AI APPLICATIONS IN ARCHAEOLOGY

Laura Kriszgruber

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Agenda

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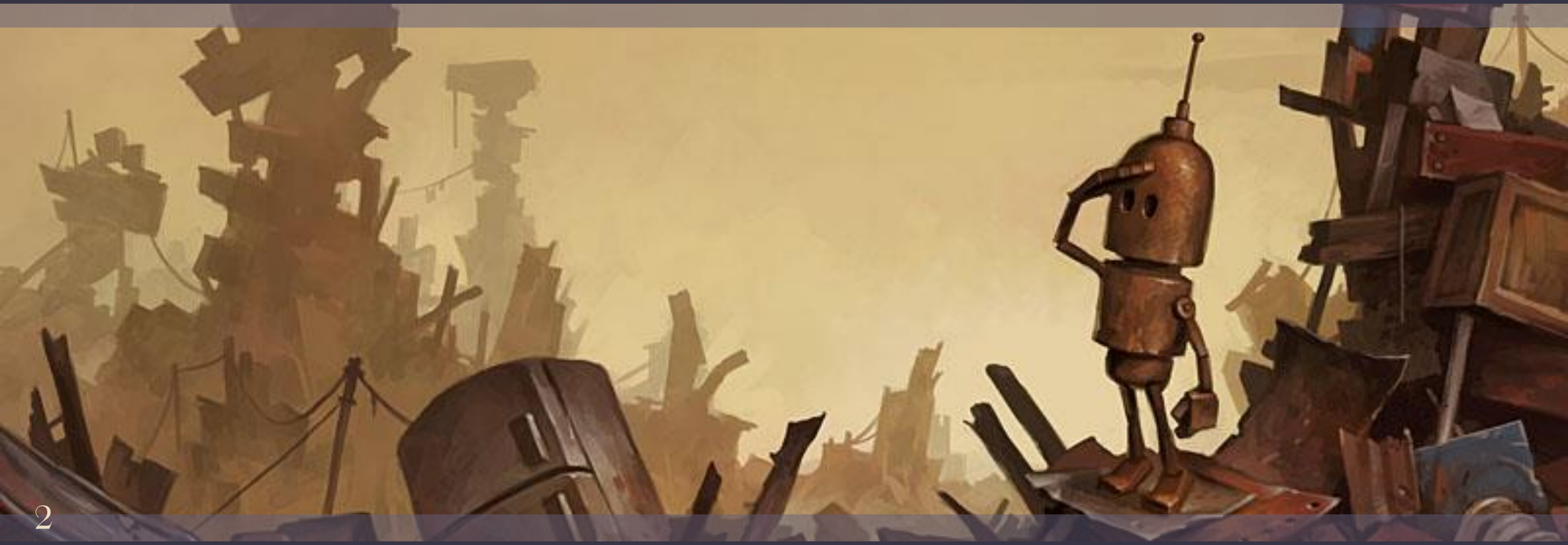


Introduction

- What is archeology ?

  “ The study of human history and prehistory through the excavation of sites and the analysis of artefacts and other physical remains. ”

  - *Oxford Languages*

Applications

- Automated Data Analysis
- Site discovering
- Artifact Analysis and Classification
- Natural Language Processing

Automated data analysis

Old way

- Data deluges
  - Decades of research deposited in archives
- Consume vast amount of times

New way

- AI navigate through extensive data efficiently
  - Streamlines archaeological research
  - AGNES project

