AI Literacy and Education for the Archival Professions

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Acknowledgments:

InterPARES Trust AI: https://interparestrustai.org/

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AD01 Research Team and Collaborators:

Nataliya Radke (UBC Archivist, former GRA), Kaila Fewster (former GRA), Sophie Penniman (NWU, former GRA), Jennifer Douglas (UBC), Victoria Lemieux (UBC), Darra Hofman (SJSU), Moises Rockembach (U.Coimbra), Anahi Casadesus De Mingo (UAB), and Peter Sullivan (UBC).

Interviewees:

Bethany Anderson, Stephanie Decker, Glen Humphries, Tim Hutchinson, Devon Mordell, Jessica Moran, Greg Rolan, Jennifer Proctor, David Zeitlyn

Agenda

- Project background & competencies (15 mins)
- Open Educational Resources (5 mins)
- Use cases for Educational Modules (5 mins)
- Q & A (5 mins)

AD01 - Teachable AI for the Archival Professions

- **Goal**: Determine *learning outcomes*, *curriculum structure*, *activities*, and *assessment* that can be designed for archival students and professionals to be able to “leverage”(and possibly “design”) AI/ML to support the ongoing processing, availability, and accessibility of trustworthy public records?

- **2022-2024**: Development of competencies, learning outcomes, and body of knowledge

- **2024-2026**: Developing of open web-based learning modules with activities and testing/refinement of those modules in the classroom

Development of competencies

- “Digital competencies at work are a set of basic knowledge, skills, abilities, and other characteristics that enable people at work to efficiently and successfully accomplish their job tasks regarding digital media at work.” (Oberländer et.al., 2020)
- 10 semi-structured interviews completed between January and August 2023. Participants identified via literature review and recruited via direct email.
- Primary goal of interviews was to identify key AI-related competencies for archivists and records managers (Arias-Hernandez, Penniman & Fewster, 2024)

Learners should know about:

K1 - Archival principles/practices	e.g., archival theory & functions, relevant legislation, etc.
K2 - Critical data-AI/ML and AI/ML ethics for archives and RM	e.g., Data governance, data biases in AI/ML, paradata, ethics, Indigenous data sovereignty, privacy, climate, etc.
K3- AI/ML fundamentals & techniques relevant to archives	e.g., AI/ML models & pipeline, NER, NLP, Topic Modelling, LLMs, RAG, cybersecurity, etc.
K4 - Human-Computer/ Human-Information Interaction	e.g., basic principles of user experience/user interaction with AI/ML apps and with digital records, etc.
K5 - Basic data analysis	e.g., descriptive statistics, data operations, data exploration, etc.
K6 - Basic algorithmic thinking	e.g., computational thinking, using algorithms for problem solving and pattern recognition, etc.

Learners should acquire:

S1 - Management & Collaboration skills	e.g., Engaging, teaming up and collaborating effectively with stakeholders, project/risk management, business cases, etc
S2 - Data-related skills	e.g., Collecting and selecting data, digitizing, datafying, critical analyses (sensitivity analyses, data bias analyses), utilitarian analyses (statistical and mathematical analyses), etc.
S3 - Tool-testing and adaption to the workflow skills	e.g., Experimenting and adapting tools to archival workflows, identification of work processes to be supported by AI/ML, testing, deployment, and evaluation, etc.
S4 - AI/ML skills	e.g., Labeling data, feature engineering, training/refining models, selecting and evaluating ML models, etc
S5 - Basic programming skills	e.g., Scripting, basic coding, tweaking code, using ML libraries, etc.

Learners should develop attitudes around:

A1 - Self-regulated learning of digital tools	e.g., Engaging, teaming up and collaborating effectively with stakeholders, project management, business cases, etc.
A2 - Intellectual curiosity towards AI/ML for archives and RM	e.g., Stays informed about AI/ML development for archives and records management. Willing to experiment. Open-minded, early adopter of technology.
A3 - Critical thinking to evaluate new technologies	e.g., Reflective practitioner, social theory and value-informed practitioner, praxis-informed social critic of technology, detailed-oriented
A4 - Disposition to work effectively in teams	e.g., Collaborator, communicator, leader/follower, empathetic, respectful, assertive, willing to take on workload and deliver, committed to contribute to the success of teamwork, accountable

Validation of Competencies

- Validation workshops with archival professionals and students in conferences in Canada and Latin America (Summer 2024) and during invited online presentations
- Theoretical comparisons with AI literacy scholarship for Archival professionals (Arias-Hernandez & Rockembach, 2025)
- Theoretical comparisons with Computer Archival Science competencies framework (Lemieux & Arias-Hernandez, 2024)

