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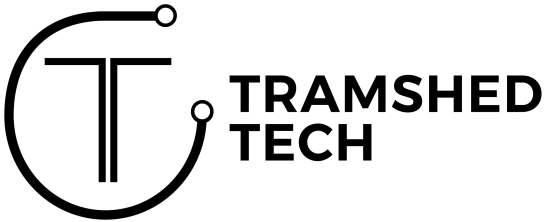

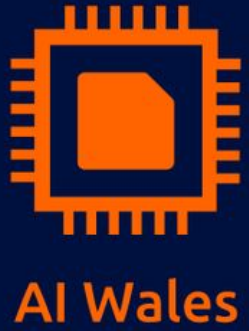

March 2023

AI - What's Going On?

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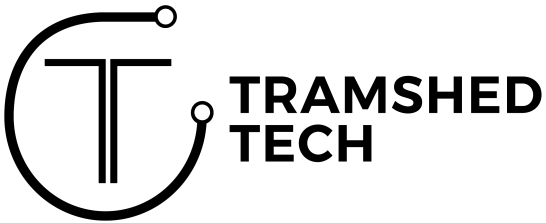
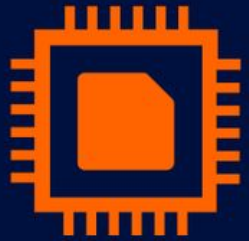


Why and Who are AI Wales?

"A group for technical people who are absolute beginners with artificial intelligence. We'll be holding talks, training sessions and hands-on workshops covering an array of AI-related topics, such as machine learning."

Organisers: Jaymie Thomas, Salman Iqbal, David Pugh

Twitter: @ai_wales #AIWales



Agenda:

- AI What’s Going on?
- AI-Powered Customer Experience with Amazon Connect

What's going on?

Generative AI

In the last few years focus has been on automating routine tasks.

Now AI is tackling creativity - using existing data to create new artifacts

- Text - ChatGPT, GPT-3 can produce large volumes of relevant and contextual machine generated data
- DALL·E and Stable diffusion - creating images from text descriptions

Used creatively and to also generate synthetic data for businesses

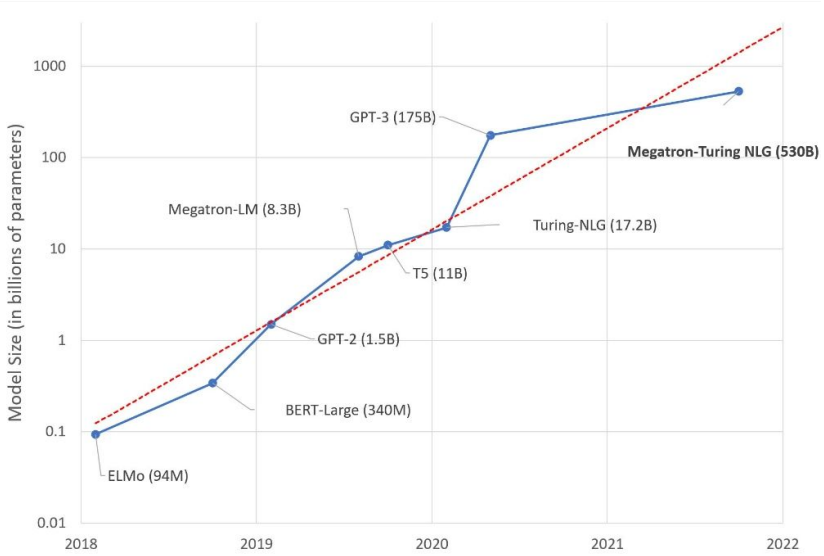
Caught mainstream attention with DeepFake Videos and Metaphysic act in America's Got Talent

https://agt.fandom.com/wiki/Metaphysic?file=Simon_Cowell_Sings_on_Stage%253F%2521_Metaphysic_Will_Leave_You_Speechless_-_AGT_2022

https://www.youtube.com/watch?v=Ml4abykVBGs

Natural Language Programming

- Investment and research continues to grow alongside enhanced computation and dataset availability
- Model size grows significantly
- Starting to see some traction:
  - conversational AI and chatbots improving (and being used more)
  - automated text generation
  - voice biometrics



