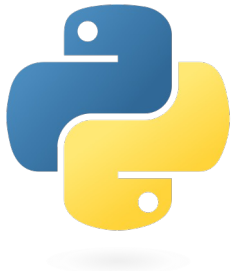


NHS.pycom:
LLM use cases in the NHS

Survey results and discussion

A very useful link

https://github.com/nhs-pycom/generative-ai-hackathon

Background

The NHS Long Term Plan commits to:

“digitally enabled care”

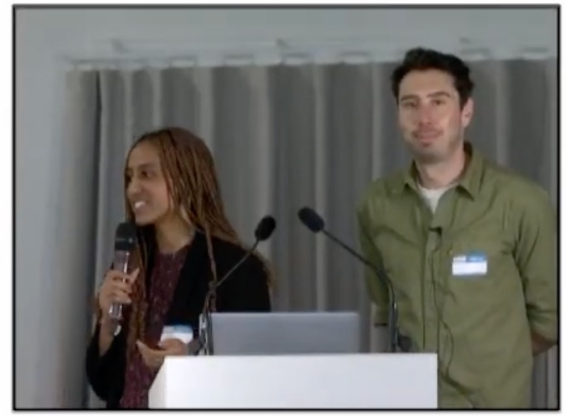
and

“enabling productive working”

In both, AI will play key role

https://www.longtermplan.nhs.uk/

?



Announcing...

NHS Python Community

A Hackathon focused on Large Language Models

We want to hear your ideas!

SCAN ME

Let us know by following the QR code

<----------

Principles

Ideas for a hackathon should be:

- **community-driven**
- **add value** to the NHS / our service users
- **ethical and responsible**
- be **published** publicly @ nhs.pycom/generative-ai-hackathon

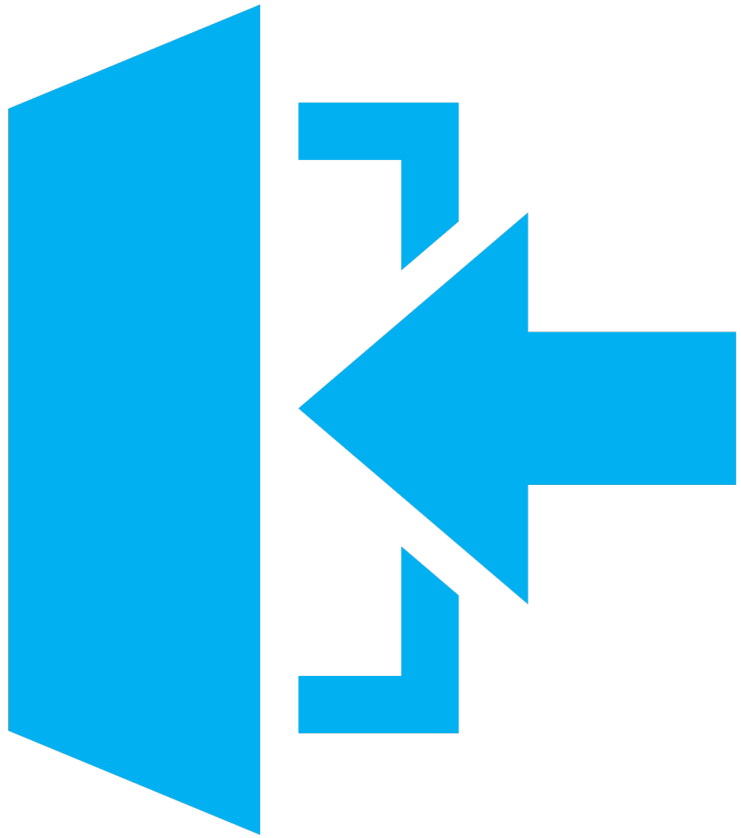
Technical Considerations

Consider:

Any other items to add to these lists?

