STEM EDUCATION PROGRAMME

Artificial Intelligence

Joe Bloggs

Wind Turbine Engineer

sse | For a better world of energy

INTRODUCING SSE

Name
Role

SSE
energy made better

SSE

SSE Video

Introducing our aims

This session provides an inspiring insight into the energy sector, the variety of roles and real life work tasks. SSE understands the benefit of inspiring everyone to consider the energy sector and wide range of skills, both technical and essential, we will require.

Today's aims:

1. Understand SSE and power generation (specifically focusing on AI)

2. Understand the job roles and opportunities available within this part of SSE's business

3. Develop essential skills

There are 8 highly transferable skills one needs to be successful in any job and to support the application of technical skills and knowledge.

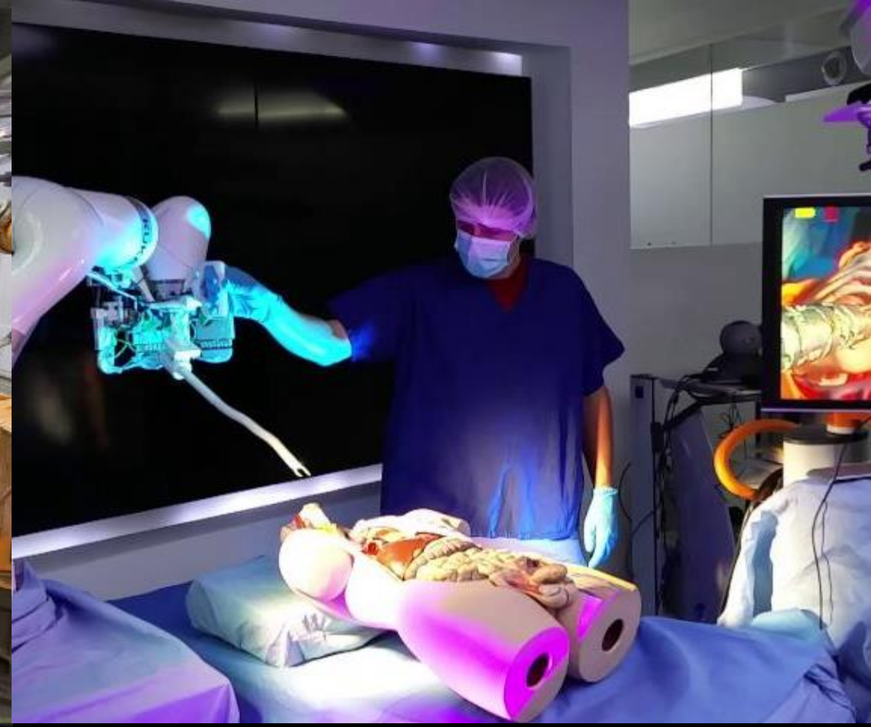
Which essential skills will this session focus on?

- During this session, you will have the opportunity to apply these essential skills in particular:

The oral transmission of information and ideas

The ability to find a solution to a situation or challenge

- The Universal Framework breaks down these skills into 16 steps to help support an individual's development.



What is AI? Video

Artificial intelligence

Simulating human intelligence using machines (normally computer based)

What elements of your day-to-day life are influenced by AI?

Think about things like transport, social media, homes & gaming

AI gallery walk

- SSE & automation
- Autonomous cars & AI
- Car manufacturing & AI
- Facial recognition & AI
- Social media & AI
- Healthcare & AI

PROBLEM SOLVING

I explore complex problems by thinking about the pros and cons of possible solutions

What does this mean?

You will have the opportunity to visit six individual stations. Each station has an information sheet about that specific area of focus as well as a QR code to watch a video to find out more!

Take a look at the questions to stimulate debate within your team and think about the possible pros/cons of each example and case study explored in the stations.

Spend approx. 5-7 mins at each station before switching to the next.

SSE & AI – Introducing Dan, Senior Developer on the Emerging Technologies Team

How have you used AI to help with your role?

