

THE DEATH OF THE GHOST IN THE MACHINE

A DIMENSIONAL
APPROACH TO
AI IN DIGITAL
ARCHIVES

LJ Fulugan
20 July 2026

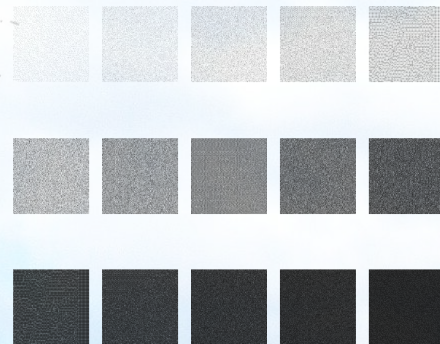


TABLE OF CONTENTS

TABLE OF CONTENTS

- introduction
- digital provenance
- theoretical context
- historical context
- recent literature

DIGITAL PROVENANCE

FRAMEWORK

“Digital provenance,” (Bak 2024)

- What is digital provenance?
- Digital preservation, “immateriality,” digital materiality.
 - Questioning the immaterial trope of the digital.
- The contexts involved in the creation and archiving of digital material.

DIGITAL PROVENANCE

FRAMEWORK

“Digital provenance,” (Bak 2024)

- Technical dimension: The technological systems of creation, use, and access.
- Socio-technical dimension: The systems of tacit knowledge involved in interacting with digital systems and material.
- Social dimension: The related societal contexts of the meanings/values ascribed to digital systems and material.

POSTMODERN ARCHIVES

THEORETICAL CONTEXT

“Seeing Archives,” (Nesmith 2002) +

“Discharging our Debt,” (Millar 1998)

- Postmodern archives; the subjectivity of truth and individuals’ interpretative judgement.
- “Implications for the Computerized Record” and the archival context of postmodern archives.
 - Mass increase of electronic records.

TOTAL ARCHIVES

TOTAL ARCHIVES

THEORETICAL CONTEXT

“Seeing Archives,” (Nesmith 2002) +

“Discharging our Debt,” (Millar 1998)

- The mandate of total archives held through the diversification of communication technology through the nineteenth century.
- “The Spectre of Automation” and a third era of Canadian archives.

POSTMODERN ARCHIVES

Archivists working at the end of the twentieth century cannot expect to find an electronic record, or to understand it, let alone “keep” it, without playing an active role in records management. The only way to protect electronic records is to ensure that critical information about their content, structure, and context is captured at their time of creation and that steps are taken when systems are being designed, developed, and implemented to prepare for the eventual disposition of those records.

Laura Millar, “Discharging our Debt: The Evolution of the Total Archives Concept in English Canada,” *Archivaria* 46 (Fall 1998): 117

HISTORICAL CONTEXT

- *BJHS Themes* vol. 8, *Histories of Artificial Intelligence: A Genealogy of Power*.
 - The dynamics of power and the relationship AI has with histories of computing technology, social science, and information.
- Challenging a semi-mythologized perspective of AI.
 - Alan Turing, "Computing Machinery and Intelligence," *Mind*, 59, no. 236 (Oct. 1950): 433-460.
 - 1956 Dartmouth College conference.

MIND
A QUARTERLY REVIEW
OF
PSYCHOLOGY AND PHILOSOPHY



I.—COMPUTING MACHINERY AND
INTELLIGENCE

BY A. M. TURING

1. *The Imitation Game.*

I PROPOSE to consider the question, 'Can machines think?' This should begin with definitions of the meaning of the terms 'machine' and 'think'. The definitions might be framed so as to

We propose that a 2 month, 10 man study of artificial intelligence be carried out during the summer of 1956 at Dartmouth College in Hanover, New Hampshire. The study is to proceed on the basis of the conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it. An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves. We think that a significant advance can be made in one or more of these problems if a carefully selected group of scientists work on it together for a summer.

The following are some aspects of the artificial intelligence problem:

1 Automatic Computers

If a machine can do a job, then an automatic calculator can be programmed to simulate the machine. The speeds and memory capacities of present computers may be insufficient to simulate many of the higher functions of the human brain, but the major obstacle is not lack of machine capacity, but our inability to write programs taking full advantage of what we have.

