

An Introduction to...

# THE TWO SIDES OF ARTIFICIAL INTELLIGENCE

FOR THOSE WHO USE IT

and those that produce it

↳ Turn over and Flip! ↳

Pick Me Up and Take Me Home!

**The Creators:**



**Holly Worrall**  
Project Lead, Illustrator and Copy Writer  
in @HollyWorrall



**Anjana Nair**  
Copy Writer and Content Researcher  
in @AnjanaNair



**Charlie Delilkan**  
Content Researcher

**Contributing Scientists:**



**Damien Ming**  
Clinical Researcher  
d.ming@imperial.ac.uk



**Will Bolton**  
Artificial Intelligence Researcher  
will.bolton@imperial.ac.uk  
in @WilliamBolton



**Bernard Hernandez**  
Machine Learning Data Engineer  
b.hernandez-perez@imperial.ac.uk  
in @BernardHernandez

**In Partnership With:**

Imperial College London

**camo**  
centre for antimicrobial optimisation

**ITAL**



# AN INTRODUCTION TO ARTIFICIAL INTELLIGENCE

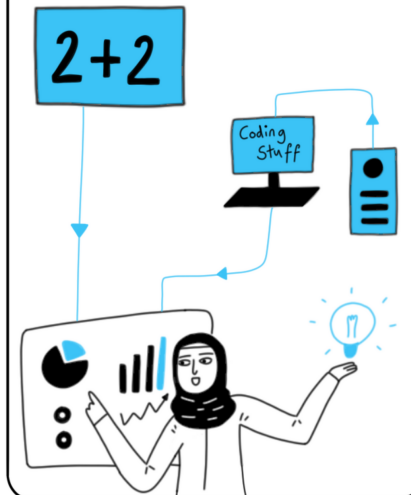
(or AI for short)

- What it is
- Where it is
- and how it helps you when you need it most

There are lots of different types of intelligence



Intelligence can also be made in a lab using maths and computer code



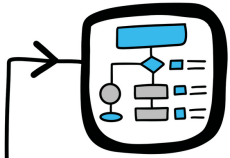
This is called artificial intelligence

Meet AI!



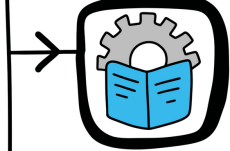


# WHEN PEOPLE SAY **AI**...



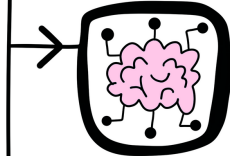
## ALGORITHMS

Follow simple instructions



## MACHINE LEARNING

Improves by processing lots of data

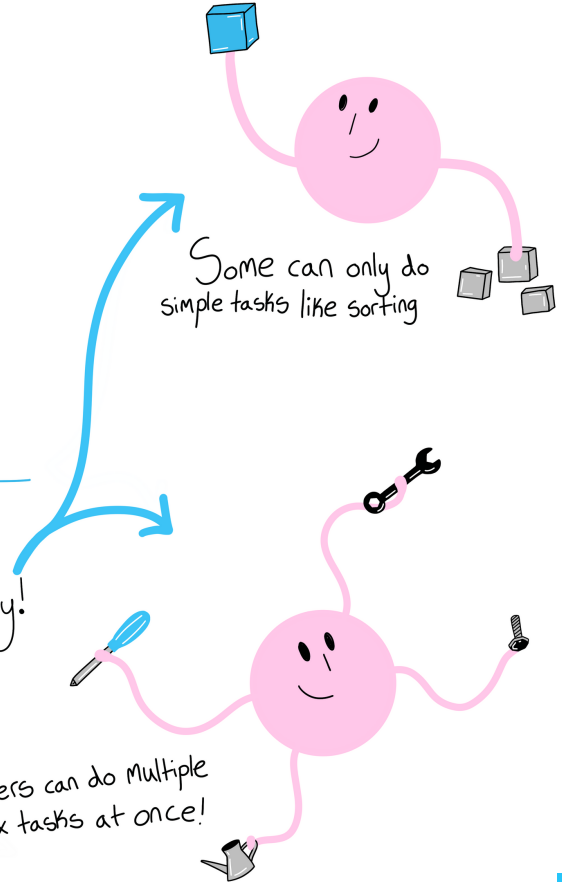


## ARTIFICIAL INTELLIGENCE

Performs complex intelligent tasks



**BUT** Not all AI is created equally!



# THE *Sun*sational

Sensationalist Headlines perpetuate fears surrounding AI. Don't get caught up in unfamiliar language or stories Meant to shock you!

## KILLER ROBOTS ARE NOW URGENT THREAT TO HUMANITY AND SHOULD BE BANNED SHOCK REPORT WARNS

Killer robots are a threat to humans everywhere! Experts warn that artificially intelligent machines may soon create battlefield chaos, roaming our streets and killing humans in a terminator-style slaughter.

With loose regulations and out of control machines that develop intelligence on their own, we will face a new global threat that rivals the World War Two death toll. Earlier this week, Stephen Hawking said it is "near certainty" that a major technological disaster will threaten humanity in the next 1,000 to 10,000 years. In other words we need to act now to save future generations from peril at the hands of our machines.

This threat can be seen NOW. Thousands of jobs have been taken by robots who are maliciously replacing our workforce and putting people out on the streets, whilst making hard working jobs



less valued and more repetitive. This is causing a crisis says scientists, which will increase inequalities between rich and poor.

Not only will our jobs be under threat but so will our lives. Already CCTV is watching our every move and without regulations in place we could be looking at a Big Brother future.

Put that aside and we can see masses of private information being leaked, and our data being used without permission. Facebook leaked the personal data of 500 million users alongside others like Lloyds and Tesco.

With no one being held accountable for these breaches? of the law, the near future will look apocalyptic unless we put our foot down now and say no to artificial intelligence.



**Killer Robots** - Using sensationalist language to compare AI to popular science fiction characters like Terminator are misguided. As of 2022, there are no killer robots because so far, there has not been a single AI system that has reflected the slightest human intelligence. Even a two or three month old baby is considered more advanced than any AI could (potentially) ever be!



**Battlefield Chaos** = This is a misleading scare tactic not based in truth. Disinformation phrases like these are purposefully shared to influence public opinion by sowing seeds of panic and urgency.



