{Accessibility x AI}

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~1.3 Billion

People worldwide experience a significant disability

World Health Organization 2022

1 in 4 USA

Center for Disease Control 2024

9 in 10

people DON’T have access to the assistive tech they need

World Health Organization 2021

AGENDA

Accessibility Overview

Artificial Intelligence Overview

Regulations & Guidelines

Current State of Assistive Tech

Learning Journey & Next Steps

Questions & Discussion

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Linkpage.bio

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KLM
Royal Dutch Airlines

Accessibility Overview

What is Digital Accessibility?

Designing digital products that are usable by everyone

Everyone includes people who…

Are blind or have low vision (using screen readers or high contrast modes)

Are Deaf or hard of hearing (using captions or transcripts)

Have limited mobility (using keyboard navigation or voice control)

Have cognitive or neurological differences (needing simplified layouts or clear instructions).

Equality

Giving everyone the same resources or opportunities

Equity

Giving each person what they need to succeed, based on their unique circumstances

1980 vs Today

Disability as personal attribute

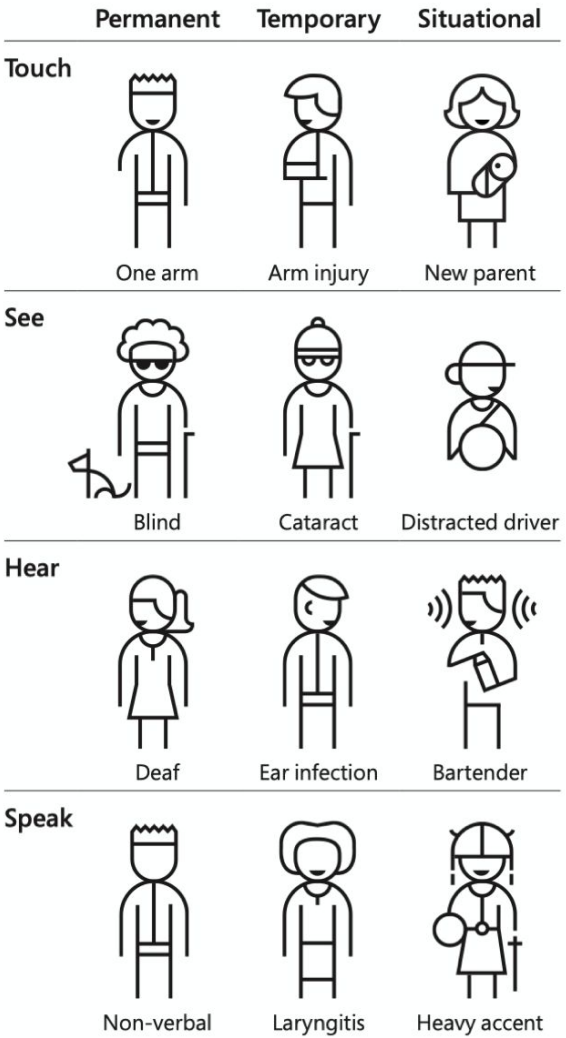
“In the context of health experience, a disability is any restriction or lack of ability (resulting from an impairment) to perform an activity in the manner or within the range considered normal for a human being.”

Disability as context dependent

“Disability is not just a health problem. It is a complex phenomenon, reflecting the interaction between features of a person’s body and features of the society in which he or she lives.”

We're all impacted and excluded in different ways depending on the situation.

Designing for someone with a permanent disability can benefit other people as well



In the United States, 26,000 people a year suffer from loss of upper extremities. But when we include people with temporary and situational impairments, the number is greater than 20M.

Source: United States Census Bureau, Limbs for Life Foundation, Amputee Coalition, MedicineHealth.com, CDC.gov, Disability Statistics Center at the UCSF

About 2 to 3 out of every 1,000 children in the United States

More than 90% of deaf children are born to hearing parents.

https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing

Among adults 20-69

Age is the strongest predictor of hearing loss

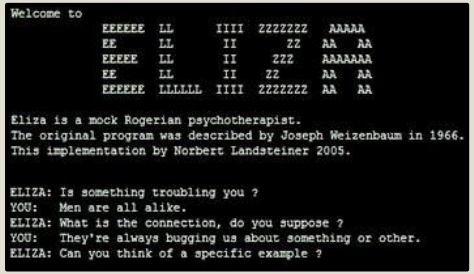
Men are almost twice as likely as women to have hearing loss

Non-Hispanic White adults are more likely than adults in other racial/ethnic groups to have hearing loss

How can AI improve accessibility for the deaf community?