2. How Can a Computer be Programmed to Use a Language

It may be speculated that a large part of human thought consists of manipulating words according to rules of reasoning and rules of conjecture. From this point of view, forming a generalization consists of admitting a new word and some rules whereby sentences containing it imply and are implied by others. This idea has never been very precisely formulated nor have examples been worked out.

3. Neuron Nets

How can a set of (hypothetical) neurons be arranged so as to form concepts. Considerable theoretical and experimental work has been done on this problem by Uttley, Rashevsky and his group, Farley and Clark, Pitts and McCulloch, Minsky, Rochester and Holland, and others. Partial results have been obtained but the problem needs more theoretical work.

4. Theory of the Size of a Calculation

If we are given a well-defined problem (one for which it is possible to test mechanically whether or not a proposed answer is a valid answer) one way of solving it is to try all possible answers in order. This method is inefficient, and to exclude it one must have some criterion for efficiency of calculation. Some consideration will show that to get a measure of the efficiency of a calculation it is necessary to have on hand a method of measuring the complexity of calculating devices which in turn can be done if one has a theory of the complexity of functions. Some partial results on this problem have been obtained by Shannon, and also by McCarthy.

5. Self-Improvement

Probably a truly intelligent machine will carry out activities which may best be described as self-improvement. Some schemes for doing this have been proposed and are worth further study. It seems likely that this question can be studied abstractly as well.

6. Abstractions

A number of types of "abstraction" can be distinctly defined and several others less distinctly. A direct attempt to classify these and to describe machine methods of forming abstractions from sensory and other data would seem worthwhile.

7. Randomness and Creativity

A fairly attractive and yet clearly incomplete conjecture is that the difference between creative thinking and unimaginative competent thinking lies in the injection of a some randomness. The randomness must be guided by intuition to be efficient. In other words, the educated guess or the hunch include controlled randomness in otherwise orderly thinking.

**John McCarthy, Marvin L. Minsky, Nathaniel Rochester,
Claude E. Shannon,**

A PROPOSAL FOR THE DARTMOUTH SUMMER RESEARCH PROJECT ON ARTIFICIAL INTELLIGENCE

**(Dartmouth College, 31 August 1955), accessed via
Project JMC, <http://jmc.stanford.edu>**

HISTORICAL CONTEXT

- Artificial intelligence and “intelligent behaviour” (Minsky 1950).
 - Elements of randomness.
- Jonnie Penn, “*Animo nullius*,” *BJHS Themes* 8.
 - Reviewing archival material regarding the Dartmouth conference from the Hoover Institute Library & Archives at Stanford, the Rockefeller Archive Center, and the Library of Congress.

200
 Dartmouth College
 Artificial Intelligence
 DATE: June 14, 1955

FROM: WW

TO:

RSM		Kby

COMMENTS:

DEC 28 1955

SUBJECT:

I have to handle this particular item in writing, since it relates to the luncheon you will have Friday noon with John McCarthy of Dartmouth, and I now understand Claude Shannon of the Bell Telephone Laboratories.

You will have seen the diary record of April 4, 1955, of my previous conversation with McCarthy. I have the general feeling that this is rather a "personal" project, in the sense that McC. and two or three other people would enjoy spending time together, talking about various aspects of information theory. And they would naturally like to have somebody pay the bill. It is also personal, in the sense that no significant group or organization is back of this proposal, as far as I know. I would, for example, think of it in rather different terms if the idea came to us from the entire information group at MIT.

Thus (and in spite of my personal interest in the subject) I am very doubtful that the RF ought to do anything about this.

I think that it is on the whole rather better that I am not going to be at the luncheon. My personal connection with the subject, especially since Claude Shannon is now going to be present, tends to remove the discussion from the objective atmosphere in which we ought to approach it.

I really do not mean this note to contain any kind of hidden hint of advice or instruction. On the contrary, I am trying to make it clear that I think you ought to be absolutely free and unbiased to reach your own judgment in the matter.

Ww
 W. W.

WW:mjs

Warren Weaver to Robert S. Morison,
 "Dartmouth College - Artificial Intelligence
 - (Computers)," 14 June 1955, RG 1, SG
 1.2, Series 200, Subseries 200.GEN,
 Rockefeller Foundation records,
 Rockefeller Archive Center.