**Replacing the Workforce** - We're often led to believe that AI is taking away jobs. It's true that AI will displace some workers but often these are the jobs that cause the most amount of repetitive strain and injury. This creates opportunities for new jobs in different sectors that are more fulfilling.



**Stephen Hawking** - Using cherry picked quotes by famous personalities or the elusive, shall-not-be-named scientist/expert establishes a sense of credibility. Who are these people? Are they biased? What is their motivation to provide direct quotes?



**Information Leakage** - Privacy concerns are important because our personal lives matter. That's why when there is a data leak we often feel violated, exposed and angry that a organisation we put trust into could mess up! Though data leaks do happen, they do not happen often. Because AI is still developing, AI can power solutions that protect privacy whilst giving us the digital experience we want. Regulations like GDPR exist to hold producers of AI accountable (see more on page 18)



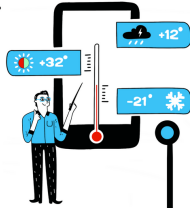
**Say NO to AI** - Taking an extreme no-tolerance perspective can damage the development of AI. The benefits of AI are well known for driving better decision making and simplifying tasks. AI can be used for better, easier and socially impactful circumstances. Putting a halt to its development is like trying to stop a moving freight train with a piece of string - its better to concentrate on increasing regulation measures than to ban the technology outright.



# AI IS EVERYWHERE

We often don't realise how it helps us everyday

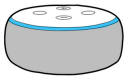
Weather Forecast



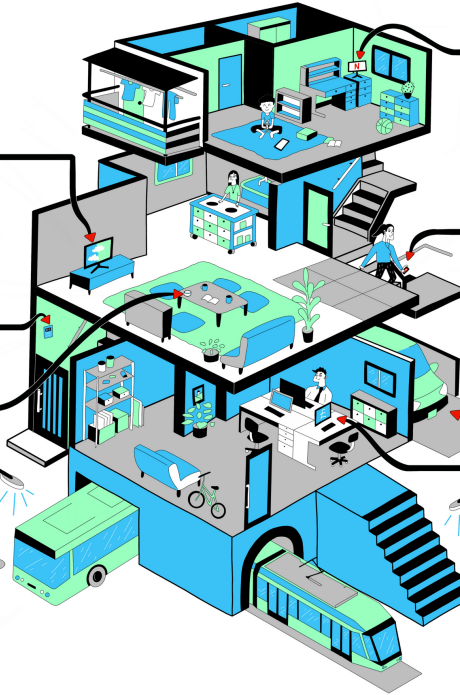
Smart Home Thermostats



Alexa Voice Recognition



Smart Streetlights



Netflix Recommendations



YouTube Recommendations



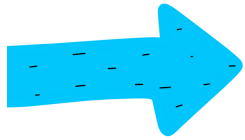
Google Maps



Self-driving Car



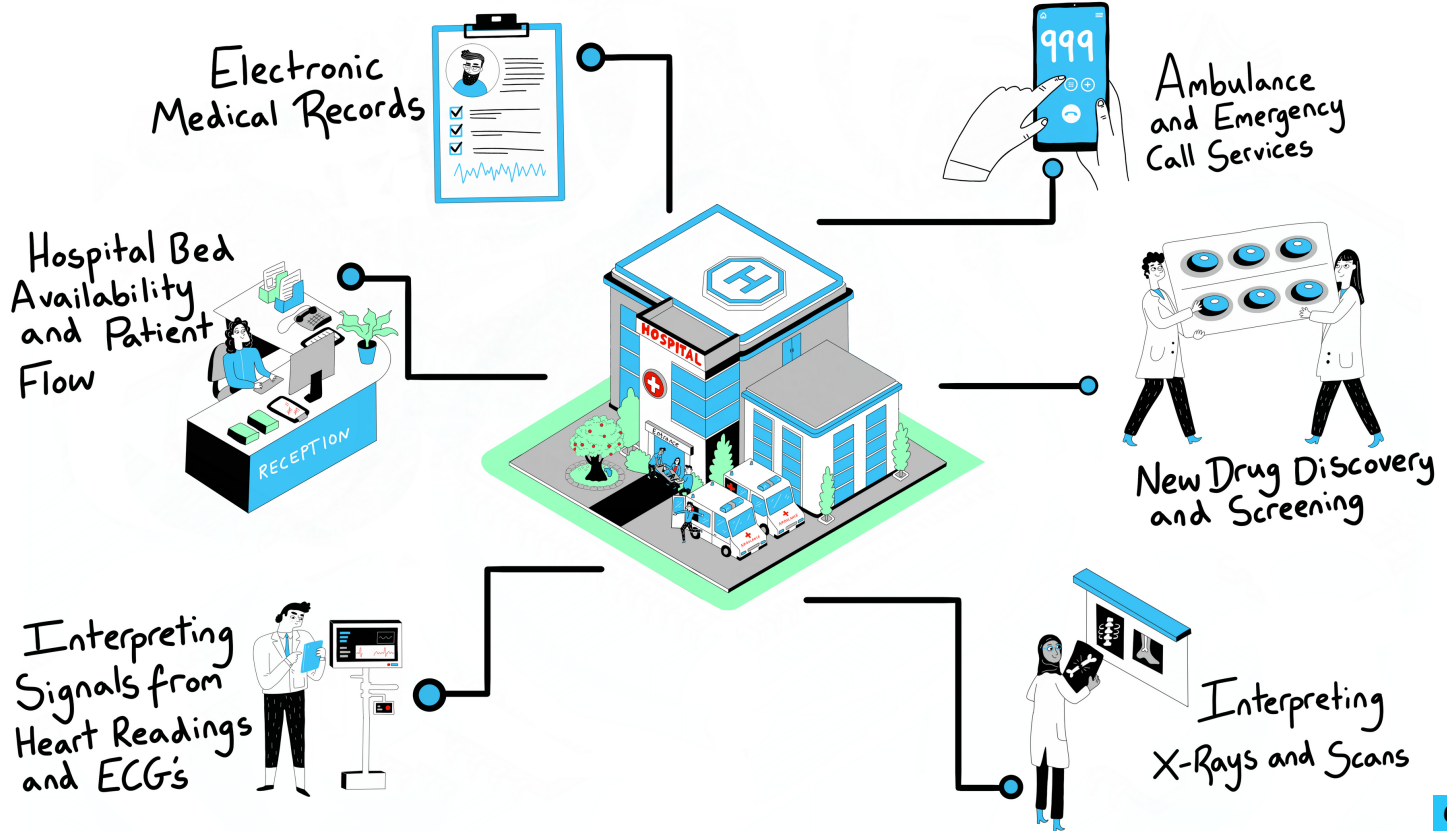
Fraud Detection



# AI IS ALSO USED IN HEALTHCARE

## Helping you when you need it most

See a new AI healthcare project on the next page...



