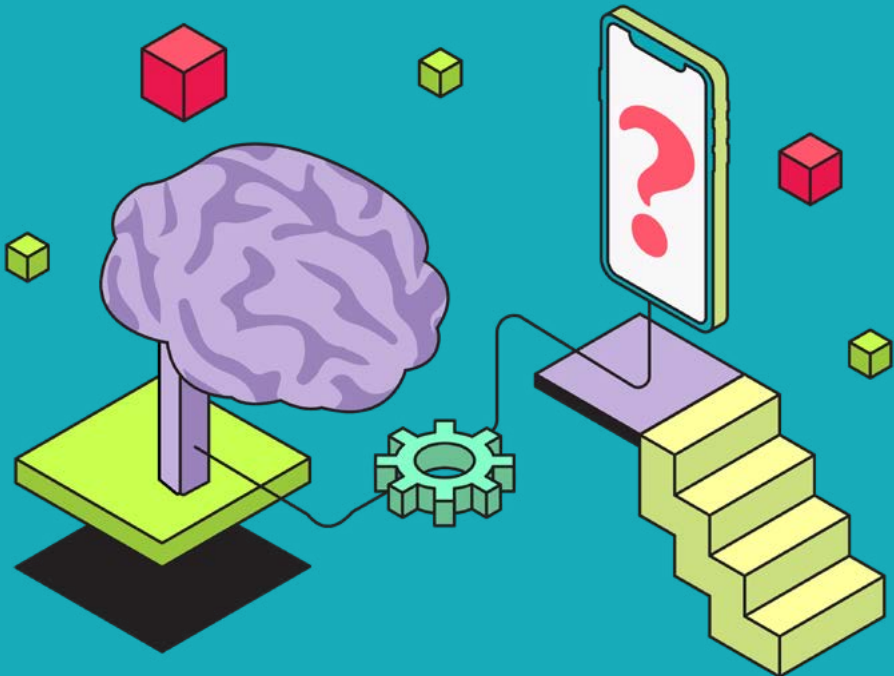# Introduction to AI

Understanding the basics of Artificial Intelligence for the third sector

breeze_digital

We have come together to help third-sector organisations and the communities they serve navigate the important conversation on Artificial Intelligence. We think that conversations about AI need a third-sector voice, and this guide can help people working in the communities of Scotland get involved in shaping how we reach a trustworthy, ethical and inclusive relationship with AI technologies.

breeze_digital

Breeze Digital is a division within Community Enterprise that supports the practical digitalisation of the third-sector. We are a friendly and knowledgeable team helping charities, voluntary organisations, social enterprises and community groups to overcome digital barriers. We offer personalised support for embracing technology and making changes to save time and resources.

Our support includes facilitating learning around AI, and its role in Social Impact. What real life problems can it solve? What difference is it likely to make to all our lives, for better or worse? What preparation can organisations do to be ready to utilise AI safely and ethically?

Scottish AI Alliance

The Scottish AI Alliance are a strategic collaboration between the Scottish Government and The Data Lab, Scotland's Innovation Centre for Data & AI. We are the body tasked with delivering Scotland's AI Strategy, with its vision for Scotland to be a leader in trustworthy, ethical and inclusive AI.

We work to ensure that the people of Scotland are empowered to leverage the potential of Artificial Intelligence to drive innovation and create opportunities, while ensuring responsible and ethical AI development and addressing societal concerns and challenges.

Introduction

The opportunity is there for us all to learn from and leverage the benefit of AI. Much like at the outset of the internet, we are learning together, and we will see 'Artificial Intelligence' change fundamental aspects of how we work and live.

The term 'artificial intelligence' describes a collective group of technologies and was first coined in the 1950s. Research and development has taken place in this field ever since. Despite significant advancements, we are still in the relatively early stages of its potential and adoption.

Currently, technologies and how they are being used are developing faster than their governance, and this is a complex and dynamic situation. Through technology we are more connected and interdependent than ever before, but alternative approaches to AI across the world will present significant challenges in unifying an approach.

AI technologies are used in many different ways for many different things. They depend on data, and are powerful in dealing with patterns within data. AI technologies are used within many different sectors and industries, such as in healthcare to enhance how well MRI scanners work, within agriculture to maximise fruit yield and within charities to support administrative tasks and harness data-driven insights to deliver their commitments more efficiently.

Third Sector organisations are increasingly using AI in their work. The Charity Digital Skills 2024 report indicates that 61% of charities are already using AI for some tasks and 57% are looking to take part in external training or receive guidance on AI this year.

