ARSAD 2025
ENACT Project Pre-Conference Workshop

AI and Media Accessibility

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INTRODUCTION: WHY AI FOR ACCESSIBILITY?

- AI is increasingly used to address grand societal challenges, benefitting many while marginalising others
- Using AI to support groups that are often marginalised:
  - Expands access to media & information for all
  - Enables real-time accessibility solutions (e.g., captions, text-to-speech)
- However, not straightforward

AI & ACCESSIBLE COMMUNICATION – CHALLENGES

Complexity of interaction and communication in digital media:

- Combines language-based and multimodal communication; importance of coherence

- Current AI-based approaches still experimental, not ready

Bias in AI systems and their implications for accessibility:

- Affects marginalised groups and minority languages (Bergin & Oppegaard, 2024)

- Perpetuates Anglo-phone dominance (Mager et al., 2023)

Lack of contextual understanding, accuracy, coherence in AI, e.g.:

- Captioning: availability, accuracy of AI for English vs. other languages

- Audio description: AI misidentifies objects & characters, reinforcing bias (Braun & Starr, 2019)

Limited user involvement in AI research & development:

- Limited engagement with users undermines workable solutions and trust

- Lack of interdisciplinary collaboration limits user usability of solutions

KEY NEEDS & PRINCIPLES

- **Paradigm shift to user-centric AI for accessible communication**
  - From engineering-driven "tech solutionism" to detailed, user-informed AI development
  - Humanities, social sciences must have stronger input
- **Fair and sustainable AI**
  - AI should complement and augment, not replace human experts
  - AI accessibility solutions must also account for sustainability (Moorkens et al., 2024)
- **Ethical data curation and use; legislation**
  - Protect creators’ rights while facilitating users' access to high-quality content
  - Innovative data sharing models needed
- **Balancing cost and quality**
  - Accessibility is only useful if it is meaningful
  - New business opportunities

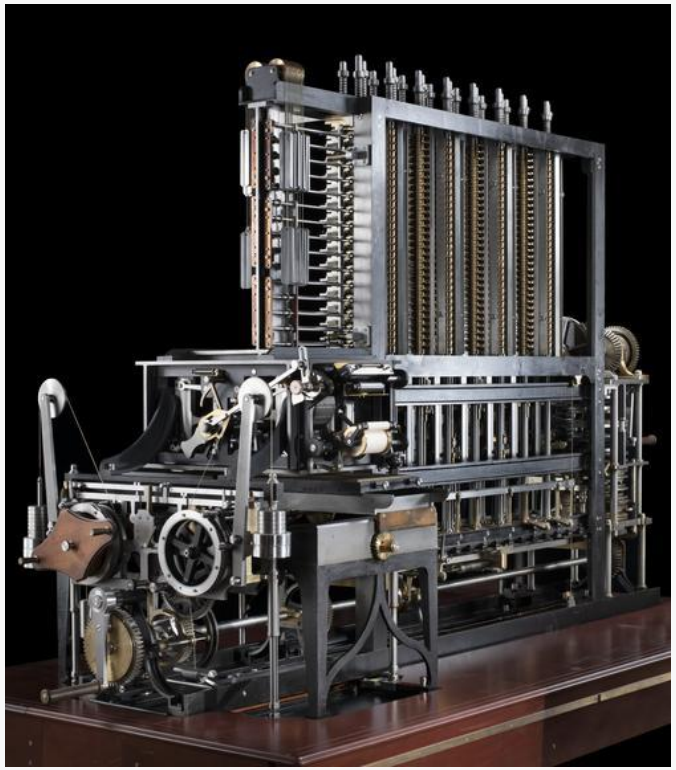
AI-ENABLED DIGITAL ACCESSIBILITY (ADA)

A new Doctoral Training Network at University of Surrey
Transforming access to digital media through responsible AI

Recognizing the crucial role of digital media in society – education, health, entertainment, government etc

Developing reliable and meaningful solutions that preserve accuracy, narrative coherence and other quality parameters

Inspired by Ada Lovelace – Victorian woman, mathematician, computing pioneer, writer and translator



Babbage's analytical engine, 1833
(Science Museum, London)

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People-Centred AI
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OVERARCHING RESEARCH QUESTIONS

What are the **current affordances, limitations and risks** of AI when addressing accessibility challenges related to digital media, and how can these be mitigated?

How can AI be used safely to create language-based and multimodal digital content that **preserves accuracy and narrative coherence** for people with diverse needs and abilities?

How can AI be used to **personalise** digital media services to diverse individual needs, and how can we balance the need for personalisation and privacy in AI-enabled accessibility?

In the longer term, how can the use of AI for digital accessibility become more **transparent, ethical and accountable** to prevent biases and discrimination?

PRINCIPLES

Universality	Accessibility concerns all, not just specific groups
Personalisation	One size does not fit all
User centrality	Design focuses on users
Epistemic inclusivity	Users and makers/experts have valuable design knowledge
Participation	Design should be developed with users
Proactivism	Accessibility should not be an after-thought

Greco, G.M. (2019). Accessibility Studies: Abuses, Misuses and the Method of Poietic Design. In: Stephanidis, C. (eds) HCI International 2019. Lecture Notes in Computer Science 11786. Springer, Cham. https://doi.org/10.1007/978-3-030-30033-3_2

ADA THEMES

We are recruiting PhD students

AI for Audiovisual Accessibility	Exploring AI-enabled solutions for converting audiovisual content into accessible formats, such as audio description
AI for Speech-to-Text Accessibility	Advancing automatic speech recognition and related technologies to improve real-time and post-production accessibility of speech content
AI for Text Simplification and Comprehension	Investigating how AI can enhance text accessibility by simplifying complex language, improving readability, and adapting content for diverse users
AI for Cross-Language Accessibility	Developing AI-powered tools for multilingual accessibility through translation, interlingual subtitles and interpreting
AI-Enhanced Assistive Communication Technologies	Creating AI-enabled assistive tools, such as voice assistants and chatbots to improve user experiences for diverse users across digital platforms.
AI for Personalising Accessible Communication	Developing novel methods for tailoring digital accessibility solutions to individual user preferences and needs while ensuring ethical AI practices

https://www.surrey.ac.uk/fees-and-funding/studentships/leverhulme-doctoral-scholarship-ai-enabled-digital-accessibility-ada

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