1. https://huggingface.co/blog/large-language-models

Natural Language Programming

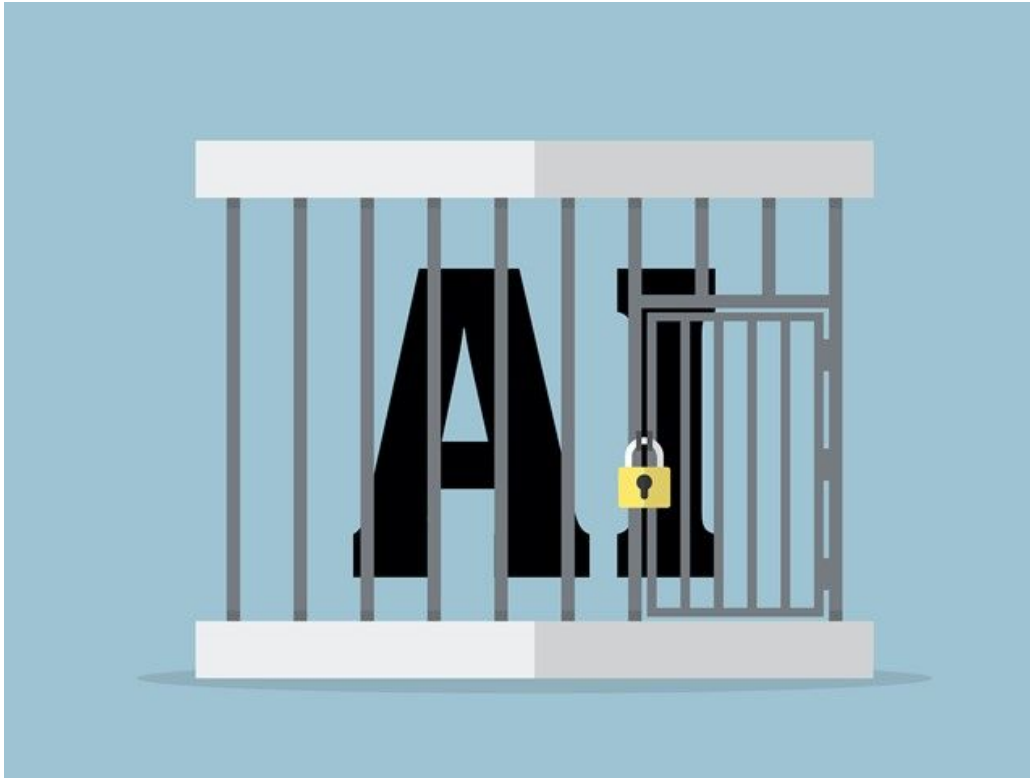
Key areas

- Virtual assistants
- Sentiment Analysis (customer issue handling, engagement metrics, employee satisfaction)
- Multilingual Language Models
- Named Entity Recognition (improved annotation, trend extraction)
- Language Transformers (sector specific)
- Transfer Learning (improved models at lower cost)
- Text Summarisation

Starting to see these technologies improve -> including companies providing these as a service

Democratisation of AI

- AI tools and services are becoming more readily available
- No-code and low-code platforms readily available
- Allowing domain experts to solve real problems with little or no technical skills