Recently, Generative AI technologies, that are trained on text, images and audio to generate realistic but artificial text, images and audio have become an important topic of discussion due to the wide-reaching implications of this specific set of AI technologies.

This guide is suitable for anyone who is interested in learning more about AI, and what it might mean for our communities, our organisations and our future.

What are the potential risks?
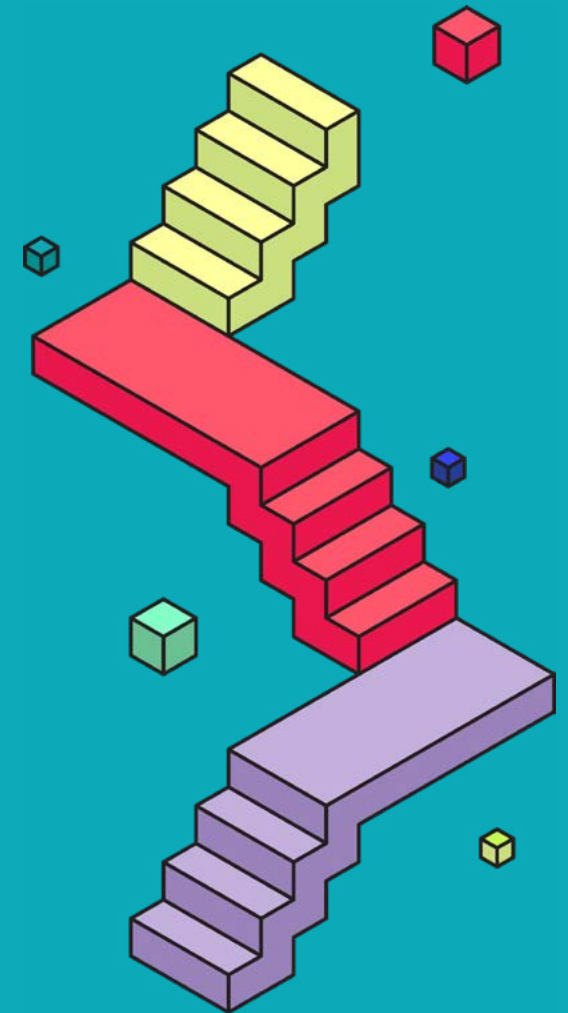
Bias & Discrimination

AI can enhance or assist human decision-making by learning from historical data, spotting patterns and developing predictions based on this information. How well it does this depends on the quality of data that it has been trained on.

If it is trained on bad data, or data with gaps, the outputs of the AI technology will be skewed or have gaps. If the data is unrepresentative of the diverse nature of a group, the results may be biased or unfair.

If the AI technology uses a poorly written algorithm, this can distort how the data is processed within the AI system, amplifying and perpetuating any data bias. This is known as algorithmic bias.

Harms due to both data bias and algorithmic bias are already happening across the world, perpetuating real-world under representation of women and marginalised groups.

Ensuring that the humans designing, developing and deploying AI are responsible and accountable for the outputs is key to making sure that these harms are reduced.

The Jargon Buster Glossary on page 19 includes a breakdown of these ideas.

Societal Impact

AI technologies can make mistakes and the people using them need to be ready to challenge the outputs and think critically about the results.

Factual accuracy, potential bias and discrimination, human rights and environmental impact are all legitimate concerns.

One thing that can help with these wider societal issues is to always frame conversations around AI within the human context – thinking closely about the humans that have decided to implement the AI technology and their motivation, the humans that the AI technology will impact, the humans that have checked and approved the results (or not), and the humans whose data is being used to train the system.

The environmental impact of AI will be a big topic of conversation as the technologies develop. AI technologies rely on huge amounts of energy, carbon and rare earth elements. Every time someone prompts a Generative AI technology to produce an image, there is an energy cost to that. AI relies on huge data centres for its power, and as the use of AI rises so will its power consumption. An added complexity to this is that AI technologies could potentially be transformative in combating the climate crisis, and so conversations around how to achieve the right balance will be important.

Regulations & Guidance

What is the EU's approach to AI?

It is a critical time in the development of AI-related laws and policies worldwide. The EU AI Act represents the first-ever legal framework designed to address the risks associated with AI.

Their priority is to make sure that AI systems used in the EU are safe, transparent, traceable, non-discriminatory and environmentally friendly. AI systems should be overseen by people, rather than by automation, to prevent harmful outcomes.

What does the future of AI look like under the new UK government?