Inputs

- Images
- Text
- Semi-structured
- Tabular
- Code
- Audio
- Tools
- Knowledge graphs



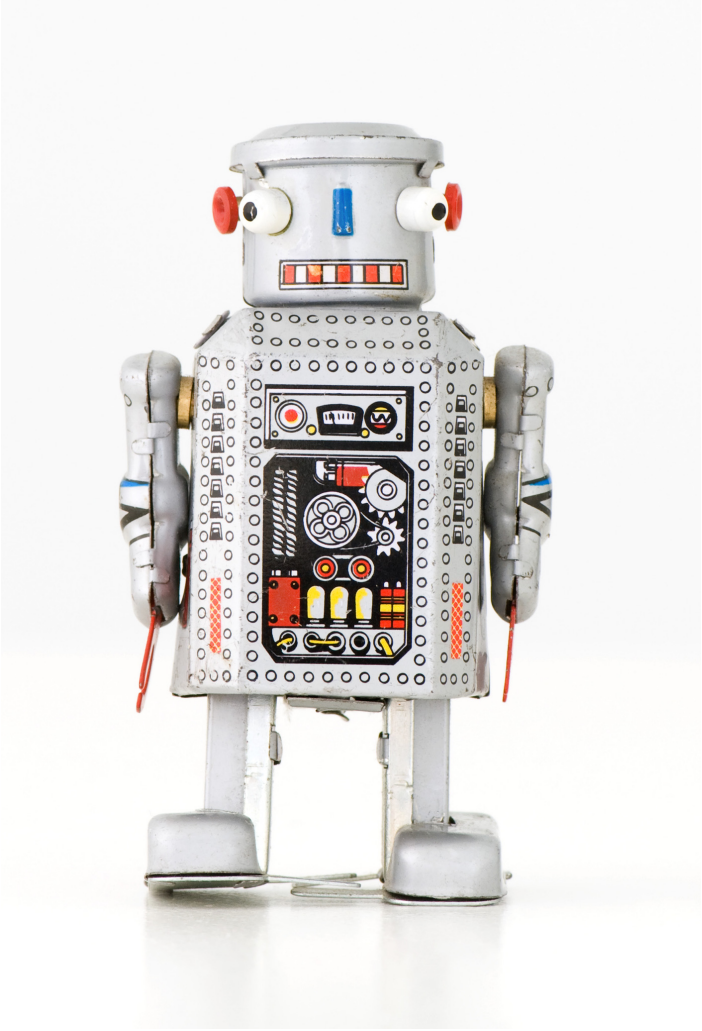
On the Opportunities and Risks of Foundation Models, Bommasani et al. https://arxiv.org/abs/2108.07258

