Introduction to AI/ML/LLM for Humanities and Social Science

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## Agenda

welcome

Speaker notes go here.

## Introduction to Neural Networks

## Definition and Basic Concepts

* Neural Networks, AI, and ML
* [Glossary](https://aiforhumanists.com/glossary/)

## Historical Development

* Key milestones
* Resources for further reading

## Importance & Applications

* Digital Humanities and North Campus disciplines
* Current research and use cases at UCLA

## Strengths and Limitations

## What AI is Good At

* Pattern recognition
* Language processing
* Image analysis

## What AI is NOT Good At

* In-depth analysis
* Contextual understanding
* Nuanced interpretation

## GoFAI vs. Generative AI

## Large Language Models (LLMs)

## Overview

* Key components (Transformers, Attention Mechanisms)
* Training processes and dataset types

## Popular LLMs

* GPT-3, BERT

## Applications in Digital Humanities

* Text analysis, translation, content generation
* Case Study: [Literary Event Detection](https://arxiv.org/abs/1912.01140)

## How LLMs Can Help

## Use Cases

* Brainstorming and outlining
* Prompt engineering for better AI responses

## Demos

* Outline an AI presentation
* AI-assisted code generation
* Pleiades to Neo4j workflows
* NLP Twitter / Bluesky data

## Issues

* Generated essays & ghost citations
* Ethical concerns

## Large Vision Models (LVMs) & Vision Language Models (VLMs)

## Overview

* Convolutional Neural Networks (CNNs)
* Generative Adversarial Networks (GANs)

## Popular Models

* DALL-E, CLIP

## Applications in Digital Humanities

* Image recognition & artwork restoration
* Example: [Leonardo Impett’s work](https://dahj.org/article/imgsai)

## How AI “Sees”

* Handwriting analysis
* Case Study: Alexander Hamilton & George Washington Papers ([HAT tool](https://www.csmc.uni-hamburg.de/publications/software/hat.html))

## Future of AI & ML in Digital Humanities

## Fine-Tuning AI for Humanities Research

* Domain expertise in model refinement
* Example: Human Pose Estimation (Bernasconi et al., 2023)

## Technical Barriers

* AI-assisted tools like Microsoft’s Co-Pilot
* Accessibility and skill development

## Open vs. Closed AI

## Key Definitions

* Open AI (e.g., open-source models)
* Closed AI (e.g., proprietary systems)

## Implications

* Innovation, accessibility, and security concerns
* [Ollama: Local AI](https://ollama.com/)
* Retrieval-Augmented Generation (RAG)

## Ethical & Privacy Concerns

* AI decision-making in banking, housing, credit

## Ethical Concerns

## Trust & Authenticity

* AI’s role in misinformation/disinformation
* Deepfakes & synthetic media
* Detection & prevention strategies

## Bias & Fairness

* Algorithmic bias (Joy Buolamwini’s research)
* Mitigation strategies & ethical data collection

## Academic Integrity

* AI-generated content accuracy
* Copyright & ownership debates

## Future Directions & Trends

## Emerging Technologies

* Advances in neural networks
* AI’s evolving role in Digital Humanities

## Ethical AI at UCLA

* [Chris Mattmann’s AI Resources](https://adminvc.ucla.edu/blog/artificial-intelligence-faqs)
* [Generative AI at UCLA](https://it.ucla.edu/news/new-resource-generative-ai-ucla)

## Further Learning

* Courses, articles, and bibliography

## Discussion & Questions