HISTORICAL CONTEXT

- Jonnie Penn, “*Animo nullius*,” *BJHS Themes* 8.
 - *Animo nullius*, from *terra nullius*, and the mind-computer metaphor.
 - That a human mind could be understood as a computer with its own programs and functions and that a computer could emulate a mind’s mental processes.
- Dartmouth conference, funded by the Rockefeller Centre, IBM, and Bell Labs; facilities funded by IBM.

Robert S. Morison to John McCarthy,
"Dartmouth College - Artificial Intelligence
- (Computers)," 30 November 1955, RG 1,
SG 1.2, Series 200, Subseries 200.GEN,
Rockefeller Foundation records,
Rockefeller Archive Center.

for mailing

wa		www
BSW		

DEC 28 1955

November 30, 1955

Dear Dr. McCarthy:

I am sorry it is taking so long to get the group together here for a discussion of the proposal for support of the Summer Conference on brain models. Now I am afraid I have to say that it does not seem possible for us to support a program on quite the scale originally proposed. Do you think it would interfere with giving the idea a fair trial if it were trimmed down to something like half its present cost, or to name a round figure, about \$7,500? If so, we would be prepared to ask our committee for formal consideration of the proposal and in this connection, would need a formal letter from some administrative officer at Dartmouth testifying to the college's willingness to receive and administer the funds.

I hope you won't feel that we are being overcautious but the general feeling here is that this new field of mathematical models for thought, though very challenging for the long run, is still difficult to grasp very clearly. This suggests a modest gamble for exploring a new approach, but there is a great deal of hesitancy about risking any very substantial amount at this stage.

Sincerely yours,

Robert S. Morison, M.D.
Director for Biological and
Medical Research

Dr. John McCarthy
Department of Mathematics
Dartmouth College
Hanover, New Hampshire

RSM:bjw

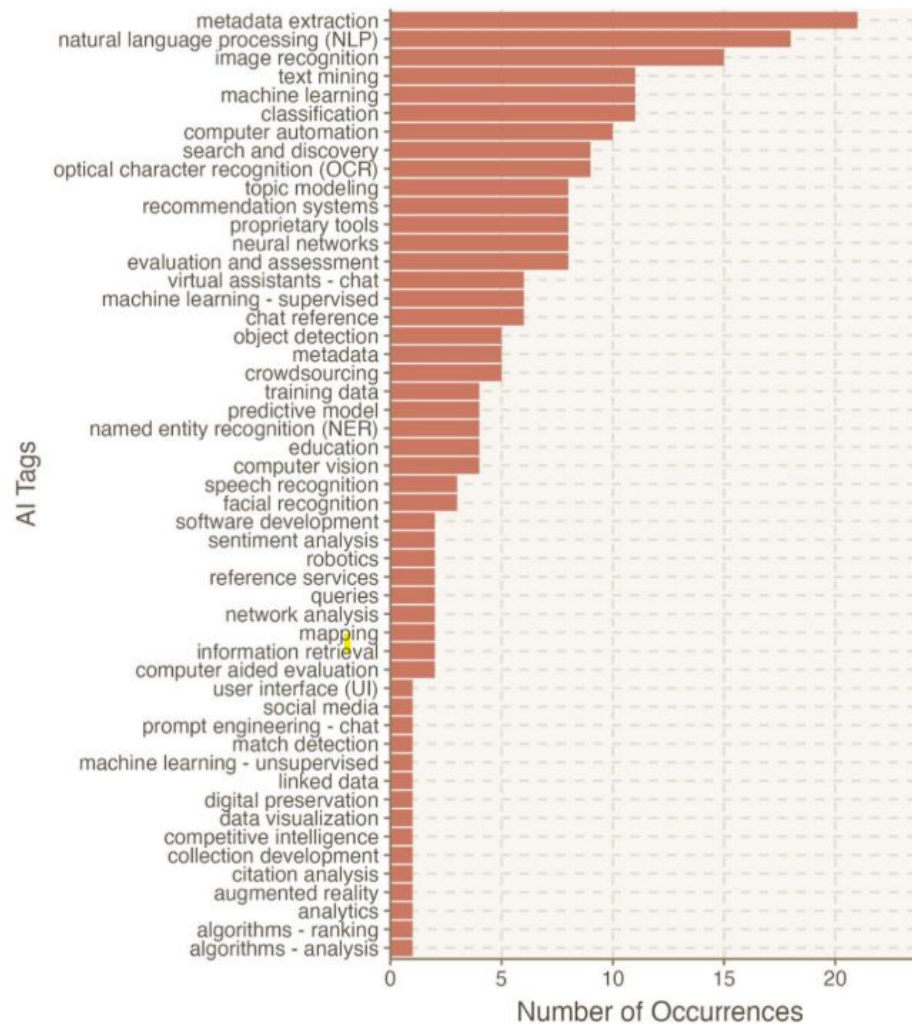
*Pending
grants 200
Dartmouth College
Artificial Intelligence*

The mind-computer metaphor:
that a mind could be understood
as a computer with its own
programs and functions and,
correspondingly, that a computer
could emulate a mind's mental
processes.