Site discovering

Old way

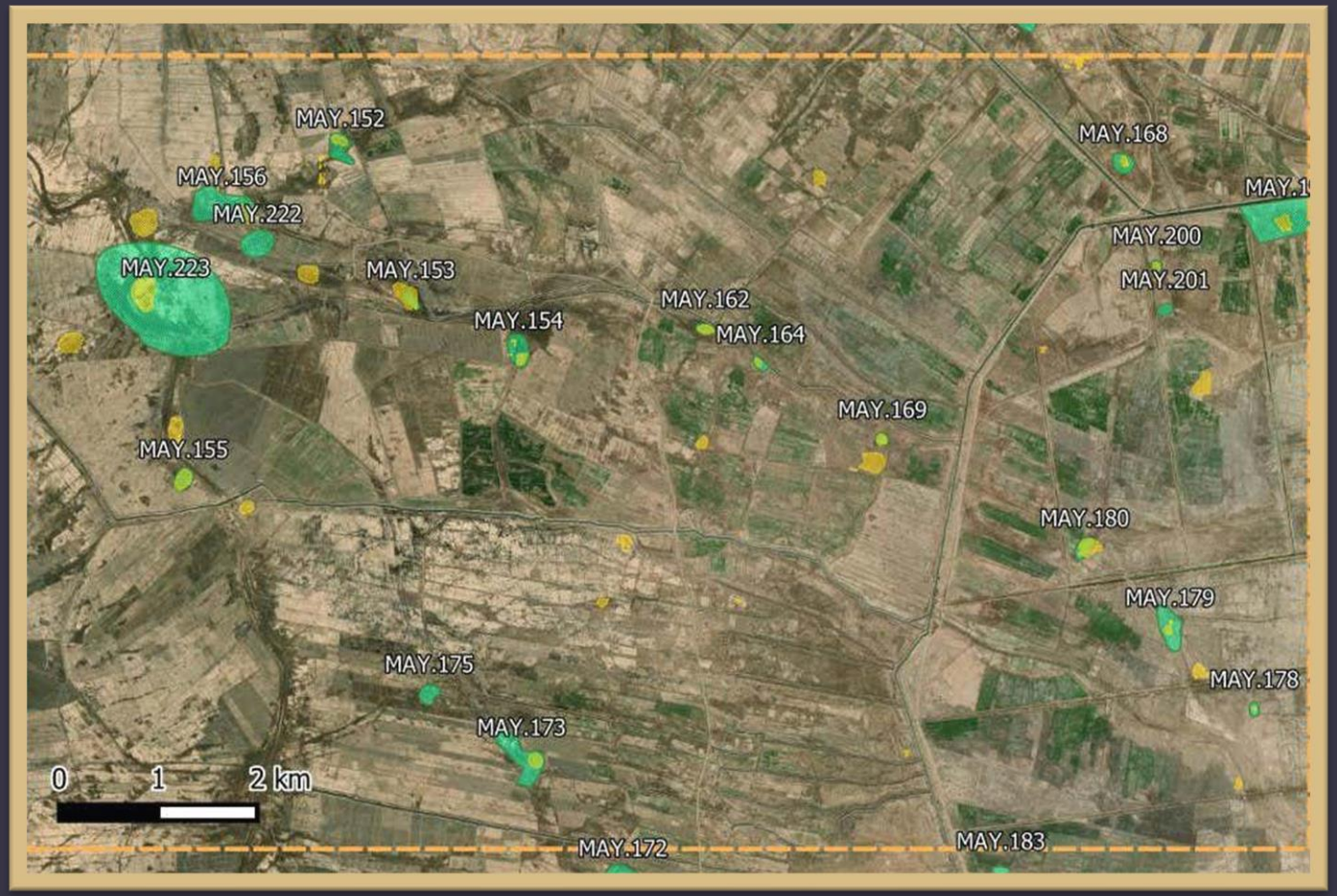
- Dig and hope to find bones or walls (kinda)
  - ➢ The city of Troy and Homer's Illiad

New way

Feeding data to a neural network :

- Satellite Imagery and Remote Sensing
  - ➢ Changes in vegetation patterns or soils
- Geographical Information Systems (GIS)
  - ➢ Layering of multiples data types
- LIDAR Technology
  - ➢ Mayan Ruins in Guatemalan Jungle

Maysan province, Iraq (Mesopotamian)



AI predicted

Potential site identified by archeologists

Artifact Analysis and Classification

Old way

- “Maybe ritualistic ?”