# 1 THE PROBLEM

DENGUE IS AN INFECTION YOU CATCH WHEN AN INFECTED MOSQUITO BITES YOU



- o fever
- o vomiting
- o eye pain
- o headache
- o rash
- o muscle pain
- o joint pain
- o bone pain

96 MILLION CASES EACH YEAR

32 MILLION OF THESE REQUIRE HOSPITALISATION

THAT'S THE SAME AS 1 IN 2 PEOPLE NEEDING URGENT CARE EVERY YEAR IN THE UK!

Dengue is Global!



This Project is focused on Vietnam

# 2 THE ISSUE

IT IS DIFFICULT TO PREDICT WHO WILL DEVELOP SEVERE DENGUE



SEASONAL EPIDEMICS CAN QUICKLY OVERWHELM HEALTHCARE SERVICES



# THE PROJECT

... also known as ...  
" INNOVATIVE BIOMEDICAL ENGINEERING AND COMPUTATION SCIENCE TO IMPROVE THE MANAGEMENT OF CRITICAL ILLNESS IN RESOURCE-LIMITED SETTINGS "

big science words

# 3 THE SOLUTION

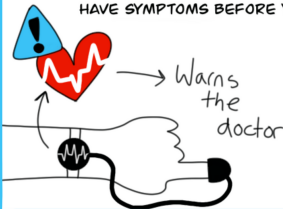
KILLING ALL THE MOSQUITOES IS IMPOSSIBLE!



INSTEAD WE NEED TO FOCUS ON IDENTIFYING WHO IS THE MOST SICK SO THEY CAN GET HELP FIRST.

# 4 BUT HOW?

WEARABLE AI TECHNOLOGY THAT CAN MONITOR YOUR VITAL SIGNS AND NOTICE WHEN YOU HAVE SYMPTOMS BEFORE YOU DO!



Warns the doctor

The technology must...

- 1 BE CHEAP TO MAKE AND LOW COST
- 2 BE BUILT TO LAST AND DURABLE
- 3 BE EASY TO USE!

# 5 THE IMPACT!



- PEOPLE GET TO THE HOSPITAL QUICKER
- THE TOOLS HELP CLINICIANS MAKE DECISIONS ABOUT WHO TO TREAT FIRST FASTER

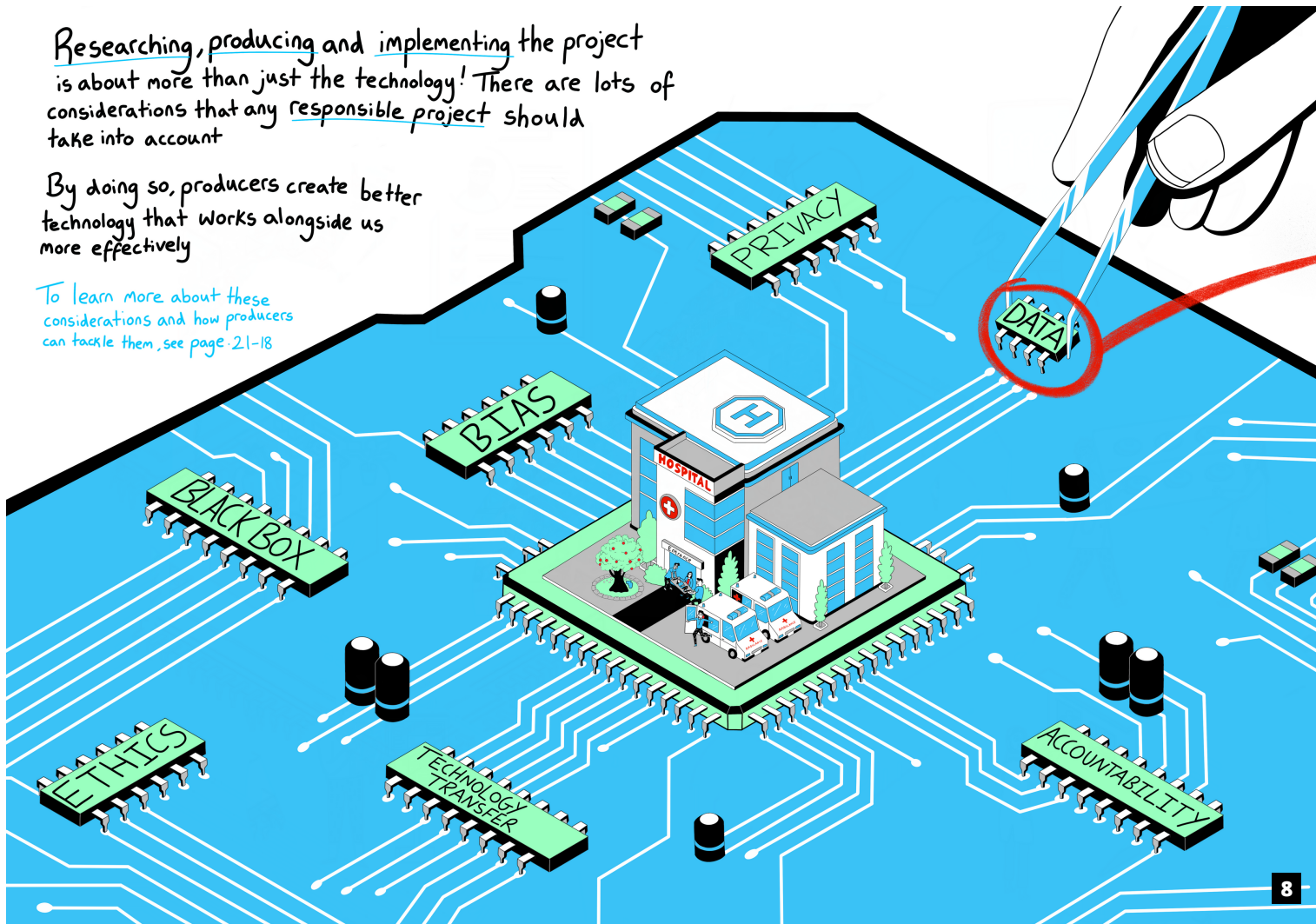
THIS SAVES MORE LIVES BY HELPING DOCTORS ALLOCATE MORE RESOURCES TO PATIENTS AT RISK OF DEVELOPING SEVERE DENGUE