WHY DOES THIS MATTER?

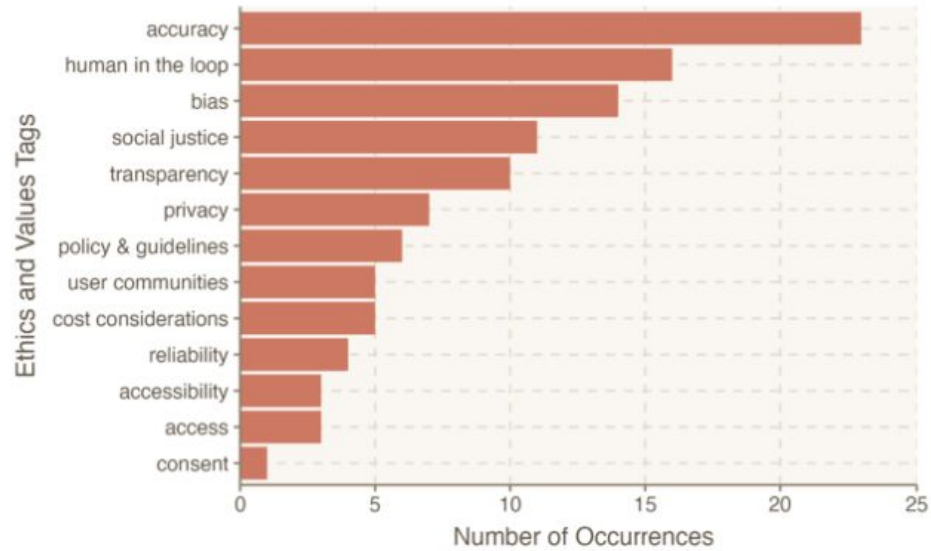
- An understanding of these histories is crucial for archivists navigating digital records in our current moment.
- “Responsible AI Practice in Libraries and Archives: A Review of the Literature” (Mannheimer et al. 2024)
 - How is AI used in the practices of libraries and archives?
 - What ethical concerns are raised and addressed by the implementation of AI in archival and library practices?

Figure 8. Types of AI used.



(Mannheimer et al. 2024)

Figure 9. Ethics and values-related considerations.



(Mannheimer et al. 2024)

Figure 8. Types of AI used.