We are at the outset of a clear approach to AI regulations being defined by the UK government. Safety frameworks and legislation are expected to be a priority, including targeted regulations for AI focusing on companies responsible for powerful AI models. They have also committed to harnessing the power of AI safely with long term research and development funding.

What is Scotland's approach?

The Scottish AI Alliance is tasked with the delivery of the vision outlined in Scotland's AI Strategy in an open, transparent and collaborative way. The group provides a focus for dialogue, collaboration and, above all, action on all things AI in Scotland.

Scotland's approach is to encourage people, organisations, businesses and policies to put trustworthiness, ethics and inclusion at the centre of all conversations around AI.

What is the key benefit for the Third Sector?

Utilising the power of AI for increased impact.

What does this mean?

Against a backdrop of challenges in the sector, AI presents the potential to create time saving efficiencies. From taking your meeting notes, to supporting the writing of fundraising bids, and analysing data for more efficient impact reporting. It is an exciting prospect for many, that the hours of manual work that go into these tasks could be streamlined.

It has the potential to make workloads more manageable and free up time for more important work. That's more time for strategic thinking, partnership development, sector conversations, and innovation.

What steps can you take to become more informed about AI?

Join the conversation, you don't need to be an expert, however, being informed is important.

Utilise free training sessions and build it into your strategic aims to be informed on AI.

Start talking about AI in your organisation, with your board and staff - this isn't just about AI tools and where it might create efficiencies. Look at it through the prism of your own organisational values, does your use of AI respect and reflect those values?

Research the tools at your disposal and ways in which they can be utilised. More importantly, decide what you do not want them used for and why.

Surveys have shown that many employees are keen to adopt AI. Engaging staff and asking them what they are already using it for, will help towards standardising an approach. Treat this as a working draft of an AI policy that will evolve with the rapid pace of change and any new legislation.

Data Protection

There are many Generative AI tools on the market, and each of them have dedicated data security and privacy policies. It is important to understand what you are agreeing to before using an AI tool, particularly if the inputs you share contain personal and private data.

Read policies carefully and be aware of the opt in and opt out options.

Checklist:

• Does it share your data with a third party?
• Does it use your data to train the model?
• Does it use the data to train any third-party products or services? (Such as OpenAI models).
• Are your inputs and outputs available to other customers?
• Is it using data you have given it that is confidential or commercially sensitive?

Ways AI can support small charities

We encounter AI every day through automated telephone services, chatbots, virtual assistants such as Siri or Alexa and our social media feeds, which are tailored by AI algorithms.

Generative AI tools can automate tasks, analyse data and support you with content writing. Example AI tools include Chat GPT, Microsoft Copilot and Google Gemini.

Example use cases
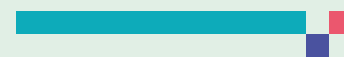
Marketing and fundraising campaigns

Short and long form content ideas for social media, your website and newsletters.

Grant applications and proposals

AI tools can extract the main eligibility requirements from complex funding guidelines. They can also extract the priorities from a funder's website, to support your research.

Managing donors and volunteers

AI tools can create database tables to support donor, volunteer management and agendas for training sessions.

Consolidating information

AI tools can scan multiple documents and act on your prompts to help generate a starting point for your project.

What AI trends are being observed across the sector?

The Charity Digital Skills Report is an annual survey that measures digital adoption across the sector. This year, 635 charities responded. There is a section dedicated to the use of AI and emerging technologies. Here are some of the trends being observed:

61%

61% of charities are currently using AI in their day-to-day work or operations. The most popular uses and functions of AI tools are:

1.   Developing online content
     (e.g. social media posts and generating images) (33%)

2. Administrative tasks such as summarising meeting notes (32%)

3. Drafting documents and reports (28%)

4. Generating ideas/creativity (e.g. to start a project) (27%)

5. Research and info

57%

Half of charities (57%) are looking to take part in external training, support, guidance or informal opportunities to engage further with AI this year.