Researching, producing and implementing the project is about more than just the technology! There are lots of considerations that any responsible project should take into account

By doing so, producers create better technology that works alongside us more effectively

To learn more about these considerations and how producers can tackle them, see page 21-18



It's important to know

# WHAT HAPPENS TO YOUR DATA?

once it's collected

Whenever you go you leave a trail of data



- 2 With your permission some can be collected
  - Agree to terms and conditions
  - Accept Cookies

- 3 Healthcare data collection has lots of rules in place to protect your privacy

## PERSONNEL DATA



Random ID: No. 37249E

NAME: [REDACTED]

Age Range: 20-30

DOB: [REDACTED]

SEX: M

Accepted Terms and Conditions

**CONFIDENTIAL**  
Authorized Personnel Only

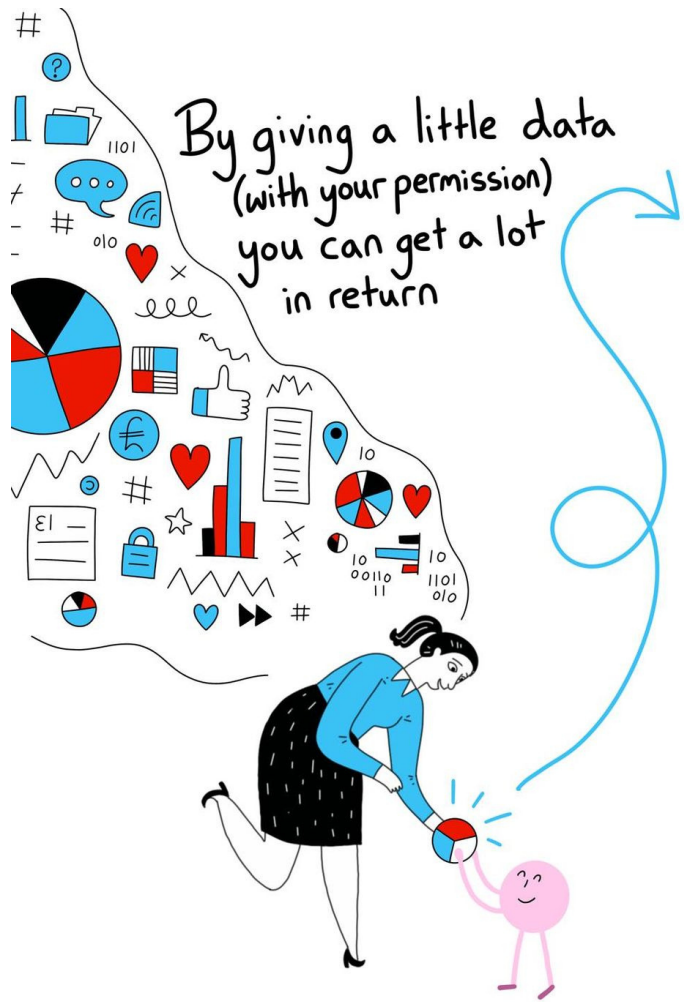
Store data for 3 months only

See which regulations producers have to follow on page.

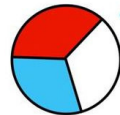
- 4 BUT REMEMBER other companies and industries may not be as strict as healthcare



By giving a little data  
(with your permission)  
you can get a lot  
in return



Your data helps AI learn and grow  
to make technology that's useful for you



Pick Your Technology



Google Maps



Voice Recognition



Video Recommendations



Wearable Technology  
(this project!)

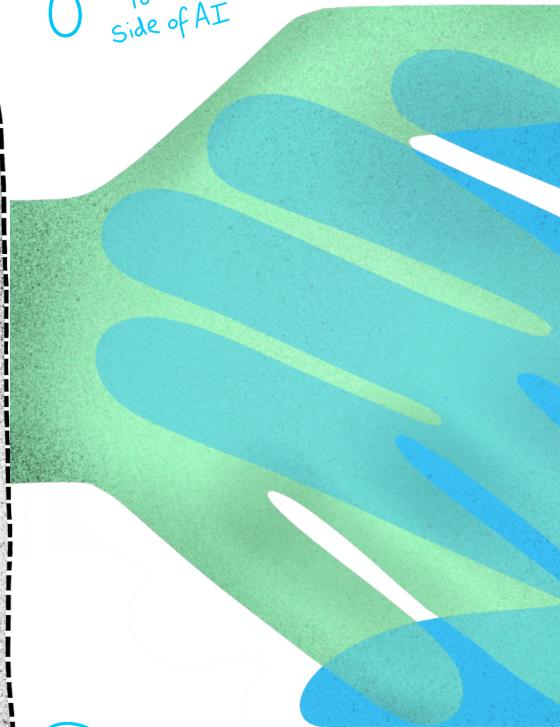


# THINGS TO REMEMBER

For those that use AI

- AI is a rapidly developing field where the technology can be used in lots of different ways
- AI is not here to harm but to work alongside people and help
- You probably use AI everyday! It's already a big part of our lives and will continue to be
- Don't believe everything you hear or read! If in doubt fact check and ask questions
- Be aware of how your data is used and consider what permissions you are comfortable with
- Humans are an essential part of the development of AI and
- therefore your opinion matters! Be curious, ask questions and get involved!
- Learning about your role in the development of AI is one of the most important things you can do (you've already done this by picking up this booklet!)