New way

- Image Recognition and Classification
  - Shapes, patterns, materials
- 3D Modeling and Reconstruction
- Material Analysis
  - Spectroscopy and X-ray fluorescence

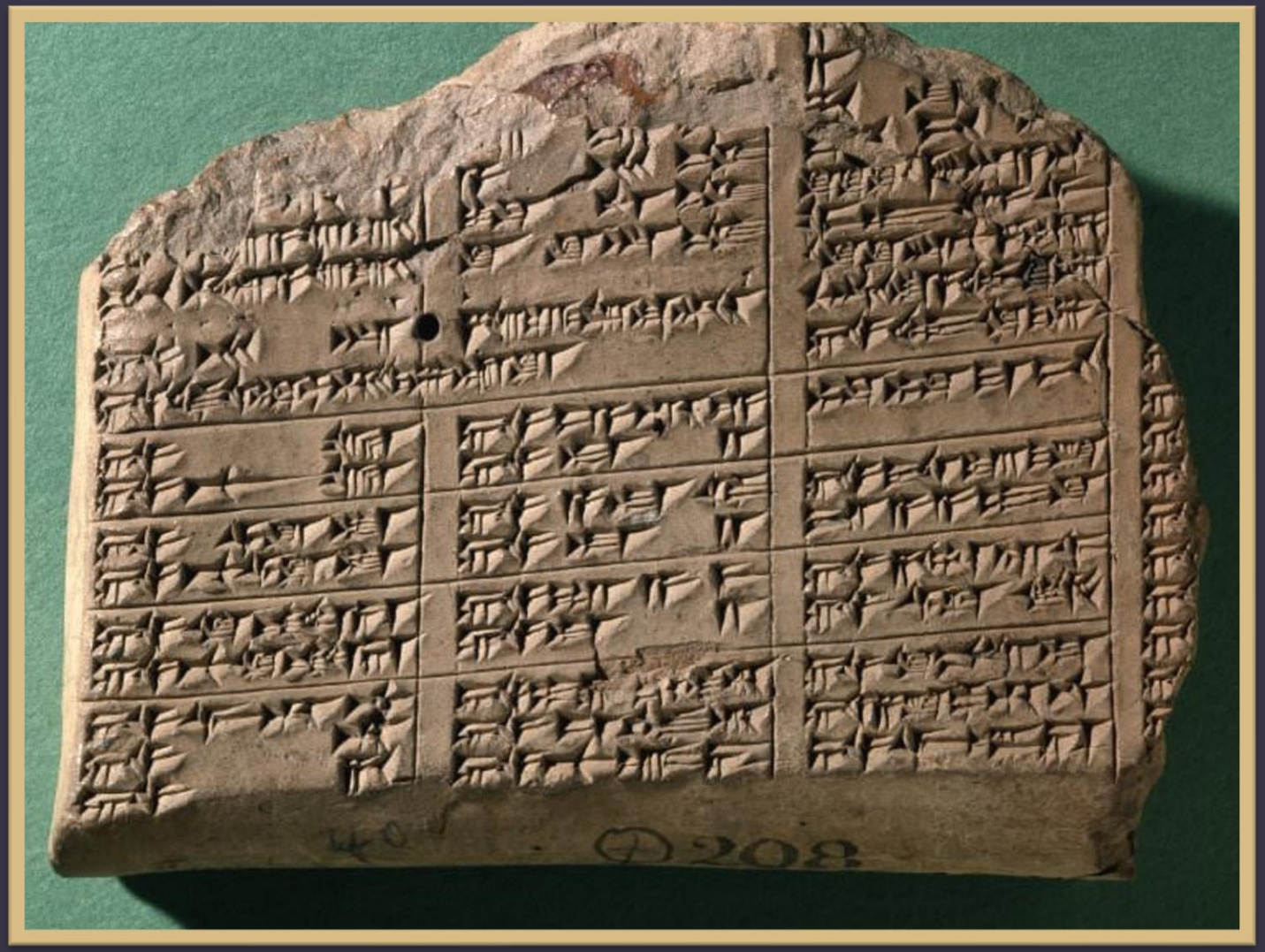
Natural Language Processing