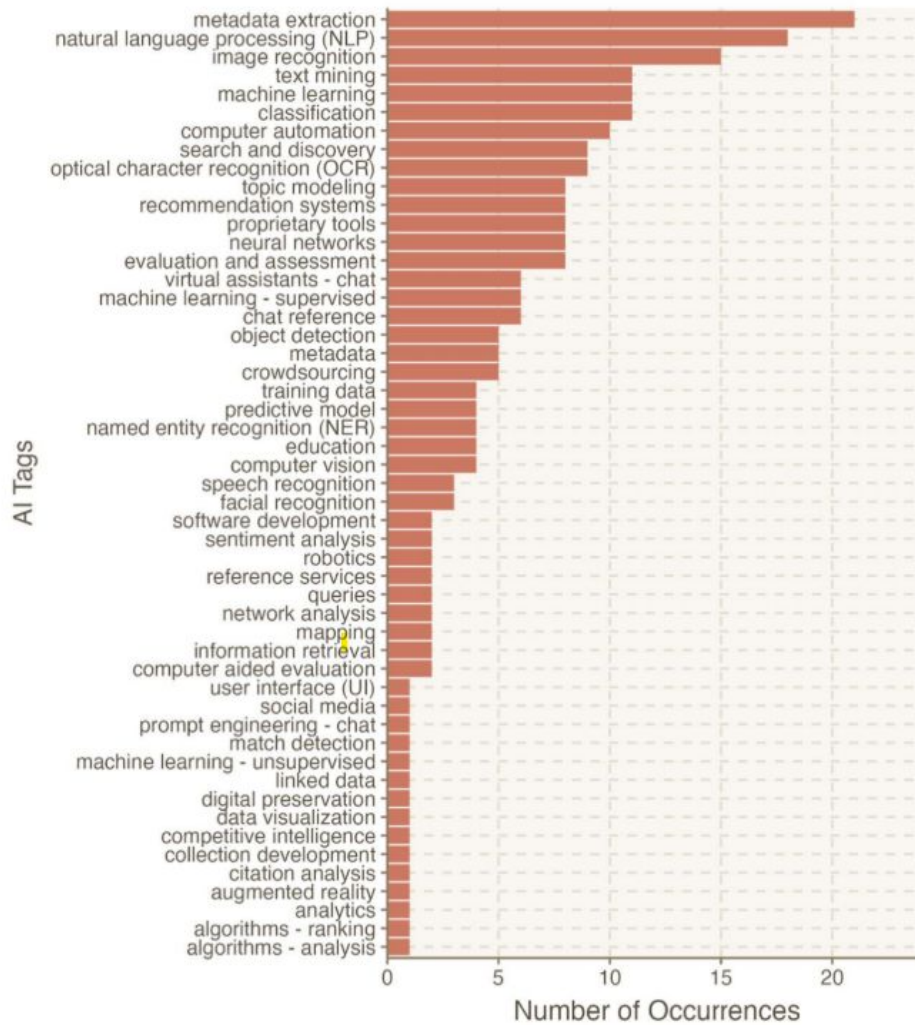
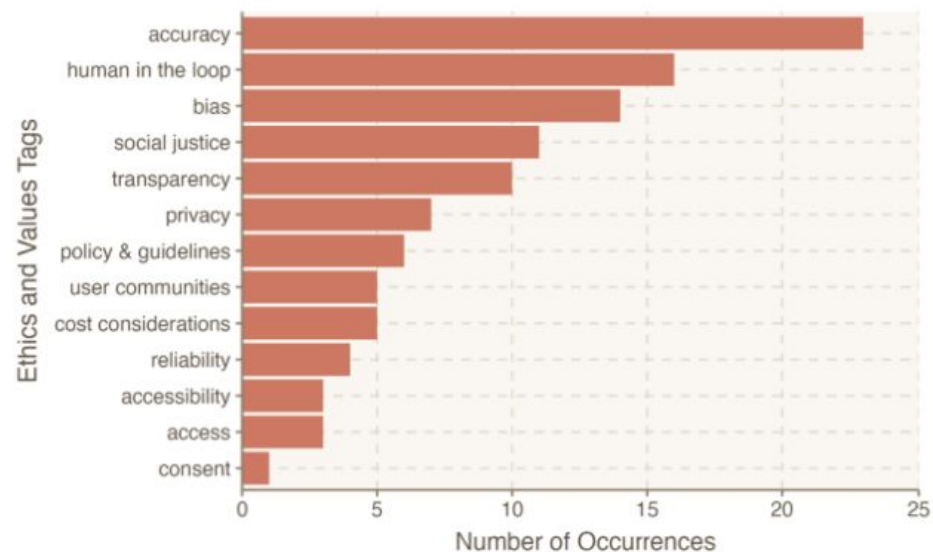


Figure 9. Ethics and values-related considerations.



(Mannheimer et al. 2024)

WHY DOES THIS MATTER?

- Technical and socio-technical dimensions of AI systems are over-emphasized in archival literature to the detriment of its consideration in the social dimension of use.

Generative AI in Clinical Workflows

Health systems began embedding LLM-powered tools directly into electronic health **records**.

[ChatEHR](#), a system generating plain-language summaries of patient **records**, logged 23,000 sessions across 1,075 trained users within three months of broad rollout. 60% of usage occurred through automated prompts and 40% through interactive interfaces. Separately, an AI tool generating plain-language explanations of laboratory, imaging, and pathology results was evaluated in a study published in [JAMA Network Open](#) (August 2025). Of 93 survey respondents, 85% considered the tool user-friendly, 72% found it beneficial for laboratory results, and 63% for imaging results. OpenEvidence, a real-time evidence retrieval platform, reported adoption by 40% of U.S. physicians.

WHY DOES THIS MATTER?