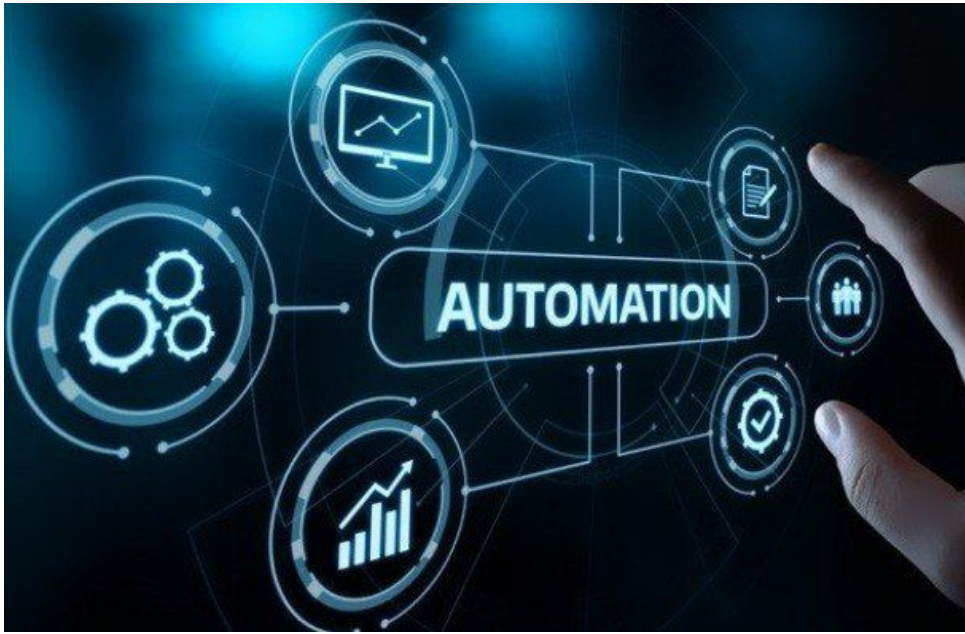


Cloud Support

- All main Cloud providers continue to develop and evolve their data processing and AI capabilities
- Seeing many services evolve, improve and change
- Hope to give an overview over the next few months - including later on tonight!

Intelligent Automation

- combining AI with Robot Process Automation (RPA) can be used to automate business processes
- e.g., things like NLP to understand customer needs and machine learning to help make recommendations and decisions



Automate your shopping?

The future(s) of unpaid work: How susceptible do experts from different backgrounds think the domestic sphere is to automation?