Old way

- Learn the language

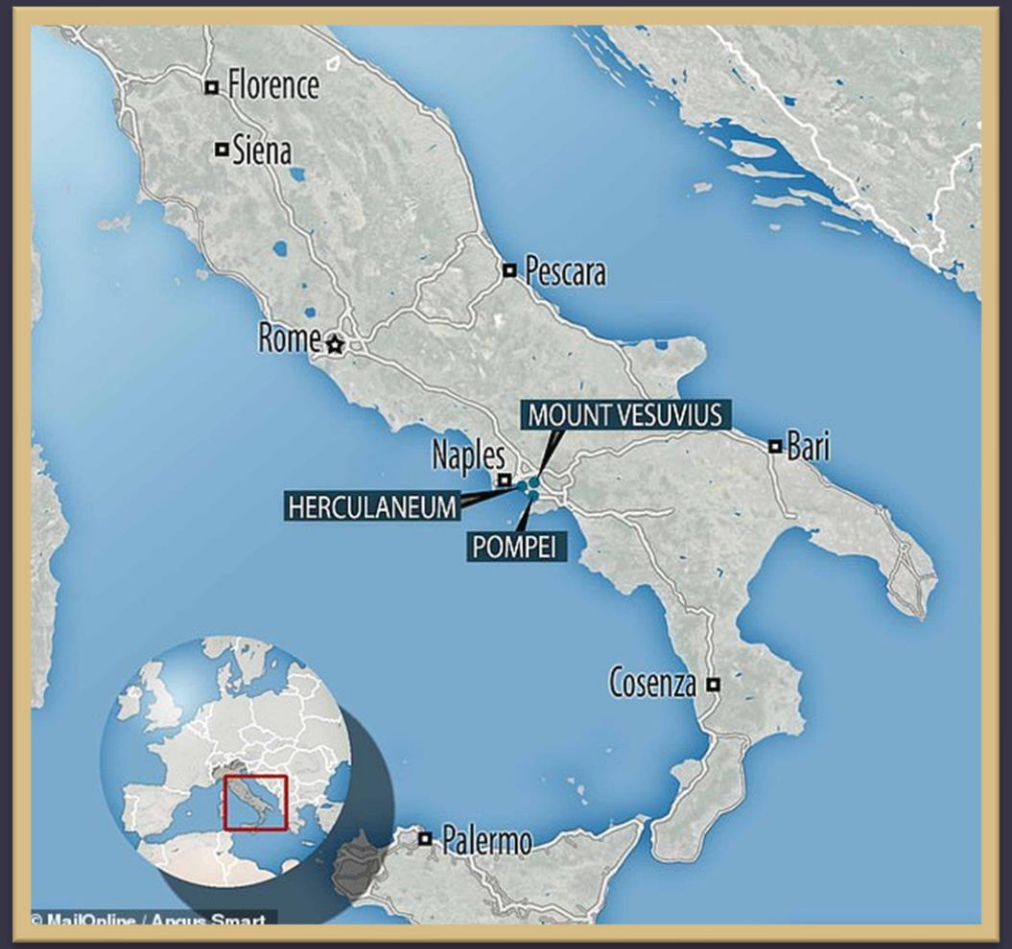
New way

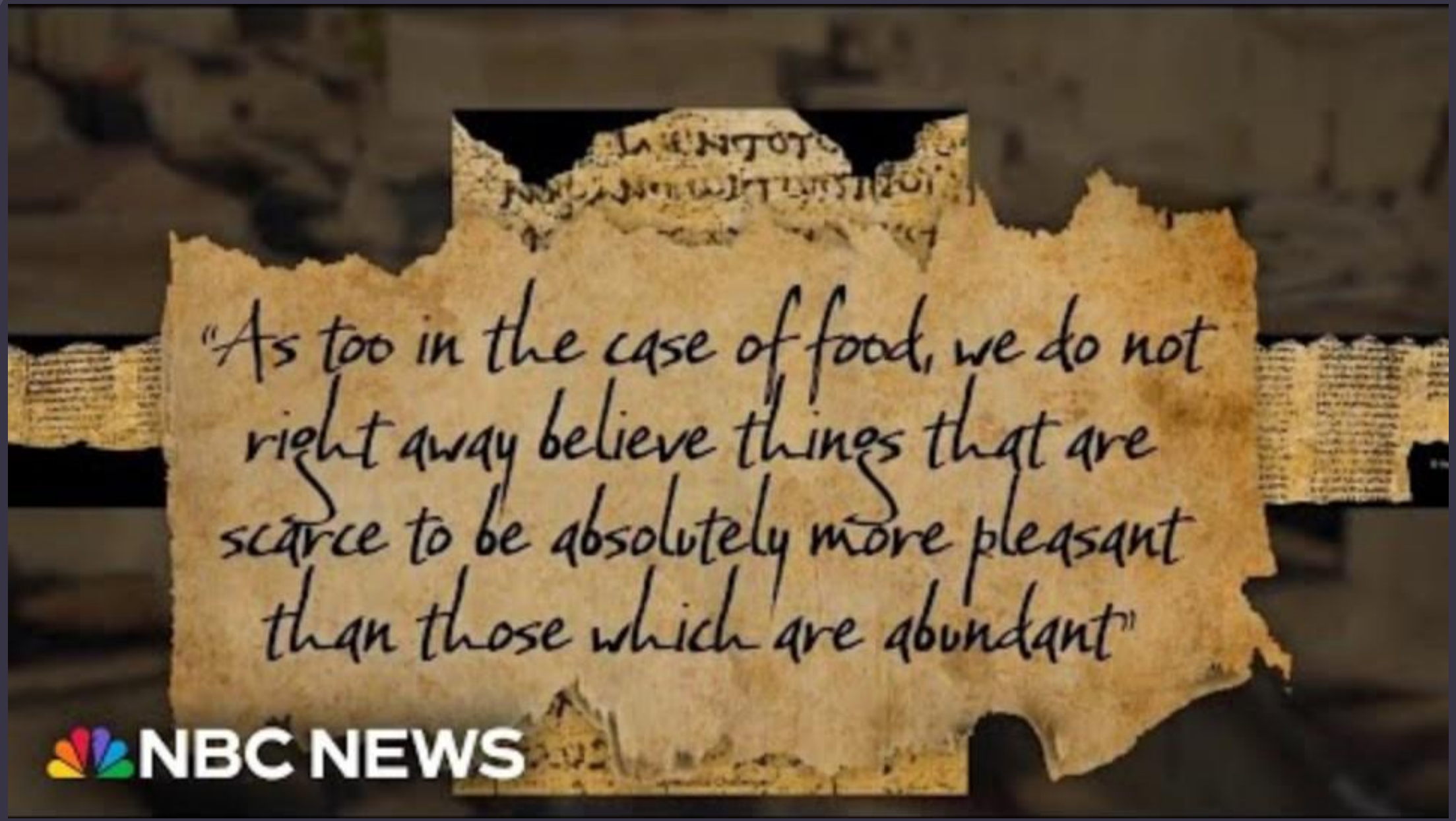
- NLP and LLM



Herculaneum papyri

- More than 1,800 scrolls in the Villa of the Papyri.
- Only surviving library from antiquity existing in its entirety
- Carbonized, unreadable





More info here

Challenges and considerations

- Data quality, bias
- Data security and privacy concerns
- Ethical concerns
- Interdisciplinary Consideration

