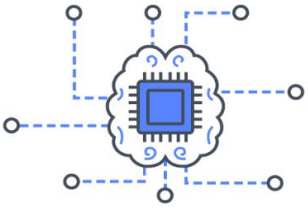


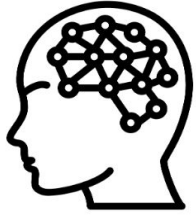
In the Pursuit of Archival Accountability: *Positioning Paradata as AI Processual Documentation*

Patricia C. Franks, PhD, CA, CRM, IGP
San Jose State University

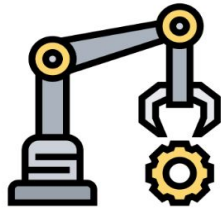
InterPARES Trust^{AI} Research Study, CRM, IGP



Machine Learning



Neural Networks



Robotics



Expert Systems



Fuzzy Logic



Natural Language
Processing



AI is not a single technology. It is an umbrella term that includes any type of software or hardware component that supports machine learning, computer vision, natural language understanding (NLU) and natural language processing (NLP).”

Artificial Intelligence



1950s - 1970s

Machine Learning



1980s - 2000s

Neural Networks



Deep Learning



GPT



2020s

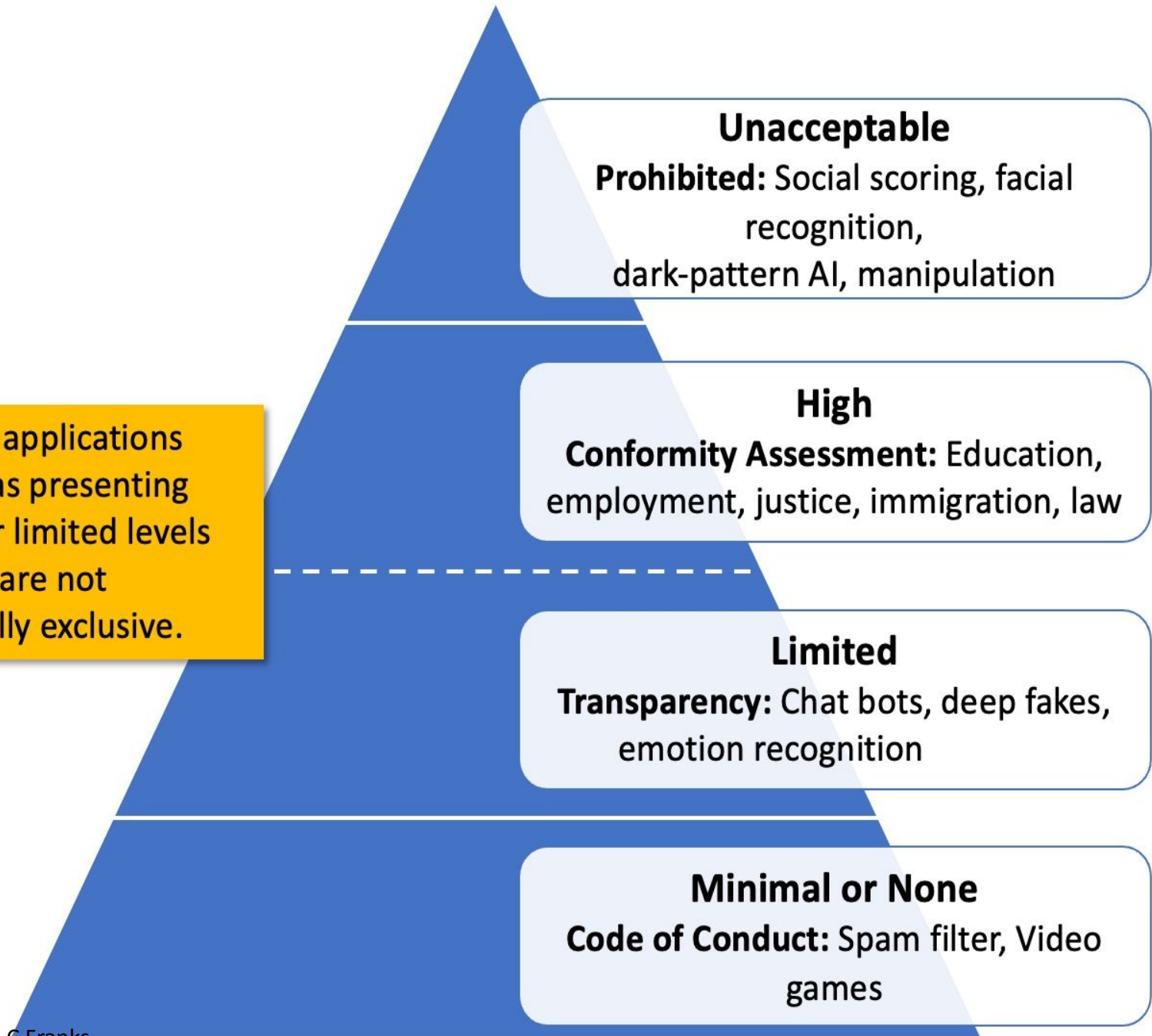
2010



A layered risk-based approach to AI implementation.

Source: Based on the EU proposed Regulation on Artificial Intelligence (the EU AI Act) likely to be passed into law by the end of 2023.

The AI applications listed as presenting high or limited levels of risk are not mutually exclusive.





ChatGPT-Related Risks

- Hallucinations
- Automation Bias
- Societal Biases
- Misinformation
- Privacy Implications

Approaches to the use of ChatGPT run from banning to guidance to possible sanctions to integration in existing products

Italy Bans ChatGPT over Data Privacy Concerns 4-11-23

ARTIFICIAL INTELLIGENCE

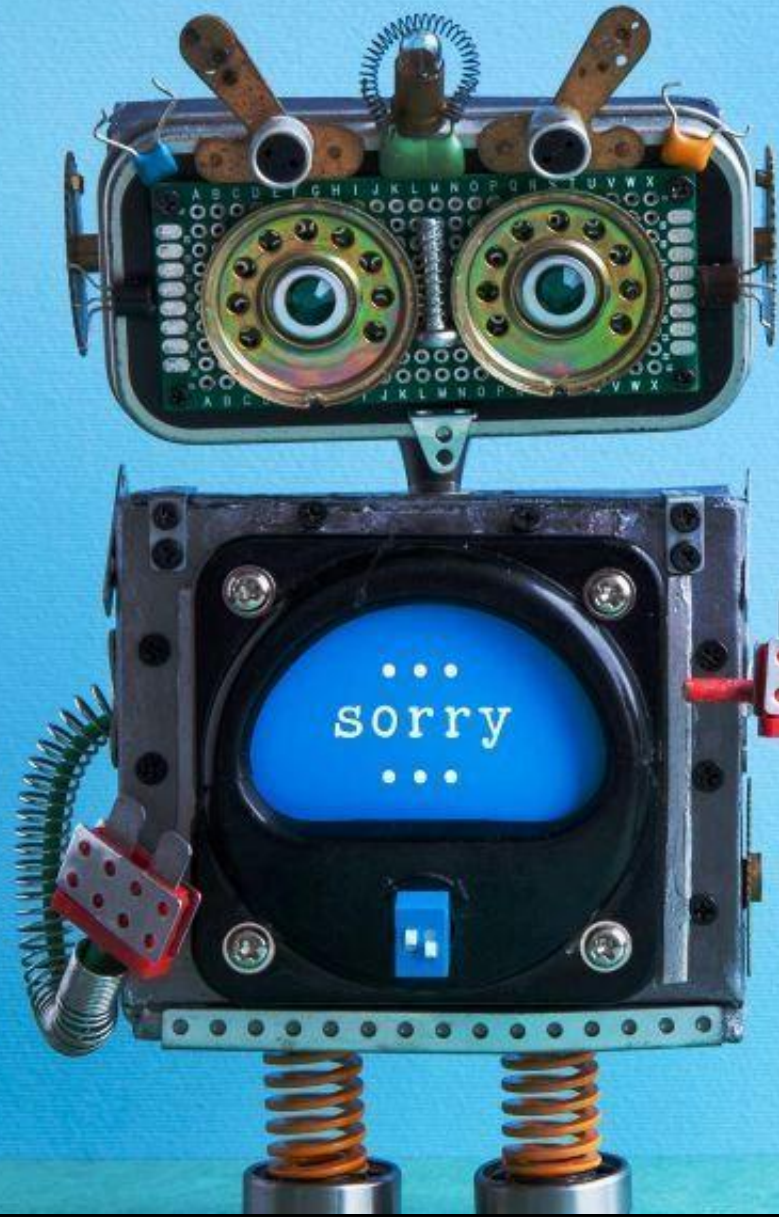
ChatGPT, Generative AI Gets 6-Month Ban in Maine Government 1-27-23