Turn and Flip  
to read the other  
side of AI



Cut me out  
and put me somewhere  
you can see :)



# THINGS TO REMEMBER

For those that produce AI

- Think about who you are as a researcher, factor in your own opinions, bias and perspectives to be a responsible innovator
- Utilise a diverse and interdisciplinary team
- Tackle meaningful real world problems
- Start conversations with the public and communicate your work in meaningful ways that aim to clarify complex information (like this zine!)
- Adopt good machine learning practices including using appropriate data, tackling bias and analysing the black box as best you can
- Evaluate systems in defined intended populations and real scenarios
- Establish a process and structure around an AI tool for seamless deployment, regular assessment and appropriate usage

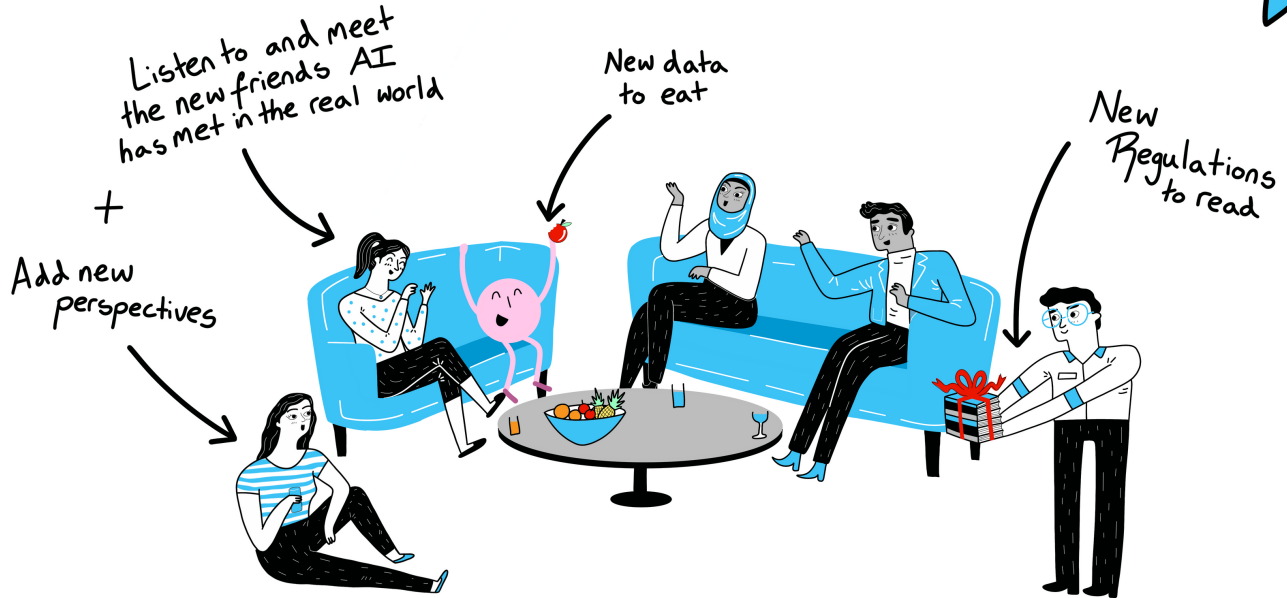
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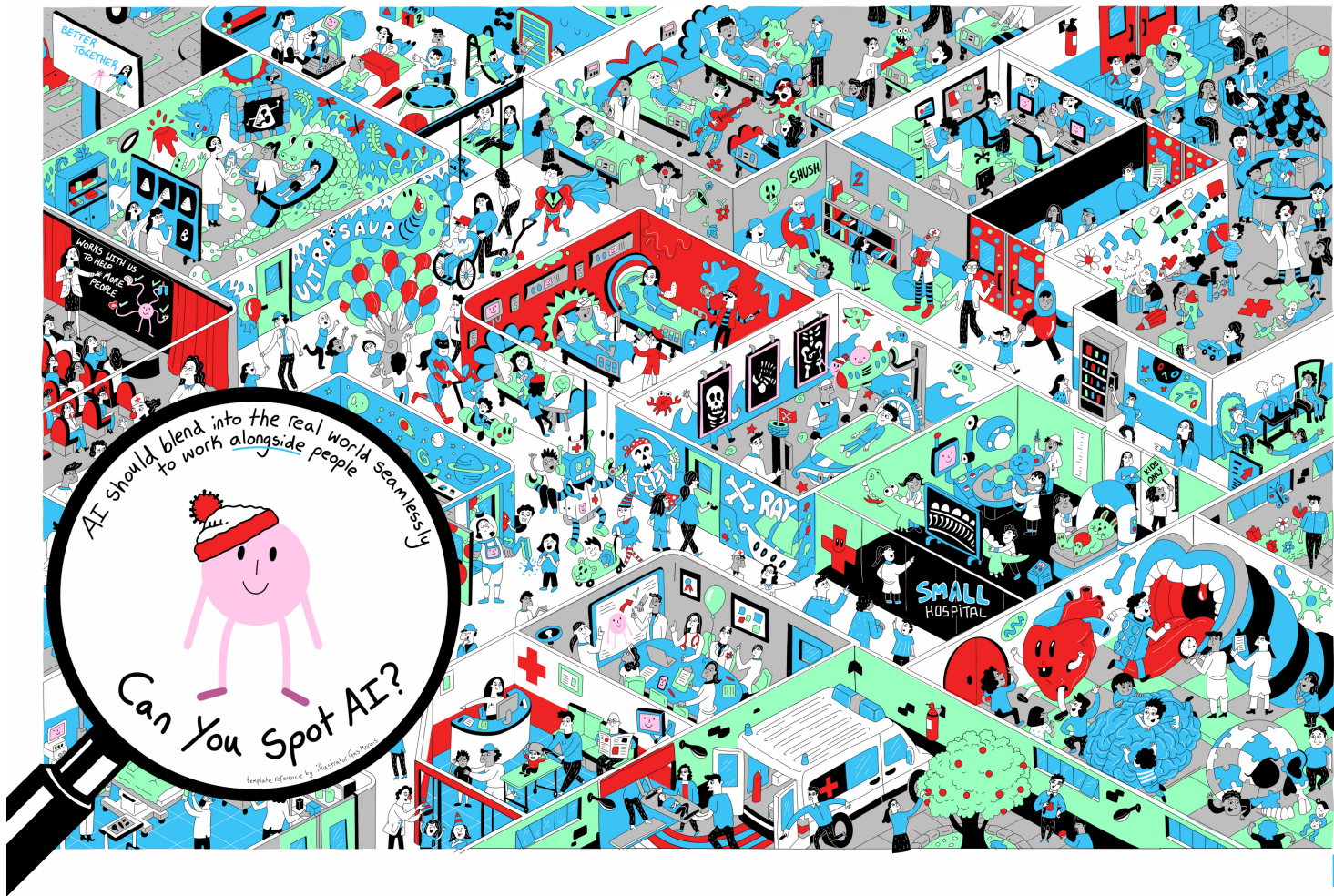
You can't leave AI all alone in the world!