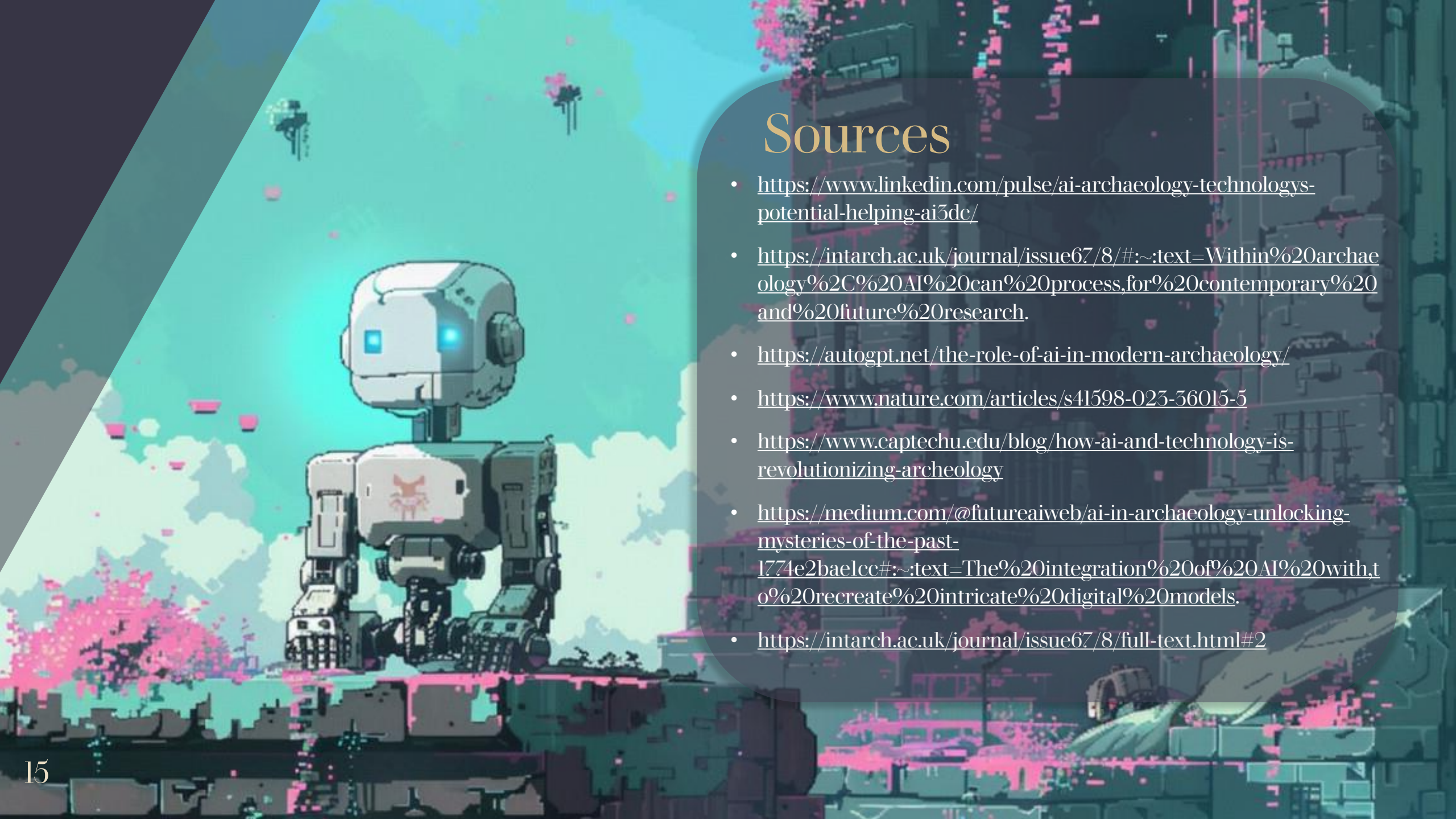
Conclusion

- Paradigm shift
- AI empowers archaeologists with unprecedented tools for discovery, analysis, and interpretation
- Unprecedented speed and accuracy

The potential for AI in archaeology is limitless

Thank you for listening !

Q&A



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