Introduction to AI   Introduction to AI

Useful Links

'EU AI Act First Regulation on Artificial Intelligence'
www.europarl.europ.eu

'Regulatory Framework AI'
www.digitalstrategy.ec.europa.eu

'Data Governance'
www.cloud.google.com/gemini

'Copilot FAQs'
learn.microsoft.co.uk

'How your data is used to improve model performance'
www.help.openai.com

'Guidance on AI and data protection >
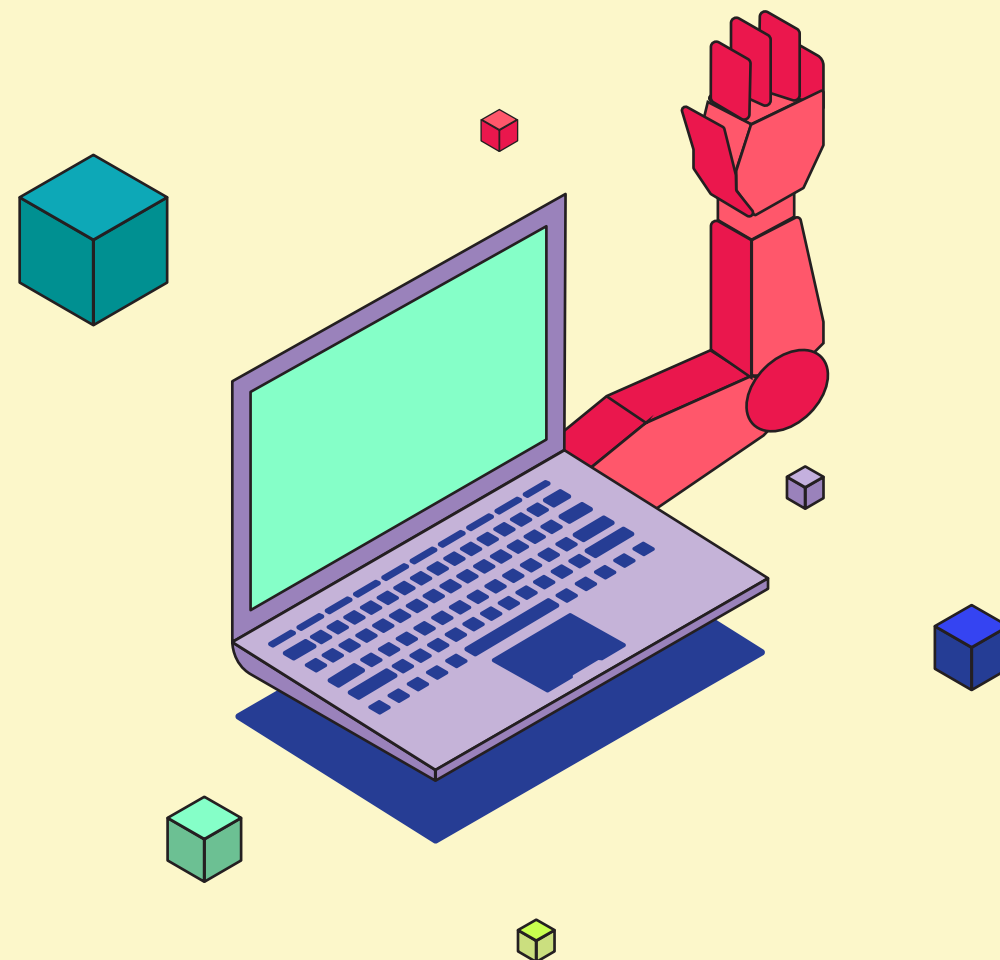What are the accountability and governance implications of AI'
www.ico.org.uk