Mass. lawmaker uses ChatGPT to help write legislation limiting the program 1-26-23

Lawyer Who Submitted ChatGPT-Generated Phony Case Captions Apologizes to US Judge 6-8-23

Mandatory Certifications (Texas, 3-30-23) and Disclosures (Illinois, 3-31-23) by attorneys in Court.

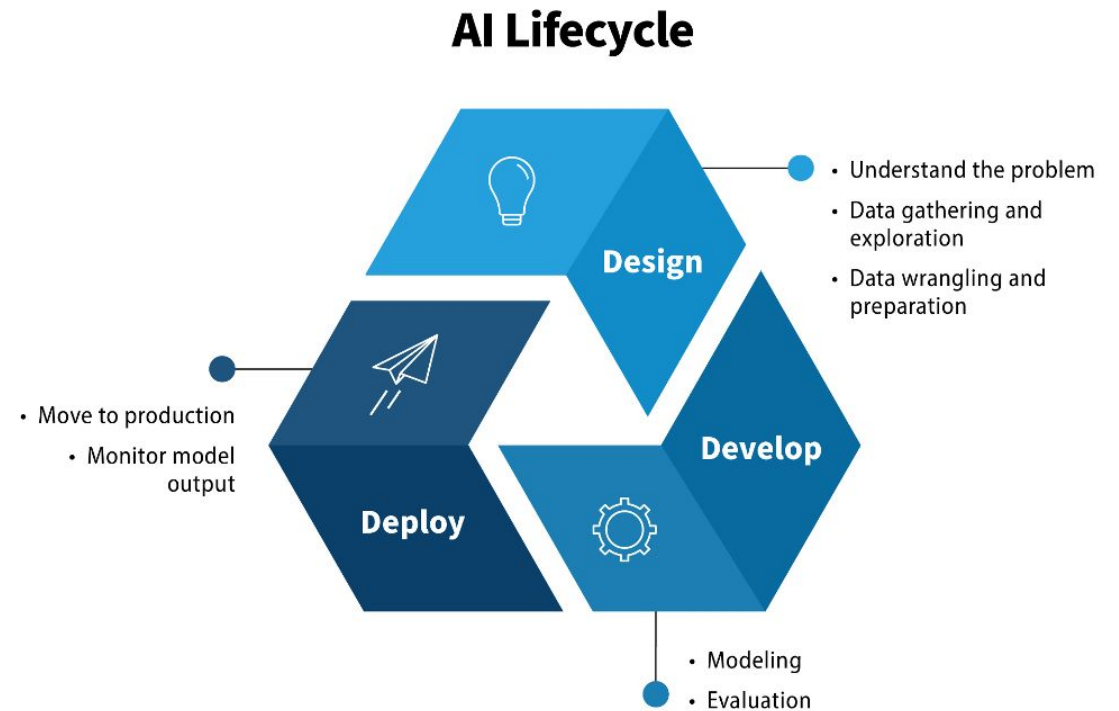
'AI Arms Race': Privacy Class Action Claims ChatGPT Is 'Catastrophic Risk to Humanity' 6-28-23



Paradata: Documentation of the AI Process

Paradata is the information about the procedure(s) and tools used to create and process information resources, along with information about the persons carrying out those procedures.