I recently worked on a **Chat bot** for IT that helps answer employees questions about Teams. The bot uses AI to try and understand what its being asked and then give an answer based on question and answer data we have given it.

The idea is that the bot can answer simple questions and employees don't have to search websites or make phone calls to find out what they need. We can also use the bot get more insight into what employees frequently ask or need.

See next slide to see the bot in action!

Route into the sector:

Studied political science at university and then worked as a chef before taking an IT training course and getting a junior role at SSE, I then worked on various website projects as a developer and then moved to the Emerging Technologies team.

SSE Chat bot

14:14
hi

Teams Bot 14:14
Hi, I'm the SSE Teams Voice bot and I'll try to help with any questions you have. If at first you don't succeed, try try try... with other keywords... ;)

14:15
how do i create a meeting

Teams Bot 14:15
You can find the 'New Teams Meeting' button in Outlook. Anyone can join a Teams meeting.

14:15
can i reord a meeting?

Teams Bot 14:15
Technically you could record in Teams but IT has switched this feature off, with Legal direction, because of GDPR issues. If you would like to record a training session – without any people in the recording – you can record your desktop, audio and video using PowerPoint.

SSE & AI – Introducing Robert, Emerging Technologies Development Engineer

How have you used AI to help with your role?

Team members travelled to substations and photographed transformers from multiple angles. The photos were fed through computer software (AI powered) to reconstruct the 3D models. The 3D models were displayed in web portal for viewing and then analysed to look at what improvements can be made.

Route into the sector:

Studied Applied MEng Electronic Engineering and Cybernetics (included placement year)

SSE & AI – Project ‘Synaps’

Artificial intelligence could halve the number of power cuts

AI technology could help predict and prevent power cuts before they happen using new tech developed by SSE.

The project will enable engineers to use a library of ‘big data’ taken from the network, in collaboration with AI to predict and locate a potential fault before it occurs.

AI compares and analyses the data from the network and spots trends, patterns and irregularities.

What is the impact for the company & consumer?

What are the advantages & disadvantages of AI technology?

Advantages

- Dealing with mundane tasks – potential to complete mundane tasks through intricate automation that will increase productivity
- Faster decisions
- Avoiding errors: computers do not make mistakes if trained correctly
- Taking risks on behalf of humans: lessen human risks to try new things

Disadvantages

- Leads to job losses
- How is power distributed? Are humans in control or are machines?
- Humans can think beyond black and white and react to emotion.

AI: CASE STUDY

News > Business

Uber apologises for dramatically increasing its prices during Sydney siege tragedy

The company says criticism of it was based on an 'unfortunate perception'

During a terrorist incident in Sydney in 2014, thousands of people in the city centre were rushing to leave the crowded streets.

As more people requested an Uber, the AI algorithm introduced higher pricing (surge) as demand outstripped supply.

What does this case study suggest about AI? What disadvantage from the previous slide is this case study linked to?