Make sure to check in regularly to make sure AI is functioning well and is up-to-date

1 YEAR REUNION







# HELLO WORLD!

Listening to the voices and opinions of the people who will be using your technology is important to ensure that your AI will help people AND they actually want the help you're providing

So introduce AI to your friends!

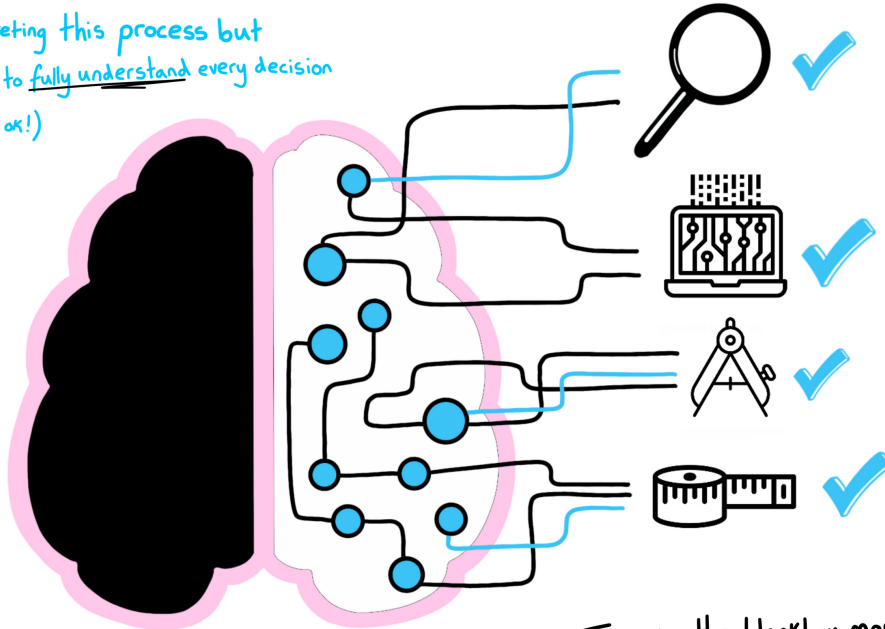


# BUT WHAT IS THE BLACKBOX?

AI makes decisions based on what it already knows – in other words, the training, diet and perspectives it has been fed. This lets AI make decisions, but sometimes the reason WHY AI has made a decision is hard to understand!



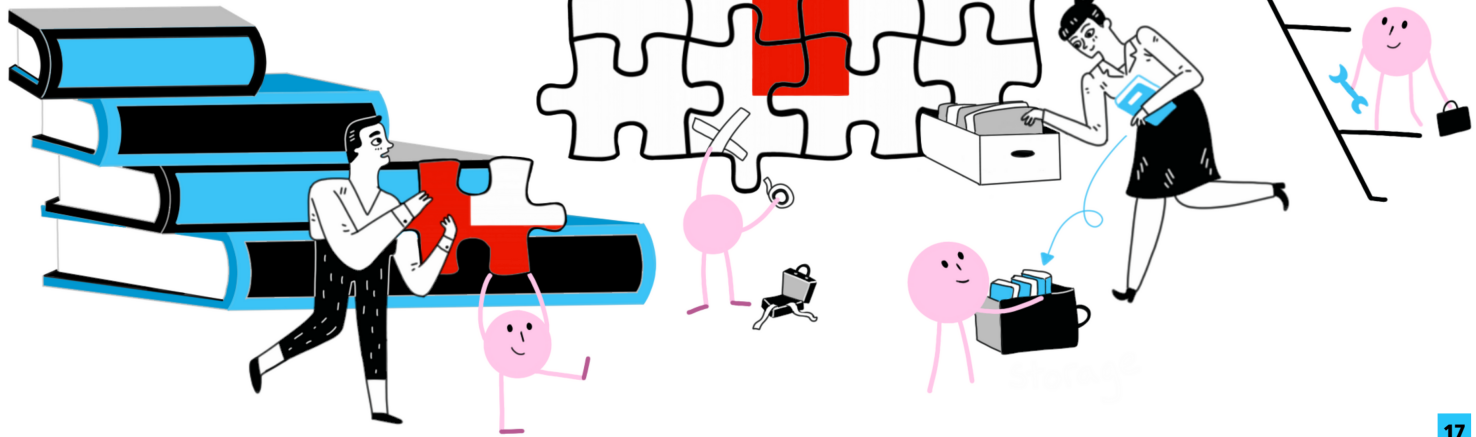
There are ways of interpreting this process but sometimes its not possible to fully understand every decision AI makes (but that might be ok!)



To make the blackbox more transparent, use as many relevant measuring methods as possible. This gives you a more complete picture of WHY AI is deciding to use the tools at its disposal in the way it has chosen to

Trained AI works alongside people to make tasks easier, quicker and better by using a range of tools.