Body of Knowledge

AI/ML for the Archival Professions ┣ Body of Knowledge

Version	Date	Notes	Contributors
1.0	May 3rd, 2024	Initial draft	Kaila Fewster and Richard Arias
1.1	May 15th, 2024	Revision	Jennifer Douglas, Vicki Lemieux, Peter Sullivan, Moises Rockembach, Anahi Casadesus de Mingo, Darra Hofman
1.2	May 17th, 2024	Version in Spanish	Richard Arias
1.3	June 3rd, 2024	Revision	Richard Arias, Darra Hofman, Moises Rockembach

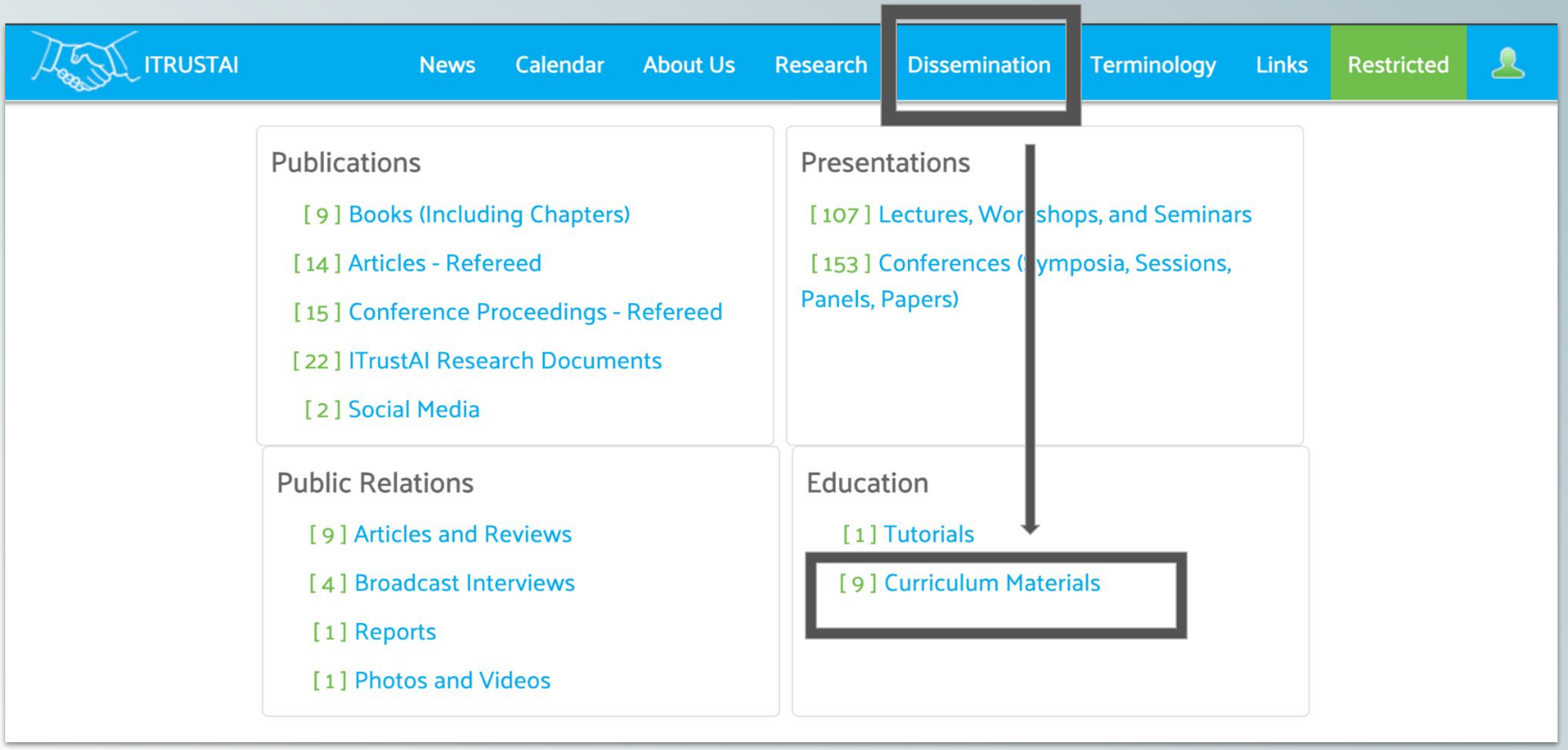
Area 1.1 - AI-ML Knowledge and Skills

- Basic concepts and terminology (e.g., AI, ML, Computer Vision)
- History of AI in archives and records management (Old AI and new AI)
- Recent cases of application of AI to processing of records in archives and records management
- Artificial Intelligence, Machine Learning, and Computer Vision: How are they related? How are they different? What are examples of their application and relevance to archives and records management?
- The components of the machine in Machine Learning (e.g., data/features, training datasets, test datasets, models, prediction functions, cost functions, etc.)
- Types of Machine Learning (i.e., supervised, unsupervised, reinforced learning)
- Types of Machine Learning models (i.e., linear regression, logistic regression, classification, clustering, concurrent neural networks, NER, NLP, topic modeling, sentiment analysis, image and pattern recognition, etc.)
- Pipeline for some Machine Learning Models used in archives or RM (e.g., digitization,

https://docs.google.com/document/d/1UsjkkkGeSJrgCDJGASCAy5q0uo_ZkQpzi_Ch8XUcqYw/edit?usp=sharing