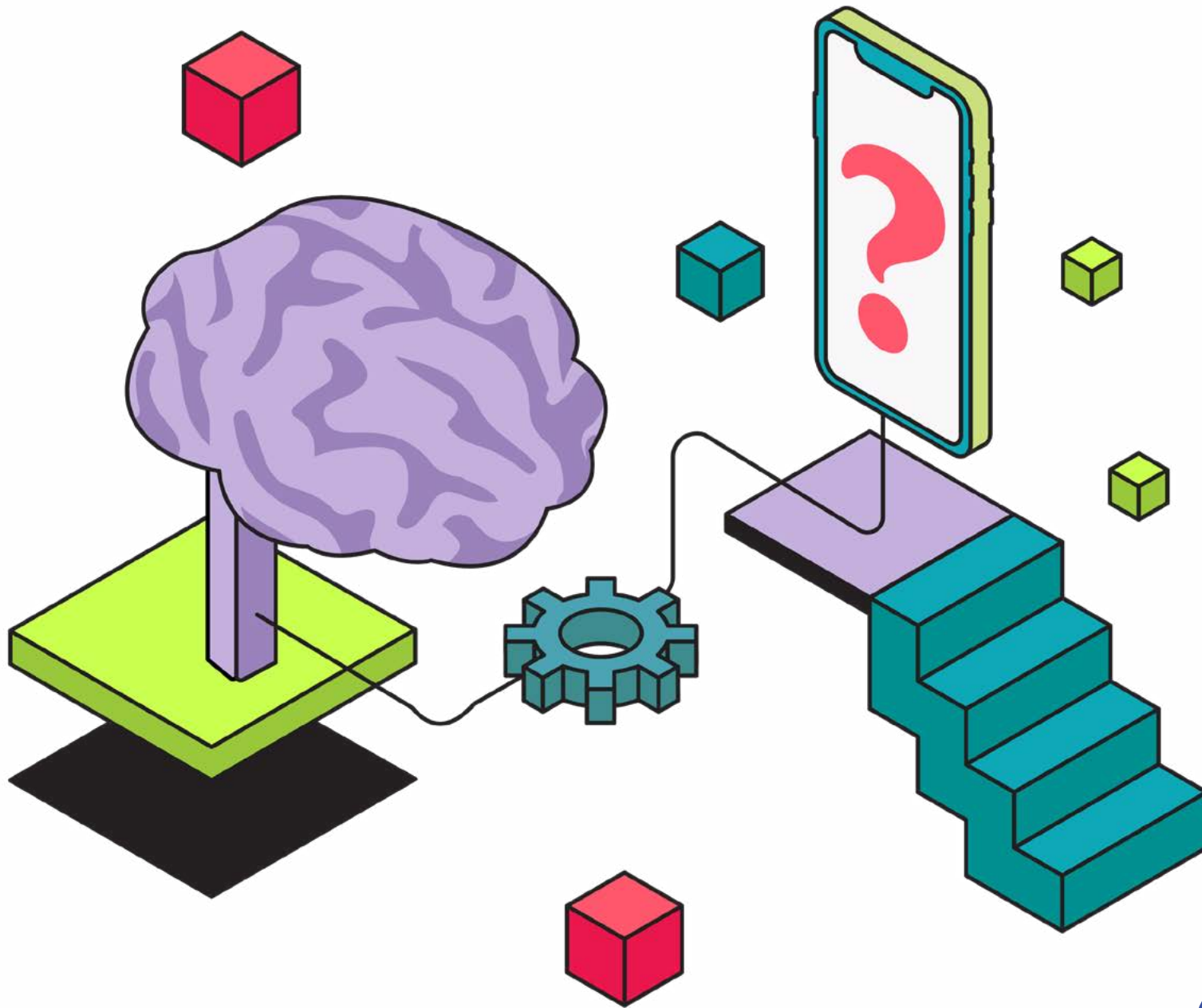'How you can use AI to unlock your charity's full potential'
https://youtu.be/FP6tGm3pks8

www.scottishai.com

https://charitydigitalskills.co.uk

Jargon Buster Glossary

Understanding the basics of Artificial Intelligence

What is AI?

It is difficult to define Artificial Intelligence, as there is not an agreed upon definition and different people can mean different things when they use the term "Artificial Intelligence".

Here are two definitions that you may find helpful:

Definition A:

Artificial Intelligence is the field of study within computer science that focusses on designing computer systems that can perform tasks that we would normally consider to need "human intelligence", such as making decisions and producing natural language.

The technologies that result from this field of study are known as "AI technologies".

Definition B:

An AI system is a machine-based system that can, for a given set of human-defined explicit or implicit objectives, draw conclusions, from the input it receives, how to generate results such as makes predictions, content, recommendations, or decisions that can influence physical real or virtual environments.

Different AI systems are designed to operate with varying in their levels of autonomy and adaptiveness after deployment.

It can be unhelpful to define Artificial Intelligence like this because:

- It is a wide definition, so isn't very exact.
- It defines AI in comparison to "human intelligence", which gives the false idea that AI technologies have any sort of agency, when in reality they're just clever ways of making computers perform tasks.

It can be useful to define Artificial Intelligence like this because:

- It highlights that AI is not one thing, rather it is an entire scientific discipline, a whole field of concepts, problems, and methods for solving those problems. Thinking of "an AI" can be misleading because it suggests that AI is a thing which can be picked up and put down.

- While this definition is evocative and helps us have a top-level understanding of the kind of tasks we use AI for, the comparison to human intelligence can lead to people misunderstanding the real-world AI technologies with conceptual "thinking" AI characters from science fiction.

It can be unhelpful to define AI like this because:

- It relies on the reader understanding some technological terms.
- It is dense and abstract, and could miss the opportunity to explain AI to someone trying to understand AI in simple terms.

