <li>• Second, Cara will identify potential customers. You can then review these leads to optimise the tool.</li> <li>• Third, Cara will write messages you can send these customers—and you can also review these messages, again to optimise the tool.</li> <li>• Eventually, Cara will be able to identify potential customers and write to these customers—from your email account—without your intervention.</li> <li>• Typically, you would need to pay about US \$250 a month to receive this service—although more and less expensive options are available. No free option is available.</li> </ul>
Otter AI	<ul style="list-style-type: none"> <li>• Transcribes meetings live.</li> <li>• Then translates these notes into summaries.</li> </ul>
Skyvern	<ul style="list-style-type: none"> <li>• Automates tasks in which you need to complete a repetitive sequence of actions across multiple websites.</li> <li>• For example, you can use a simple AI to complete forms, place orders, or download invoices automatically.</li> </ul>
Surface Labs	<ul style="list-style-type: none"> <li>• Uses forms and AI agents to help you convert website visitors into customers.</li> <li>• Specifically, helps automate workflows that convert website visitors into paying customers.</li> </ul>

## Learning

Finally, generative AI can facilitate learning about AI and other trends. For example, use could use

- Macky ai to receive automated business advice; Macky will answer questions about how to improve your business,
- rencoach or IX coach to receive executive coaching that is compatible with the values and goals of your company.

### VALIDATOR.INFORMLY

- You simply enter your business idea, answer a few simple questions, and the tool will generate a business plan or report, comprising about 75 pages.
- The report includes some data and information about the validity of this idea and the audience, business model, market analysis, and other features that need to be considered.

Some organisations have organised no-code hackathons, in which participants, usually with no experience in coding, demonstrate some AI tools they have developed or innovative uses of AI tools. These hackathons encourage and reward innovative opportunities to utilise AI, especially if preceded by suitable training.

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These examples suggest that generative AI could significantly enhance the productivity of businesses. Nevertheless, some economists are not as convinced that generative AI will revolutionise business, at least not in the next few years. For example, according to an economic analysis that Acemoglu (2024) conducted

- AI will significantly expedite or enhance only about 5% of tasks that humans complete,
- AI will improve GDP by only about 1.5% between 2024 and 2034.

### Management and governance of AI in business

Businesses also need to manage the use of AI. The following table outlines the features of exemplary management and governance of AI.

<b>FACET OF BUSINESS</b>	<b>DETAILS</b>
Job descriptions	The capacity and need to use AI should be embedded in most job descriptions
AI budget	The organisation should dedicate a specific budget to AI tools and technologies as well as AI training, testing, and development.
AI training	All employees should be encouraged to attend training and development programs on AI—and these programs should include specialised pathways to enable some staff to pursue more advanced uses.
AI policy	The organisation should introduce policies and procedures around AI—including rewards or incentives to encourage staff to use AI innovatively and to share these innovations.
AI in products & services	AI should be conceptualised as a revenue opportunity, integrated into all key products. The organisation should develop many key use cases to demonstrate the applicability of AI to workplace operations.

## WHICH SKILLS SHOULD YOU LEARN

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### Introduction

Even in 2023, researchers had uncovered some remarkable statistics about the use of generative AI. For example, according to some estimates (Walkowiak & MacDonald, 2023)

- generative AI affects almost 40% of the tasks that Australian workers complete,
- because of this reliance on generative AI, over 12% of tasks are vulnerable to violations of privacy, 14% of tasks are vulnerable to threats of cybersecurity, and 10% of tasks are vulnerable to risks around IP.

Similarly, an economic analysis that Eloudou et al. (2024) reported estimates that

- in only about 1.8% of jobs, simple chat bots, such as Chat GPT, could replace or transform over half the tasks,
- however, in about 46% of jobs, generative AI, when combined with complementary software, could replace or transform over half the tasks.

So, a key question that HDR candidates may ask is which skills should I develop to be valued and useful in the future? That is, as AI proliferates, which skills may no longer be valuable and which skills may be especially valuable in future (for excellent insights, see Bornet, 2024)?

### Which skills may be scarce?

To answer this question, we need to recognise that, like now, the skills that will be valued and useful in the future are both scarce and beneficial to society. The question, therefore, becomes which skills will be scarce and beneficial in the future? Obviously, since the advent of Chat GPT and similar tools, which skills will be scarce in the future differs from which skills have been scarce in the past. To illustrate,

- in the past, the capacity to analyse data effectively was relatively scarce; now anyone can use tools, such as Deepnote or Julius, to analyse data—simply by uploading data, entering their research question, and then asking the tool to complete the entire analysis;
- in the past, the capacity to integrate diverse topics was relatively scarce; now individuals can identify two of their favourite papers on separate topics and ask tools like Inciteful to identify all the publications they should read to connect these topics.