From use cases to module design

Use Case	Module
Case studies of AI applied to processing of records	Introduction to Artificial Intelligence for the Archival Professions
Paradata for applications of AI in archives	Critical AI/ML, Paradata, AI on Indig. Records, Ethics AI/ML
Handwritten Text Recognition, NLP, ENR on records	AI/ML for processing textual records in Archives
Object detection and identification in archival images	AI/ML for processing image-based records in Archives
Speech and speaker recognition/identification in archival audio	AI/ML for processing audiovisual records in Archives
Object detections and identification in archival videos	AI/ML for processing audiovisual records in Archives



https://interparestrustai.org/trust/research_dissemination

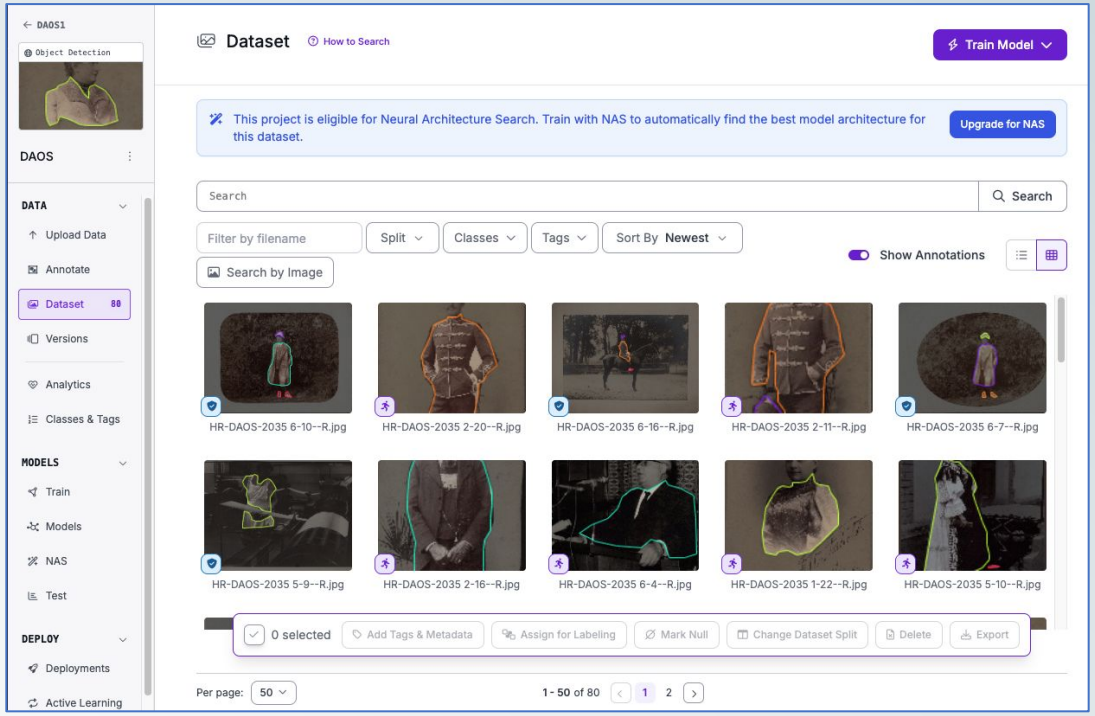
Module 4: AI/ML for processing image-based records in archives