It can be useful to define AI like this because:

- It is precise in its descriptions of what is happening within an AI system.
- It standardises an understanding of AI that is useful when discussing how to regulate and control AI technologies.
- By not comparing AI to human intelligence, the description avoids attributing human-like qualities to AI, which can be misleading.

Jargon Buster Glossary   Jargon Buster Glossary

Breaking it Down

Many different people have different understandings of Artificial Intelligence, and how to best define it. From the definitions above AI is…

- The field of study investigating how to create computer systems that can perform very complex tasks autonomously.

- Sometimes described as technologies that perform tasks that would usually require "human intelligence".

- More than one thing, one technology or one tool – it's a whole set of different technologies.

- Used to perform complex tasks such as making decisions, understanding language and making recommendations.

- Often using algorithms that allow computers to learn from and make predictions based on data, known as "machine learning".

- Reliant on being trained on vast amounts of data to perform tasks.

- A rapidly evolving and ever-changing concept, meaning definitions and understanding shifts over time.

- Often understood to be "Generative AI", the use of AI techniques to generate content such text, images and audio – but that is only one type of AI technology.

- A lot of AI technologies have existed for a long time, and it is not new – but the rise of Generative AI has led to an increased interest in AI technologies.

How do AI technologies work?

AI technologies use algorithms, collected into specific models and trained on huge datasets, to identify patterns and make predictions based on that data.

Algorithm

A defined set of instructions designed to complete a task or solve a problem. It is crucial in computers and programming, instructing the computer step-by-step.

Data

Data is any information that can be used for analysis, calculation and interpretation. This means any type of information, be it letters, numbers, words, sounds or videos which are arranged so that the information can be useful for some purpose. Data can come from lots of sources and be stored in different ways.

In an AI system, data is used to train an algorithm. The quality of the data used to build an AI system have a significant impact on how the AI system will perform.

AI systems require extremely large collections of data, which we call datasets. The larger and better the data, the more powerful the model, and the more able it is to make useful predictions. AI systems can work out how to better predict results by using massive amounts of processing power and analysing bigger datasets than a human ever could. However, if the data that was used has issues, then so will the outputs or predictions.

Model

An AI model is a collection of algorithms within an AI system that processes inputs to produce desired outputs or predictions. This term is often used to refer to a Machine Learning model. Although these models are built using computer code, they are not explicitly programmed to perform tasks in the same way as traditional computer programs. Instead, they learn to complete tasks by identifying patterns within data.

Narrow Artificial Intelligence

Also known as "Weak AI" Narrow AI is designed to perform a specific set of tasks. All AI in existence today is narrow AI, usually using techniques called machine learning or deep learning. Such AI tools are designed to perform tasks within a single defined set of problems.

Artificial General Intelligence (AGI)

Also known as "Strong AI". This is a conceptual type of AI system that could learn to accomplish any intellectual task that humans can perform, or surpass human capabilities in many economically valuable tasks. While AGI is often mentioned in the news on social media, there is currently no research that proves how AGI could be achieved or developed.
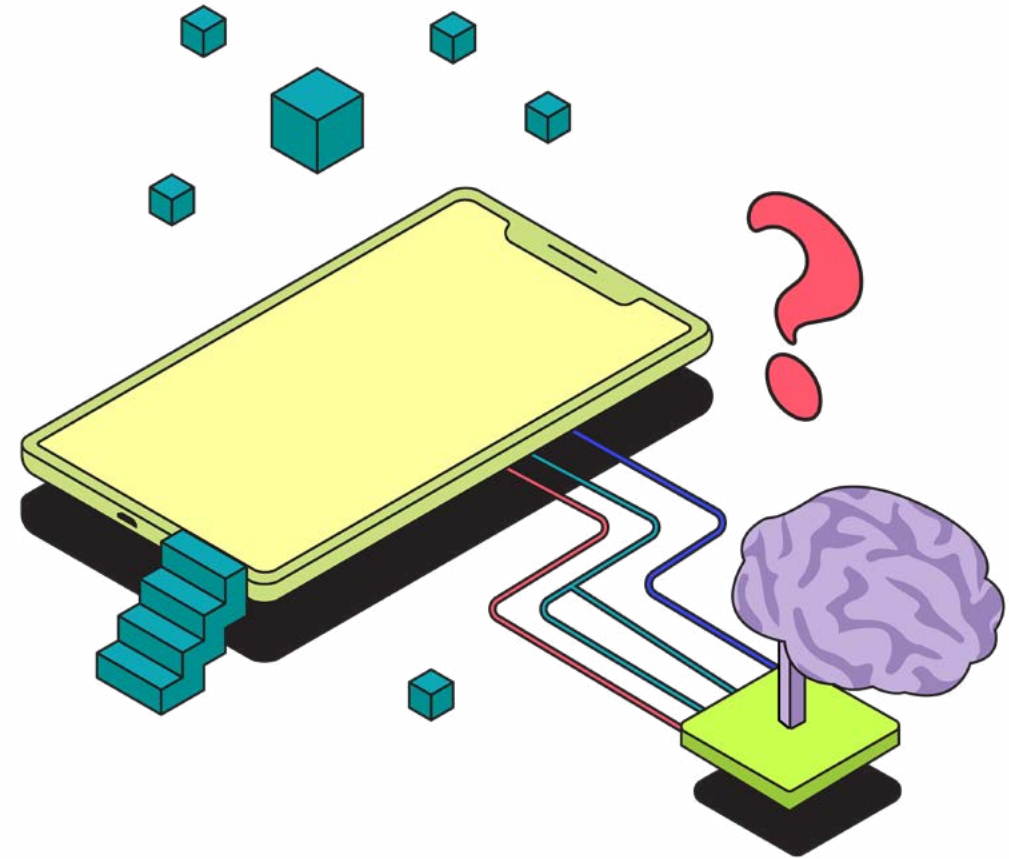
Algorithmic bias