AI uses its brain (all of the tools at its disposal) to make a decision. If we don't understand WHY AI has made a decision we need to tackle the blackbox





# ARE YOU REGULATION READY?

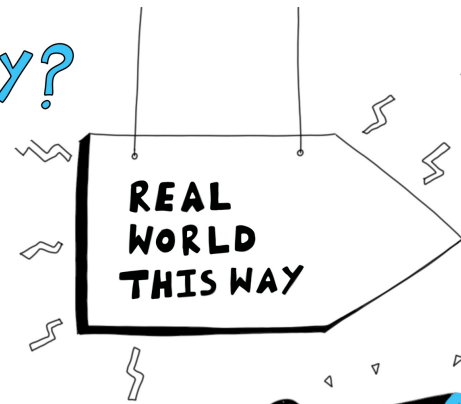
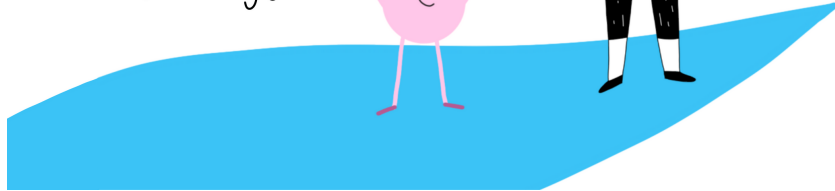
To introduce AI to the world make sure to follow relevant regulations



Remember, regulations don't stop you, they guide you into the world, making your AI well rounded and robust by pointing out things you may not have considered



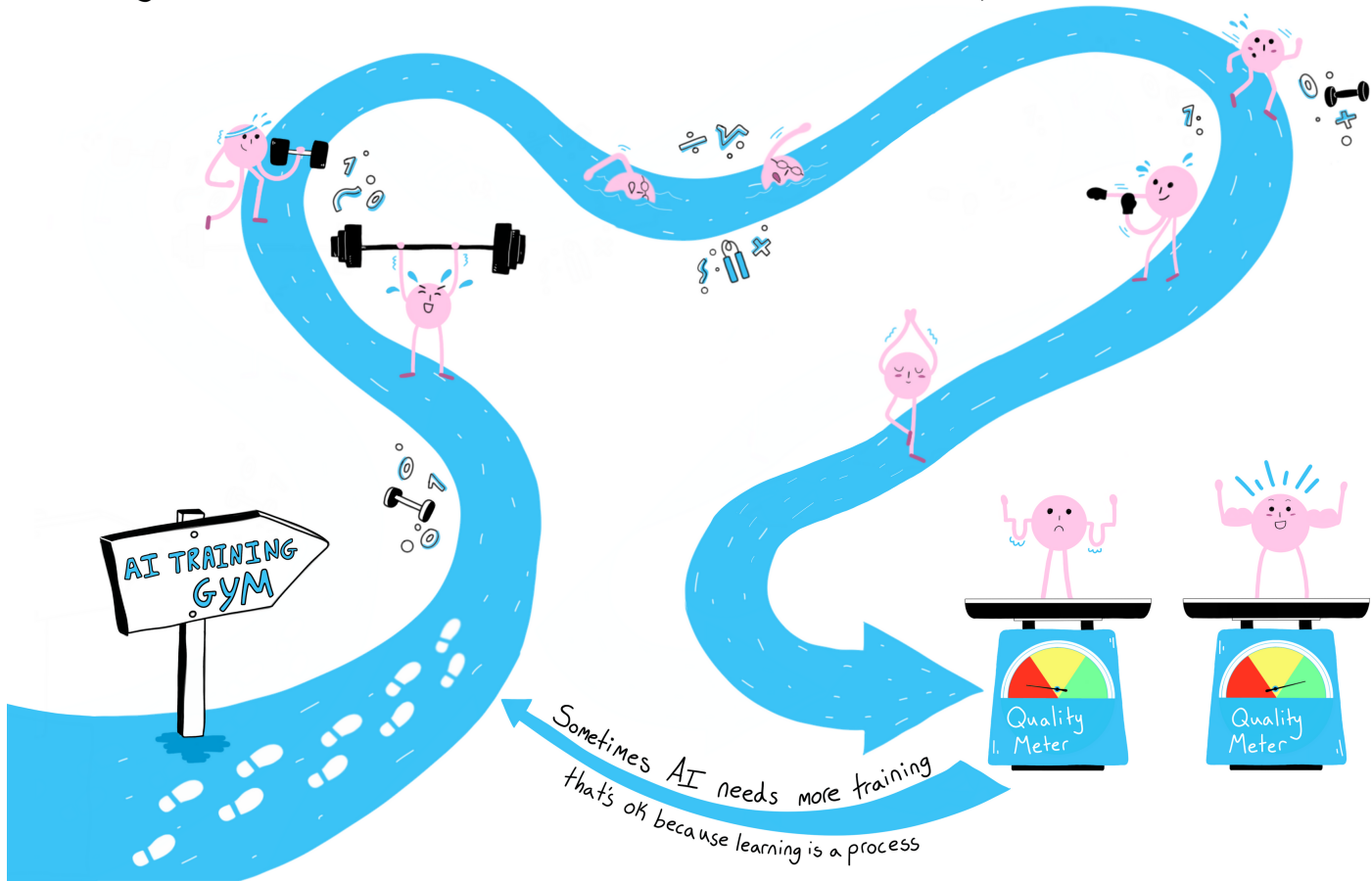
Stay up-to-date on the latest regulation changes



Mind the Implementation Gap!

# AI NEEDS RIGOROUS TRAINING TO LEARN

Going through different tests ensures it's up to scratch to help in the real world



# LETS GO ON A LITTLE JOURNEY..

Like humans AI needs to grow and develop

Don't worry if AI stumbles at this point, like a toddler AI is learning how to walk — give it time

## THE AI DIET

Just like children, AI needs a healthy balanced diet to get all the nutrition it needs