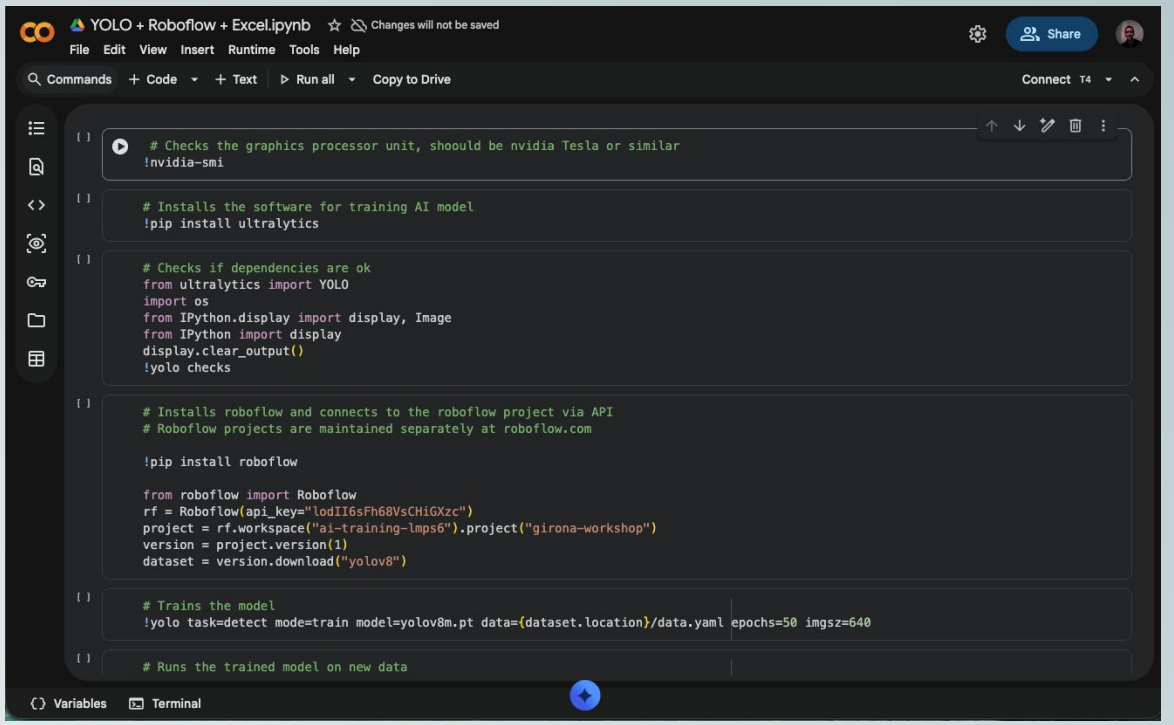
Includes discussions on:

- History of AI/ML for processing image-based records in archives
- Computer vision and content-based information retrieval
- Architectures and algorithms for processing image-based records with AI/ML
- Archival Processes for image-based records using AI/ML
- Exploring GenAI or AI-modified images as records
- Limitations to processing image-based records with AI/ML

https://interparestrustai.org/assets/public/dissemination/AD_01_Module3_v_1_0_202504141.pdf

Integration with other iTrustAI Projects





https://app.roboflow.com/daos1/daos
https://colab.research.google.com/drive/19xGeKusY-V4mtY5vFAxNoIEAh4VjQ5-r?usp=sharing
Dataset created by Hrvoje Stančić and Željko Trbušić, University of Zagreb in collaboration with the State Archives of Zagreb, Croatia. Python code created by Željko Trbušić. Dataset and code are available for educational uses only.

Integration into Professional Development

- Fewster, K., Ross, A. & Arias-Hernandez, R. ***3-hour Workshop: Indigenous and Accountable AI for the Archival Professions***. Annual Conference of the Association of Canadian Archivists (ACA). Ottawa, June 2025.
- Arias-Hernandez, R. ***1-hour Workshop: Managing Audio Records with AI***. Forum on AI in Community History & Heritage, Quebec Anglophone Heritage Network, QAHN. Montreal, March 2026.
- Radke, N., Sullivan, P., & Arias-Hernandez, R. ***3-hour Workshop: AI for the Processing of Audio in Archives***. Archival Education and Research Initiative, AERI. Vancouver, July 2026.

Integration into Graduate Classes

- University of British Columbia, Canada
  - Archives and Technology; Dr. Victoria Lemieux
  - Digital Text and Image Collections; Dr. Richard Arias-Hernandez
- San Jose State University, USA
  - Seminar on Reference Services in Archives & Seminar on Preservation of Archival Holdings; Dr. Jessica Bushey
- Universidade de Coimbra; Portugal
  - Digital Humanities & Archival Science; Dr. Moises Rockembach
- Universitat Autònoma de Barcelona
  - Archival and Records Management; Dr. Anahi Casadesus

Thank you!

Questions?

References

Arias Hernandez, R., Fewster, K. and Penniman, S. (2024). Artificial Intelligence and Machine Learning Competencies for the Archival Professions. *Proceedings of the Association for Information Science and Technology*, 61: 36-43.

Arias-Hernandez, R. and Rockembach, M. (2025). Building Trustworthy AI Solutions: Integrating Artificial Intelligence Literacy into Records Management and Archival Systems. *AI & Society*. Springer Nature.

Lemieux, V. and Arias-Hernandez, R. (2024). Training in Computational Archival Science: Do CAS Educational Frameworks meet Professional Expectations?. *Proceedings of the 9th Computational Archival Science Workshop*, IEEE Big Data 2024.

Oberländer, M., Beinicke, A., & Bipp, T. (2020). Digital competencies: A review of the literature and applications in the workplace. Computers and Education, 146.