~ITrustAI working definition



AI Lifecycle. Source: *AI Guide for Government: A Living and Evolving Guide to the Application of Artificial Intelligence for the U.S. Federal Government*, GSA, Centers of Excellence. <https://coe.gsa.gov/coe/ai-guide-for-government/understanding-managing-ai-lifecycle/index.html>
[Understanding and managing the AI lifecycle | GSA](#)

Metadata & Paradata -- relationships + purpose

Metadata

about

The Information Resource

For the purposes of documenting, describing, preserving or managing that resource.

Paradata

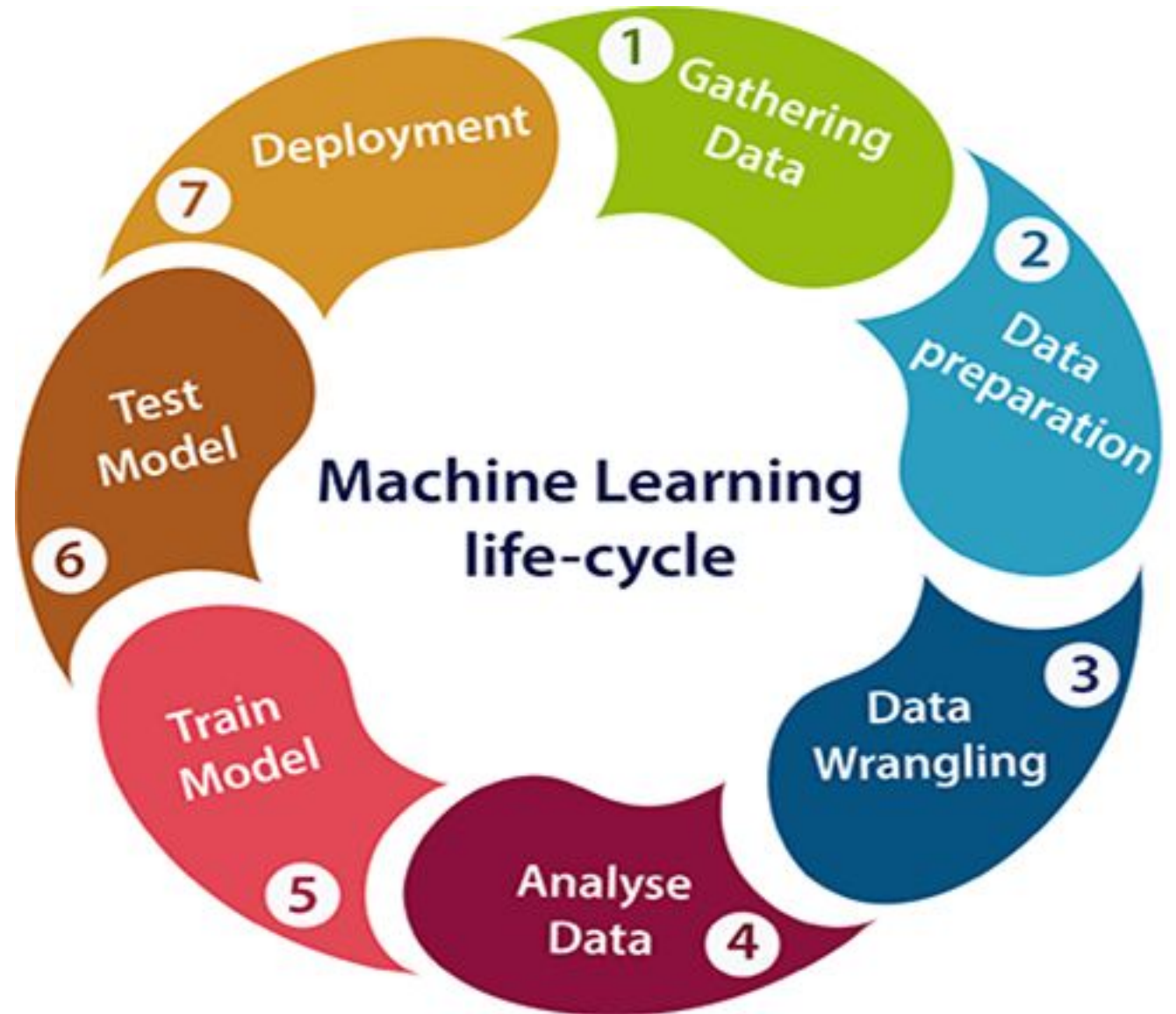
about

The AI Process

Enables processual insight, transparency, accountability.

The machine learning (ML) life cycle

- Obtain and format dataset
- Obtain or produce ML model
- Train model with dataset prepared
- Evaluate model performance
- Implement model
- May continuously improve model with new data



Paradata as AI processual documentation

Paradata must document the full scope of application and context of use – not just the algorithm itself.

- XAI: why did a given tool produce a given output from a given set of inputs?
- Paradata: why, how, and to what effect was a given tool used in a particular context?

The National Archives (UK): “Building explainable AI is not just an algorithmic matter, but needs to consider the individuals and the environment in which it will operate” (Jaillant et al., 2020)

Relevant questions to ask related to paradata



What records are created within AI research teams to document their process?



What records are created of the decisions to procure or deploy systems utilizing AI?



What records are created of the decisions and impact of such systems?



Are the created records sufficient to meet existing legal provisions?



Do the created records meet the required standards of quality?

Examples of relevant paradata

Technical paradata

- AI Model (tested & selected)
- Evaluation & performance metrics
- Logs generated
- Model training dataset
- Training parameters for model