AI overview

What is AI?



1955 ..... 1967 ..... 2016 ..... 2022 ..... 2024 ..... Dec

Term '**artificial intelligence**' 📜 is coined by computer scientist, John McCarthy

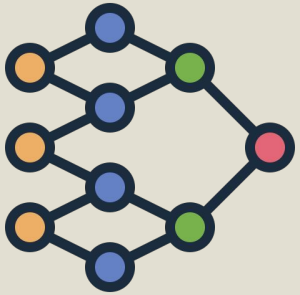
ELIZA: Chatbot 💬 developed by Joseph Weizenbaum

AlphaGo beats world champion Lee Sedol

ChatGPT released

Google releases **Notebook LM** 🎙️

What is AI?



Reinforcement Learning

Gen AI

Supervised learning

Transformers

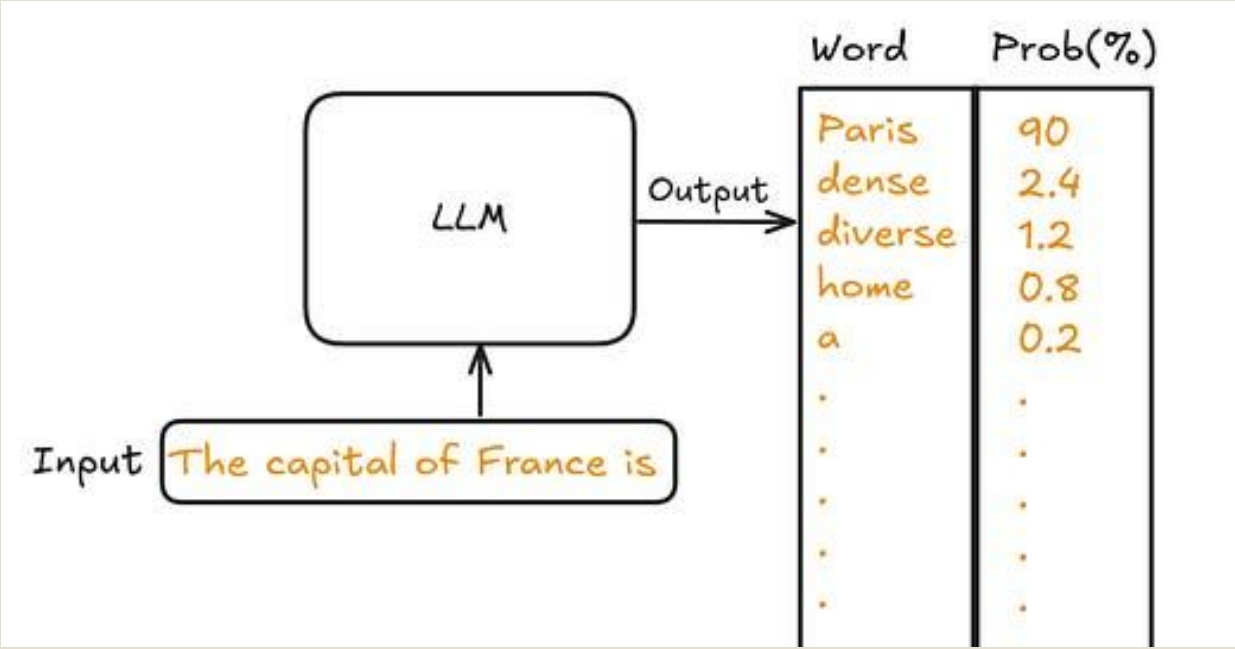
Machine learning

NLP

Deep Learning

Neural networks

What is an LLM?