Unfairness that happens when an algorithm's process or implementation is flawed, causing it to favour or harm one group of users over another. This often occurs because the data used to train the algorithm is biased, reinforcing existing prejudices related to race, gender, sexuality, disability, or ethnicity.

Chatbot

A software application that has been designed to mimic human conversation, allowing it to talk to users via text or speech. Previously used mostly as virtual assistants in customer service, chatbots are becoming increasingly powerful and can now answer users' questions across a variety of topics, as well as generating stories, articles, poems and more.

ChatGPT

ChatGPT is an AI chatbot developed by a company called OpenAI, which uses a type of AI technology known as a large language model (LLM) to enable natural and human-like conversations.

"GPT" is the specific type of LLM that they use, and stands for "Generative Pre-Trained Transformer", which highlights that the technology can generate text, that it has been trained on a lot of text before you use it, and that the type of algorithm used is a transformer, which is very good at understanding language.

Deep Learning

A more recent variation of neural networks, which uses many layers of artificial neurons (forming a "deep neural network") to solve more difficult problems. Its popularity as a technique increased significantly from the mid-2000s onwards, as it is behind much of the wider interest in AI today. It is often used to classify information from images, text, or sound.

Deepfake

Synthetic audio, video, or image in which someone is digitally altered so that they look, sound or act like someone else. Created by machine learning algorithms, deepfakes have raised concerns over their uses in fake celebrity pornography, financial fraud, and spreading false political information. 'Deepfake' can also refer to realistic but completely synthetic media of people and objects that have never physically existed; or sophisticated text generated by algorithms.

Neural Network

This is a technique within the study of AI loosely inspired by the structure of the human brain. A neural network is composed of simple processing nodes, or "artificial neurons", which are connected to one another in layers. Each node will receive data from several nodes "above" it and give data to several nodes "below" it. Nodes attach a "weight" to the data they receive and attribute a value to that data. If the data does not pass a certain threshold, it is not passed on to another node. The weights and thresholds of the nodes are adjusted when the algorithm is trained until similar data input results in consistent outputs.

Hallucination

Hallucination in the context of AI, particularly in large language models (LLMs), refers to the phenomenon where AI systems generate false, misleading, or nonsensical information and present it as factual. This is a significant challenge in the field of Artificial Intelligence, especially for chatbots and other AI-powered tools that interact with users and provide information as inaccurate results might still sound plausible and authoritative.

Large language model (LLM)

A type of AI technology that is trained on a vast amount of text in order to carry out language-related tasks. Large language models power the new generation of chatbots and can generate text that is indistinguishable from human-written text.

Machine Learning (ML)

Machine Learning is a technique within the study of AI which aims to give computer systems the capacity to learn without following explicit instructions. ML is powerful at identifying patterns in data and making predictions based on those patterns.

Generative AI (GenAI)

An AI system that generates text, images, audio, video, or other media in response to prompts given by the user. It uses machine learning techniques to create new data that has similar characteristics to the data it was trained on, resulting in outputs that are often indistinguishable from human-created media.