Outputs

- Text
- Images
- Slides
- Code

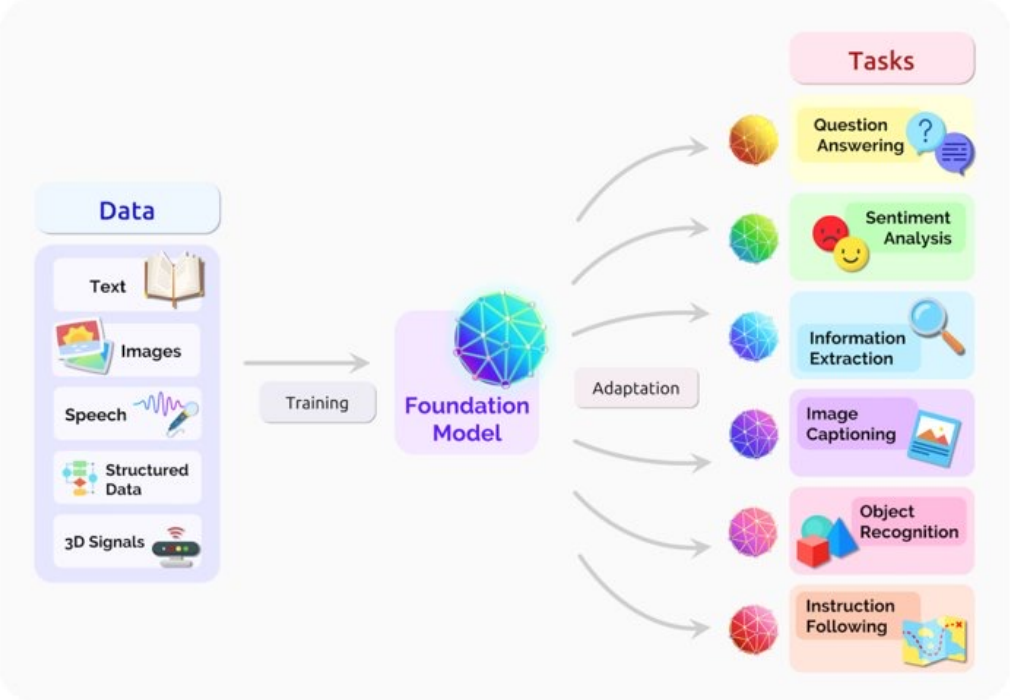
Approaches and Interactions

- Chatbots
- Retrieval Augmented Generation (RAG)
- Agents
- Multi-modal Knowledge fusion
- Text generation
- Training dataset generation



Techniques

- Summarisation
- Question Answering (QA)
- QA over specific knowledge
- Entity extraction + Masking
- Translation



On the Opportunities and Risks of Foundation Models, Bommasani et al. https://arxiv.org/abs/2108.07258

Risks and Challenges

- Privacy concerns
- Trust
- Safety
- Factual Grounding vs. Hallucinations
- Lack of suitable data
- Ethical risks of using certain data
- Bringing human-into-the-loop
- Unknown training data content

Consider:

Any other items to add to these lists?

Discussion + Feedback (10+5 mins)

Community Generated Ideas

Core themes

Productivity

Information Consolidation

Guidance Querying

Automation

Translation

Democratising access

Interacting with systems

Consider:

How might we *(plus...)*

- Expanding current use-cases
- Anything else you want to propose
- Other Themes?

Theme: Productivity

Clinical

13

"Evidence synthesis for rare diseases, with applications for phenotyping and treatment planning."

Non-clinical

11

"An aid to often lengthy performance reporting through a command line tool."

Theme: Information consolidation

Clinical

18

"LLMs could parse clinical notes for signals of: (a) whether a patient is likely to be discharged today and (b) what they are waiting for (contacting family members, packages of care, ordering take-home medication, booking transport, clinical review, lab results, discharge summaries) that is holding them back from vacating a bed."

Non-clinical

5

"A bespoke chatbot for NHS analysts and stakeholders new to Data Science and want to know more specific to their needs"

Theme: Guidance querying

Both Clinical & Non-clinical

2

"Development of a chatbot to help technical leads and developers interrogate clinical techniques and best practices to aid in decision making during the development process."

Non-clinical

19

"Consolidate information on regulation, guidance and standards for NHS staff looking to develop or commission AI products - With the time pressures that clinicians and other healthcare workers have, reducing any time barrier in finding information would be a welcomed endeavour."

Theme: Automation

Non-clinical

3

"1. Methods to prevent the sharing of secure data.
2. Methods to recognise hallucination."

Non-clinical

1

"A big part of my work is preparing a large monthly slide deck. I've been working on automating it as much as possible because at first creating the next month's pack took up the majority of my month. I would be interested if there was a way I could semi-automate this with generated narrative that I just need to review/touch-up"

Theme: Translation

Clinical

16

"Translating clinic letters for people who English is not their first language."

Clinical

14

"Healthcare Information Summariser for Patients, with capabilities to alter the reading age and language summarisation. If there was scope, it would be cool to see if the proposed approaches could be applied in real-time as a doctor is speaking, acting as a translation service (although this data may be publicly available)."

Theme: Democratising access

Non-clinical

12

"An open source tool for analysing written consultation* responses in organsations who do not have large data science teams"

Non-clinical

4

"Identify the public domain health sector data that could be used to most efficiently pre-train an LLM for a trustworthy health AI application"

*Consultation here refers to policy consultations

Theme: Integrating with systems

Non-clinical

10

"We've talked about whether we can sit and LLM on our data warehouse and rather than have dashboards to be able to ask questions of the tables directly."

Clinical

15

"Interfacing a LLMs to multiple EPMAs/EPR solutions via FHIR or HL7 – Thus providing a summary of a patient based on a prompt and pulling relevant data/documentation/clinical result of the patient."

Consider:

How might we *(plus...)*

- Expanding current use-cases
- Anything else you want to propose
- Other Themes?

Discussion + Feedback (20+10 mins)