https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281282

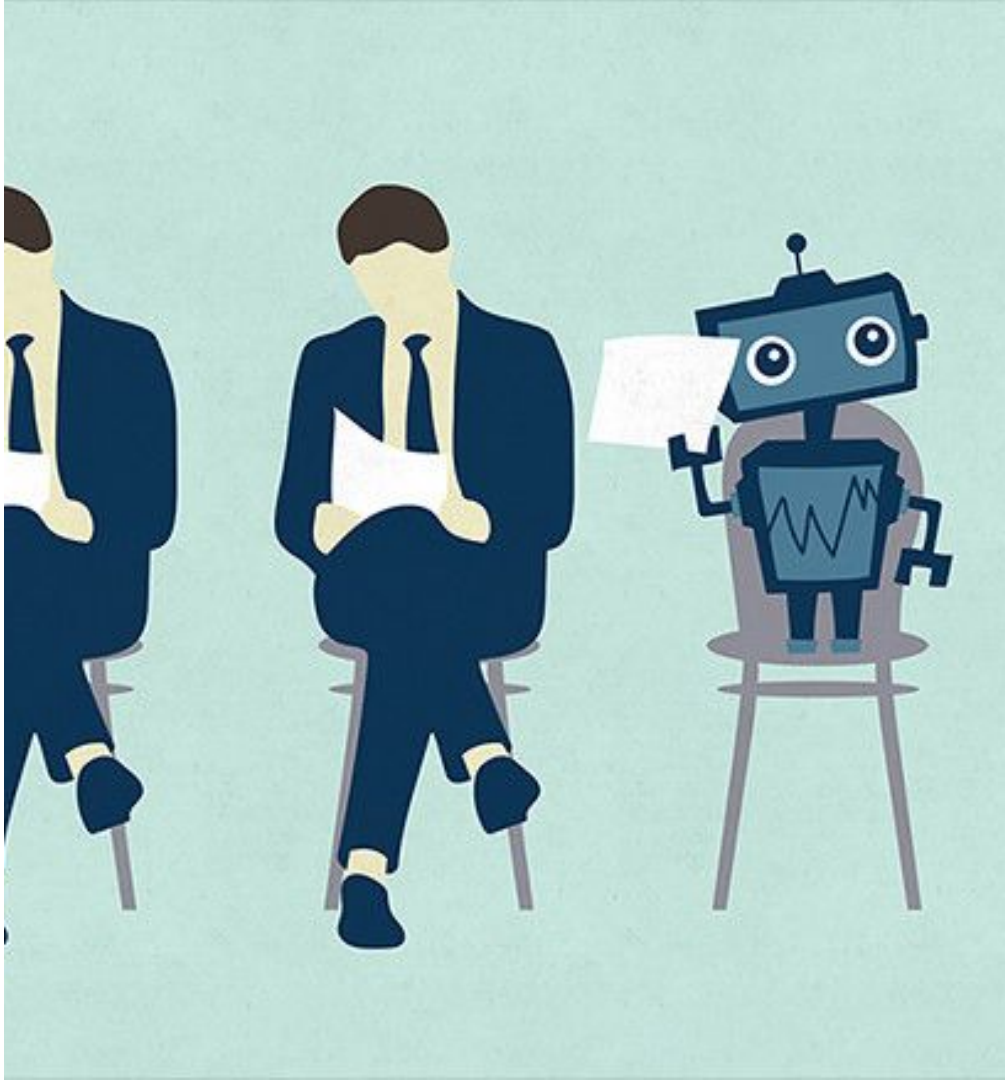
- “Our study with technology experts in the UK and Japan find that in 10 years’ time, domestic automation could reduce the amount of time spent on current housework and care work tasks by 39%.”
- Especially important for countries with a top-heavy ageing population

Automate your shopping?

- estimates varied significantly between tasks, with the most automatable task predicted to be grocery shopping (59%). The least automatable task was physical childcare (21%). UK-based experts believed automation might replace more domestic labour (42%) than Japanese experts (36%). The authors suggest this may be because, in the UK, technology is associated more with labour replacement compared to Japan.
- UK male experts tended to be more optimistic about domestic automation compared to UK female experts, which falls in line with previous studies showing that men tend to be more optimistic about technology than women in general. However, this trend was reversed for Japanese experts, with female experts being slightly more optimistic; the authors consider if the Japanese gender disparity in household tasks plays a role in these results.

AI and Job threats

We have always spoken about the threat of AI and technology replacing jobs - with the advent of more powerful and accessible text and image generators, is this now becoming a reality?



Automate your articles?

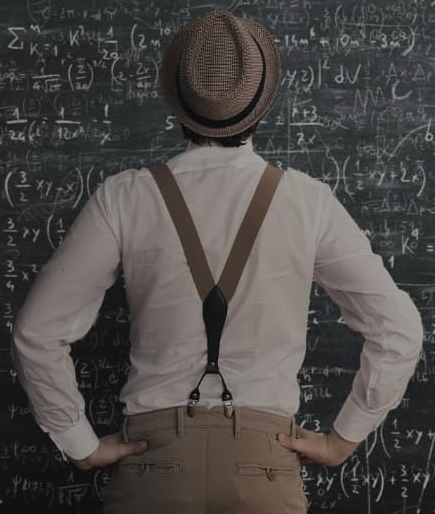
Experimental Evidence on the Productivity Effects of General Artificial Intelligence, Noy and Zhang Working Paper

450 professionals completed a typical dayjob writing task, with some having access to chatGPT