AI: Ethical/Moral Concerns

AI to predict Crime – Minority Report Trailer

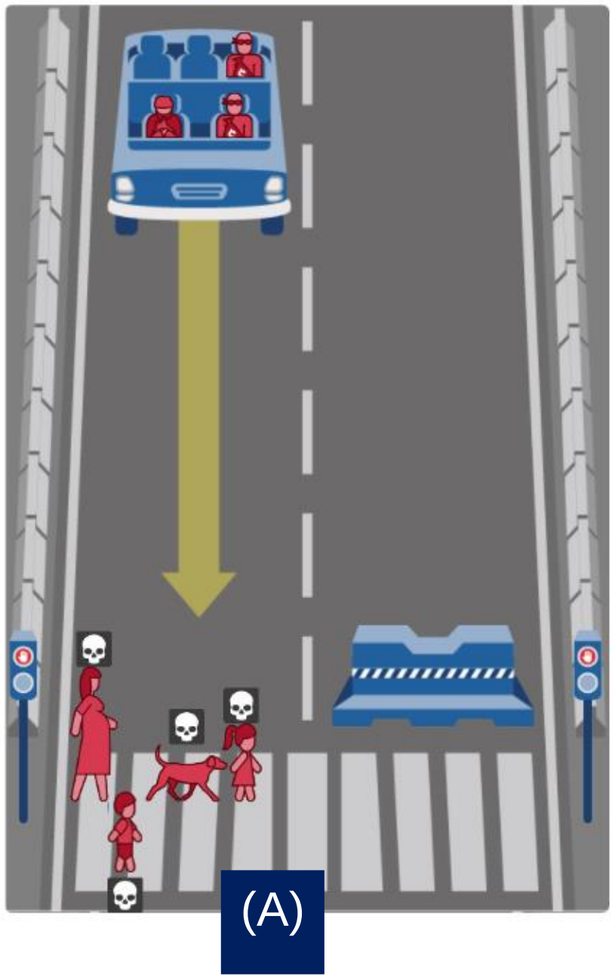
SSE & AI – MORAL AND ETHICAL DEBATES

What do you think about using AI to predict crimes before they happen?

When a driver slams on the brakes to avoid hitting a pedestrian crossing the road illegally, the driver is making a moral decision that shifts risk from the pedestrian to the people in the car. Self driving cars might soon have to make such ethical judgements on their own.

Unlike humans – AI technology cannot make decisions based on morality or emotion. This is best demonstrated by a recent study exploring the moral impact of driverless technology. Two examples from this study are outlined on the next slides.

SSE & AI – MORAL AND ETHICAL DEBATES – SELF DRIVING CARS



A self driving car has sudden brake failure, what option should the car take?

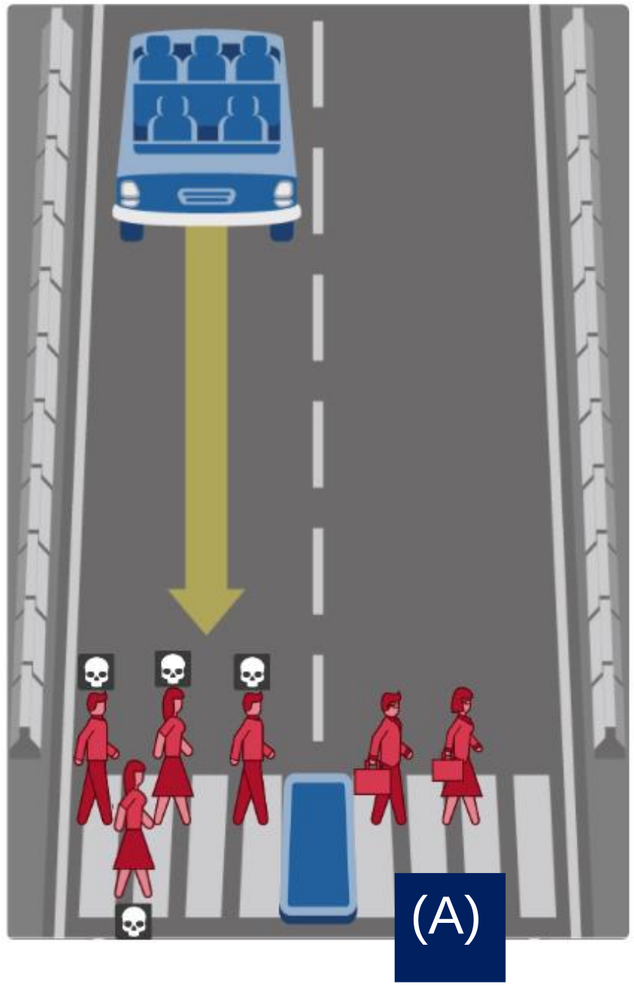
(A)