- Vendor documentation
- Versioning information

Organizational paradata

- AI policy
- Design plans
- Employee training
- Ethical considerations
- Impact assessments
- Implementation process
- Regulatory requirements

Next Steps

- ✓ Refinement of guidance on paradata to be collected on system level in relation to the AI lifecycle.
- ✓ Development of guidance on paradata to be collected on operational level.
- ✓ Use cases based on different types of AI technologies/applications and need for documentation; one example, generative AI (guidance on IP, source of answers, citations).
- ✓ Guidance on Paradata elements to be collected based on two levels of risk: high and medium as described in the EU AI Risk Framework and based on requirements in critical legal authorities (primary and secondary) addressing AI regulations (e.g., the AI Act, Model AI Governance, ISO standards, and Model Law for AI Impact Assessment.)
- ✓ Clarification of record/documentation/paradata/metadata. And exploration of ways to create, capture, and retain paradata in relation to outcome of AI application.

References

- Bunn, J. (2020). Working in contexts for which transparency is important: A recordkeeping view of Explainable Artificial Intelligence (XAI). *Records Management Journal*, 30(2), Article 2.
- Cameron, S., Franks, P. & Hamidzadeh, B. 2023. “Positioning Paradata: A Conceptual Frame for AI Processual Documentation in Archives and Recordkeeping Contexts.” *J. Comput. Cult. Herit.* Accepted April 2023, <https://doi.org/10.1145/3594728>
- Davet, J., Hamidzadeh, B., & Franks, P. (2023). Archivist in the machine: Paradata for AI-based automation in the archives. *Archival Science*. <https://doi.org/10.1007/s10502-023-09408-8>
- Mooradian, N. (2019, November 12). AI, Records, and Accountability. *ARMA Magazine, ARMA-AIEF Special Edition 2019*, 9–13.

Before



After



Dr. Patricia C. Franks
CA, CRM, IGP, CIGO, FAI
Professor Emerita
San Jose State University
patricia.franks@sjsu.edu
Researcher
InterPARES Trust^{AI}