Instead, four other skills are likely to be especially scarce but helpful in the future. The remainder of this section outlines these skills:

## 1 High quality and accuracy

The first skill that is likely to be scarce in the future is the capacity to generate information that is high in quality, accuracy, and validity. That is, since the proliferation of generative AI tools, individuals can readily produce information. But this information is not always high in quality, accurate, valid, or nuanced. And some employers may need to guarantee the information does fulfill these attributes. To achieve this goal, researchers will need to know:

- how to identify the errors that AI tools often generate on specific tasks—and how to correct these errors,
- how to verify the accuracy of information that AI generates on specific tasks.

The following table outlines some practices that researchers might be able to utilise to identify these errors and to verify the information.

GOAL	PRACTICES
How to identify errors	<ul style="list-style-type: none"><li>• learn about the common misconceptions about a topic—both in specialists and in AI tools,</li><li>• learn about the methods that can prevent or correct these misconceptions.</li></ul>
How to verify information	<ul style="list-style-type: none"><li>• learn how to assess information—such as evaluate statistical findings,</li><li>• learn how to compare the results of AI tools appropriately.</li></ul>

## 2 Creative use of AI

The second skill that is likely to be scarce in the future is the capacity to use AI creatively. The responses of AI may often seem novel but are usually quite conventional. So, to develop a valuable skill

- you need to learn how to generate AI responses that are not conventional but unique and useful,
- so, you need to learn the practices that generate novel responses—such as how to integrate your own judgment or how to utilise background information that is relatively exclusive.

## 3 Efficient use of AI

The third skill that is likely to be scarce in the future is the capacity to use AI efficiently. That is, to use AI proficiently—such as to utilise APIs and to develop AI tools—researchers will need to use paid services. Payments will probably continue to depend on the number of tokens researchers use or similar metrics. Therefore, to minimise these costs, researchers will need to learn how to develop these tools efficiently. To achieve this goal, they may, for example, need to learn

- how to optimise prompts—and thus become familiar with advanced prompt engineering, such as chain of thought prompting,
- how to decide which data to use, and so forth.

#### 4 Tasks in which people do not want to depend on AI

Some individuals do not want to depend on generative AI to complete a task, not because AI cannot complete this task, but because of other reasons. For example,

- a client may prefer a product, such as a poem, they know was written for an actual person,
- a client may feel a greater connection if advice was offered by a person rather than AI.

Therefore, over time, learn about which tasks individuals tend to prefer humans rather than AI to complete.

#### Pace of change in jobs

Although AI may transform how people complete tasks, about two thirds of economists believe the prevalence of most jobs will not change significantly over the next few years (Mollick, 2024). Here is their rationale:

- humans are embedded in existing practices—so, even if AI could complete the work, too many other procedures may need to change,
- for example, if AI could replace a doctor, patients may still prefer humans, liability laws would need to be adapted, and training would need to be transformed,
- so, the effect of AI on many jobs may resemble the impact of spreadsheets on accountants: AI may facilitate tasks but not greatly transform overall jobs.

#### Relevance to HDR candidates

Given these considerations, the following table outlines some of the skills that HDR candidates should develop in the future.

SKILL	DETAILS
<b>Traditional skills</b>	
Literature reviews	<ul style="list-style-type: none"> <li>• In comparison to previous years, need greater emphasis on AI tools rather than traditional methods.</li> </ul>



How to generate research questions	<ul style="list-style-type: none"> <li>• Learn how to use AI to identify unsolved problems and innovations to solve these problems.</li> </ul>
Research methods and analysis	<ul style="list-style-type: none"> <li>• In comparison to previous years, need greater emphasis on use of AI in lieu of traditional tools, such as SPSS or R</li> </ul>
Responsible research	<ul style="list-style-type: none"> <li>• Like previous years, but with additional caveats around AI.</li> </ul>
Writing and communication	<ul style="list-style-type: none"> <li>• Like previous years, but with insights on how to use AI to facilitate and improve writing and communication.</li> </ul>
<b>AI skills</b>	
Prompt engineering	<ul style="list-style-type: none"> <li>• Prompt engineering principles, such as chain of thought prompting</li> <li>• How these principles vary across models and parameters</li> <li>• Tools and techniques to generate suitable prompts.</li> </ul>
Tool creation	<ul style="list-style-type: none"> <li>• Capacity to use APIs and follow python code.</li> <li>• Basic ability to choose suitable models and parameters.</li> <li>• Capacity to test and to optimise tools.</li> <li>• The ability to enhance the accuracy of AI tools—with the use of apps such as Traceloop.</li> </ul>
Tool selection	<ul style="list-style-type: none"> <li>• Capacity to choose appropriate AI tools, agents, and platforms.</li> </ul>
Limitations to AI	<ul style="list-style-type: none"> <li>• Understand biases in specific tools and in specific models</li> </ul>