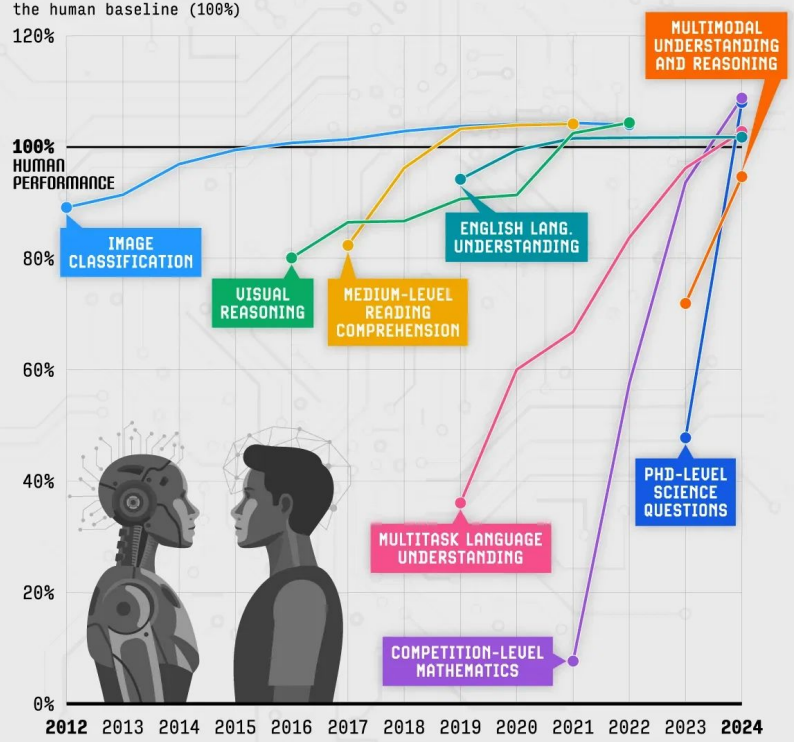


AI VS. HUMAN PERFORMANCE

IN TECHNICAL TASKS

AI models have rapidly improved and now exceed human performance in almost every technical task.

Humans still lead in multimodal understanding and reasoning, which involves questions across disciplines that include charts, maps, tables and images.



VISUAL CAPITALIST

Source: Stanford University, 2025 AI Index Report

ASL Training Data

In the last 2 years, ASL dataset sizes have increased by 10x

Still less than 2000 hours

https://www.youtube.com/watch?v=-ZkzDIIW1Ts

Voice Training Data

The current levels of ASL Training data equates roughly to the state of voice recognition in 1993

Millions of hours

Regulations & Guidelines

EU AI ACT (2024)

- European Disability Forum: “partial win on accessibility”.
- Recognition that AI should not discriminate, however no concrete actions to prevent this
- Overlooks national sign languages by only requiring official spoken EU languages

eud.eu/disability-rights-accessibility-and-artificial-intelligence-must-be-inclusive-of-the-deaf-perspective/