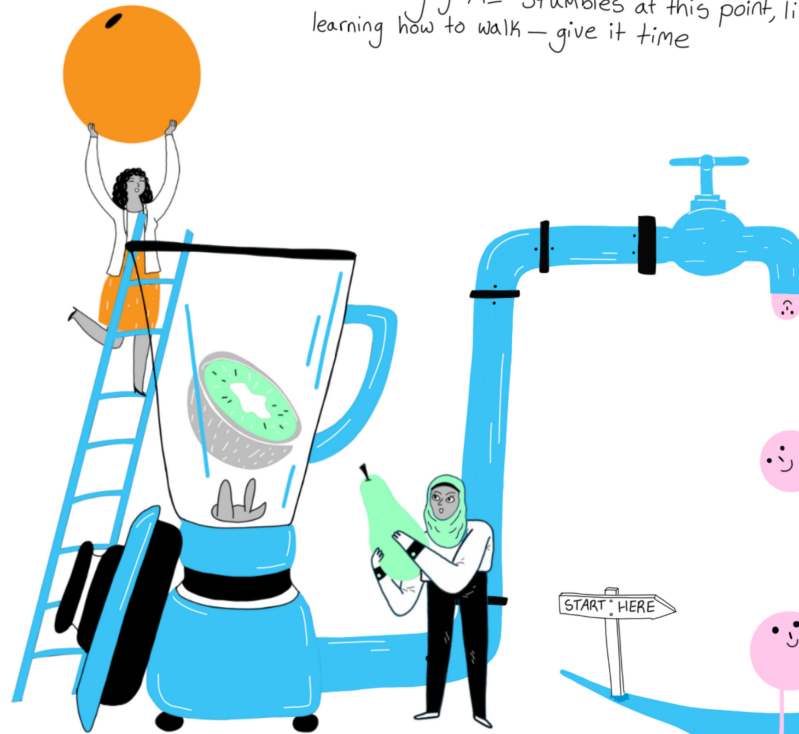
Different types of data  
from different places  
for a balanced output



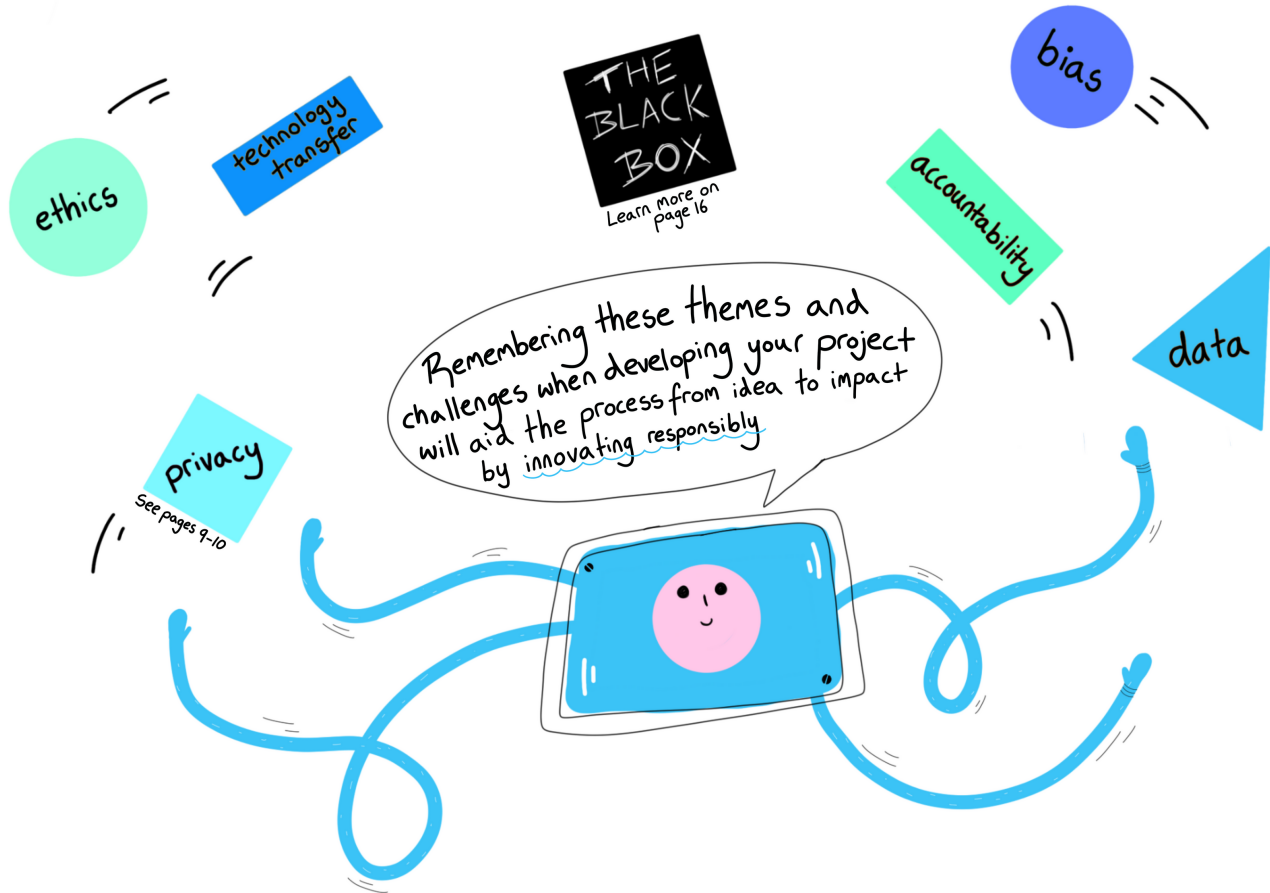
Different perspectives to  
avoid unintentional bias.

Developing AI is all about  
helping it to walk before you try and run!

Be a good parent to AI ❤️



# AI CONSIDERATIONS ARE BROADER THAN YOU THINK





THIS ZINE WILL  
HELP YOU GET  
STARTED



It all starts  
with who you are  
as a researcher

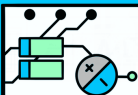
AI in healthcare is on the RISE!

## Anatomy of a Researcher



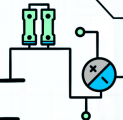
- Thinks like a responsible innovator
- Talks with others who have varied perspectives
- Lends a helping hand by focusing on REAL WORLD problems
- Digests all relevant information carefully
- Does no intentional harm

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**Holly Worrall**  
Project Lead, Illustrator  
and Copy Writer  
[in](#)@HollyWorrall

**Anjana Nair**  
Copy Writer and Content  
Researcher  
[in](#)@AnjanaNair

**Charlie Delikan**  
Content Researcher

## Contributing Scientists:

**Damien Ming**  
Clinical Researcher  
[d.ming@imperial.ac.uk](#)

**Will Bolton**  
Artificial Intelligence Researcher  
[will.bolton@imperial.ac.uk](#)  
[in](#)@WillBolton

**Bernard Hernandez**  
Machine Learning Data Engineer  
[b.hernandez-perez@imperial.ac.uk](#)  
[in](#)@BernardHernandez

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Scan to learn more  
and stay up-to-date