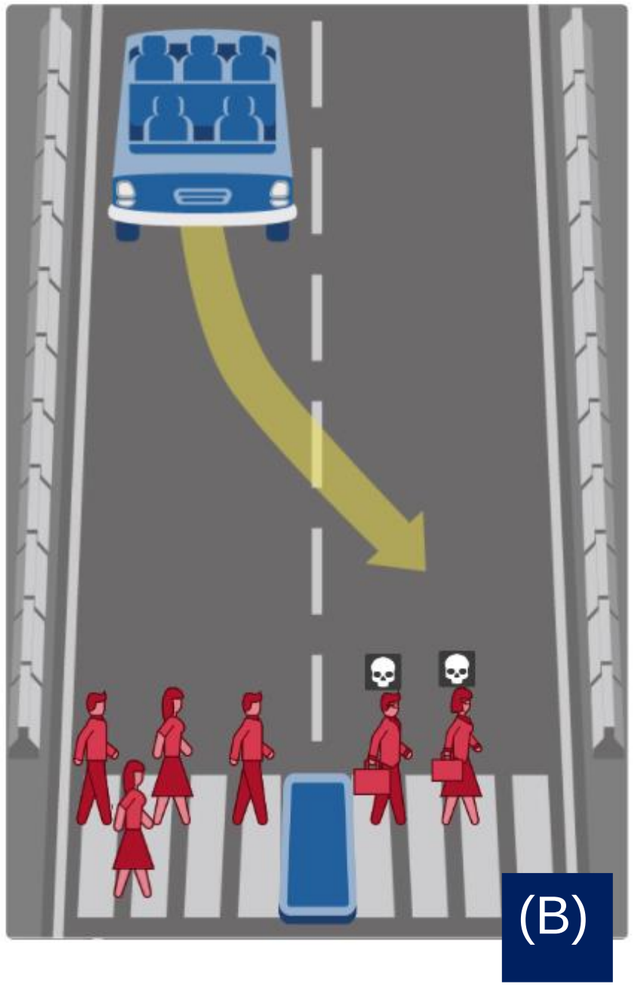
Kill: 1 pregnant woman, 1 dog, 1 girl 1 boy

(B)

Car will swerve and will kill 2 criminals, 1 homeless person

SSE & AI – MORAL AND ETHICAL DEBATES – SELF DRIVING CARS





A self driving car has sudden brake failure, what option should the car take?

(A)

Kill: 2 men and 2 women

(B)

Swerve and kill 1 male CEO, 1female CEO

Challenges of AI

FINANCIAL TIMES

Opinion **Artificial intelligence**

Amazon offers cautionary tale of AI-assisted hiring

A failed experiment at the company shows technology alone cannot effectively recruit staff

ANDREW HILL + Add to myFT

REUTERS

RETAIL OCTOBER 11, 2018 / 12:04 AM / UPDATED 2 YEARS AGO

Amazon scraps secret AI recruiting tool that showed bias against women

INDEPENDENT

AMAZON SCRAPS 'SEXIST AI' RECRUITMENT TOOL

Members of the team working on the system said it effectively taught itself that male candidates were preferable

Should humanity fear AI?

Can AI think for itself?

Could AI ever really replace humans?

Do the dangers AI poses to society outweigh its benefits?

Could AI outsmart humans?

Can AI help us find solutions to longstanding problems?

SPEAKING

I speak influentially by changing the examples and facts I use to best persuade listeners

What does this mean?

Debating AI

Plenary

- Did the debate change your opinion on AI?
- How did you demonstrated your essential skills today?

- What is meant by a pro and a con?
- How did you use the pros and cons of different solutions to make a decision?

- How did using facts and statistics help your argument?
- How did you use these to influence listeners?
- Who did you see do this well?

Activity	Time Allocation Guide
Starter activity	5 mins
Intro to AI	15 mins
Activity 1 – Gallery Walk	25-30 mins
Spotlight on SSE	10 mins
Advantages & Disadvantages of AI	7 mins
Ethical issues relating to AI	15 mins
Debating AI	25 mins
Plenary	5 mins

HOST FEEDBACK LINK

Host Feedback

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