Prompt

Prompt is an input, usually text, entered to a Generative AI tool, which provides the necessary context and instructions for the AI technology to generate the desired output, whether it be text, images, or other media forms.

How can AI be trustworthy, ethical & inclusive?

At the Scottish AI Alliance we work to deliver Scotland's AI Strategy, with a vision to be a leader in trustworthy, ethical and inclusive AI. We aim to do this by empowering Scotland's people, supporting Scotland's businesses and organisations, and influencing policy impacting Scotland. The Scottish AI Alliance is a strategic collaboration between The Data Lab and the Scottish Government.

Ethical AI

The Scottish AI Alliance defines ethical AI as AI that respects and supports the values of a progressive, fair, and equal Scotland. It aligns with our ambitions for a fairer, greener Scotland and helps us become a more outward-looking and prosperous country. For us, for AI to be ethical it must uphold our human rights, our environment, and our communities. Ethical AI is accountable to those affected by it and adheres to the laws and rights of the people of Scotland and the international community.
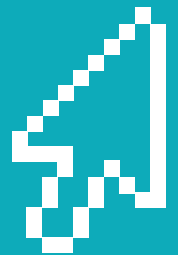
Inclusive AI

The Scottish AI Alliance defines Inclusive AI what as AI that includes everyone from across the diverse cultures and communities that make up the population of Scotland. For AI to be inclusive, those who develop and deploy the technologies must be mindful to not exclude any group, particularly our children and young people, and under-represented or marginalised groups. Inclusive AI must be shaped by a diverse range of voices in all areas from strategy development, data gathering, algorithmic design, implementation, and user impact. Inclusive AI respects our human right to live free from discrimination.

Trustworthy AI

Trustworthy AI is an AI technology that is transparent, meaning users can observe how these systems help organisations make decisions, and are aware the AI is being used. Decisions made by trustworthy AI must be explainable, and we must have confidence in the reasoning behind them. With trustworthy AI, we can be sure it works safely and securely, with risks that are always watched, managed, and protected from attacks or misuse.

Stay informed & further ways to join the conversation

Interested in shaping the support the Third Sector receives?

Breeze Digital is working with Scottish AI Alliance to understand the ways in which we can support the sector with safe, ethical and inclusive AI adoption.

We understand that for many, and particularly for smaller organisations and groups, the pace of change is overwhelming and hands on guidance is crucial.

Find out more about our digital support services and please get in touch if you have any questions. You can also access our Knowledge Hub to read the latest news, sign up for events and utilise free resources.

Follow us on social media:
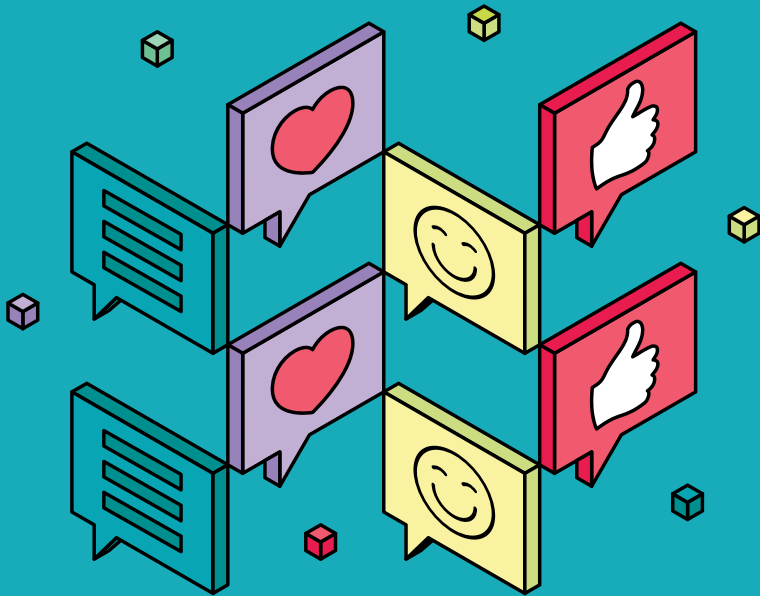breeze_digitaluk   @breeze_digi   Breeze Digital UK

The Scottish AI Alliance are always happy to hear from people who would like to get involved with Scotland's AI Strategy, and create opportunities for collaboration and learning.

If you would like to get in touch please contact **engage@ScottishAI.com** or visit **www.ScottishAI.com** to find out more.

Follow The Scottish AI Alliance on social media:
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For more information and live links sources used in this document and for hands on digital support please visit:

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