- those with access to chatGPT showed a 37% faster completion of tasks, better ‘quality’ (assessed by independent readers)
- quality increased more for lower-ability workers -> improving inequality?
- did raise anxiety about technology replacing jobs -> replaces human effort rather than allowing human skills to produce better outputs
- however - currently can’t replace firm specific sensitive data as the models are trained on broad, relatively old data

Some things never change

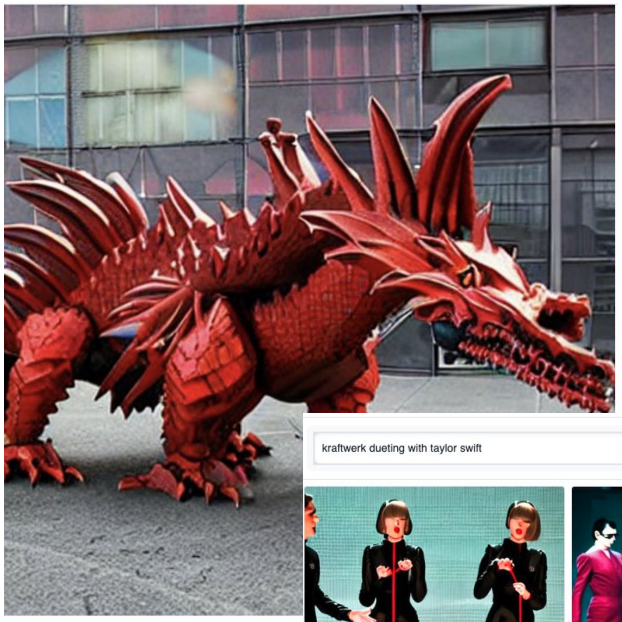
- understand the technology, its strength and limits
- let them do the leg work and focus on where you can add value
- always review and understand the problem you are trying to solve
- we are in a position where views and opinions can influence how technology develops

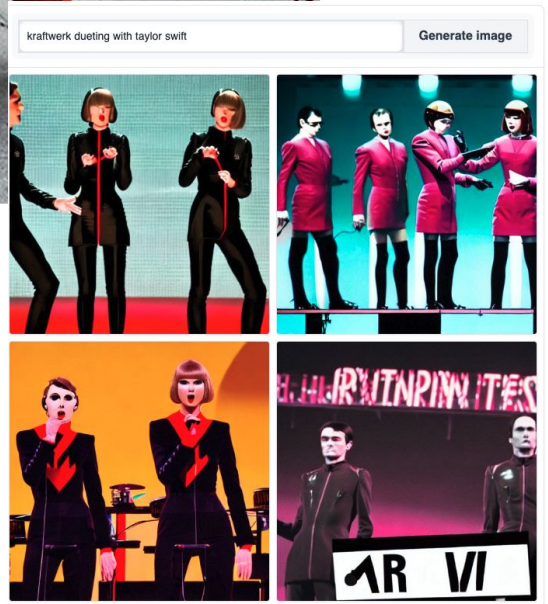


AI Images

AI image generators and manipulators now commonplace

- generating images from text descriptions now quick and easy (https://stablediffusionweb.com/#demo)
- apps allowing image manipulation, eg, filters, portrait manipulators
- quick and easy photograph image manipulation (click someone to remove them)





AI still influences culture

https://www.facebook.com/AishaVaughanMusic/

- Aisha Vaughan releases her EP ‘Novacene’ today.
- Inspired by James Lovelock book about the coming of age of hyper intelligence
- Press release written by AI

Deepfake technology central to plot of major BBC drama “The Capture”

Ethics

- work continues on ethically explainable AI algorithms and approaches
- trust in sharing data
- eliminating and understanding bias and unfairness from automated decision making

Upcoming talks

- Large Language Models - the power behind chatGPT et al.
- Generative AI imagery - the technology behind Stable Diffusion and DALL·E (which created this image →)