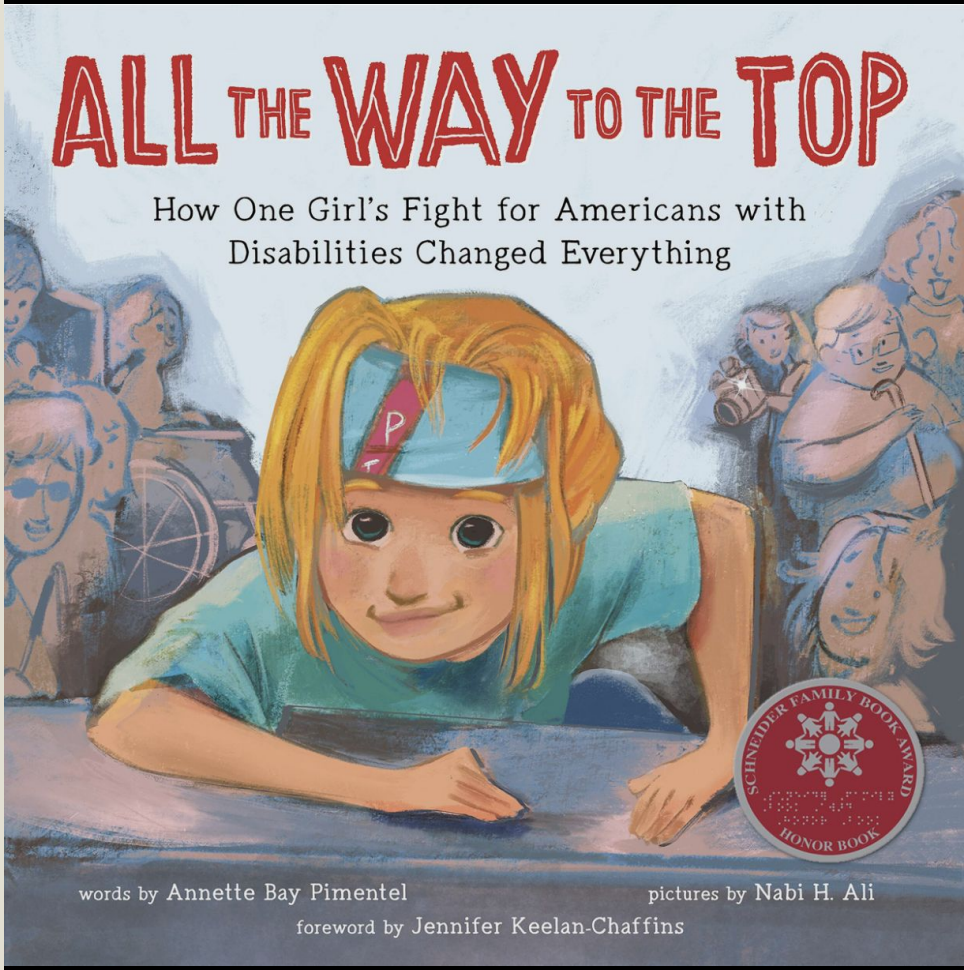
European Accessibility Act

June 2025

eud.eu/disability-rights-accessibility-and-artificial-intelligence-must-be-inclusive-of-the-deaf-perspective/

USA

- The Americans with Disabilities Act & Rehabilitation Act are the foundational laws that protect the rights of people with disabilities in the United States
- Section 508 Standards are harmonized with Web Content Accessibility Guidlines (WCAG) 2.0 Level AA
- The US does not currently have a single, comprehensive federal AI law.



eud.eu/disability-rights-accessibility-and-artificial-intelligence-must-be-inclusive-of-the-deaf-perspective/

Interpreting SAFE AI Task Force

Guidance on AI and Interpreting Services

Interpreting **S**takeholders **A**dvocating for **F**air and **E**thical **AI** Task Force

Founded by Deaf experts, linguists, and translators in 2023

Mission: establish industry-wide guidelines for design and adoption of AI in interpreting

Degrees of AI Involvement

- Human generated
- Human generated with AI
- Human real-time oversight
- Human review/QA
- AI-generated interpreting (no human input)

SAFEAI

Ethical Principles

1. End-user autonomy
2. Evidence of improving wellbeing for end-users
3. Transparency of AI quality for general public
4. Accountability by companies for harm

SAFEAI

Ethical Principle #1
End-user autonomy

- Including users in design process
- Informed consent to accept or decline use
- Ability to shift from AI back to human interpreting at any time

SAFEAI

Ethical Principle #2
Improving wellbeing for end-users

- Must meet regulations and try to exceed them
- Assess possibility of unintended consequences

SAFEAI

Ethical Principle #3

Transparency of AI quality for general public

- Objective/target function of AI
- Performance metrics (confidence, confusion)
- Information about bias (dialects, accents)
- Regular Quality Assurance reviews

SAFEAI

Ethical Principle #4
Accountability by companies for harm

- Clear chain of accountability across organization
- Clear limitations of use

SAFEAI

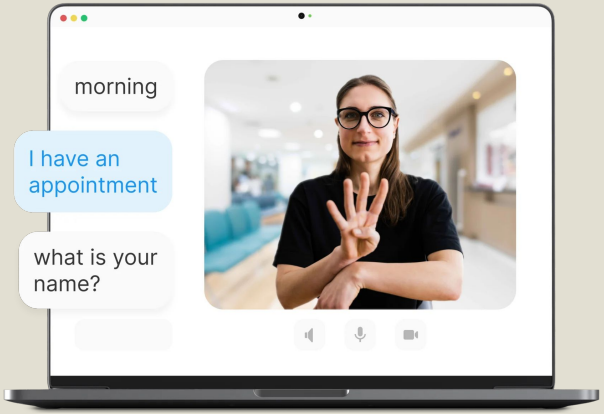
Current state of assistive tech

Current state of assistive tech

VRI (video-remote-interpreting)

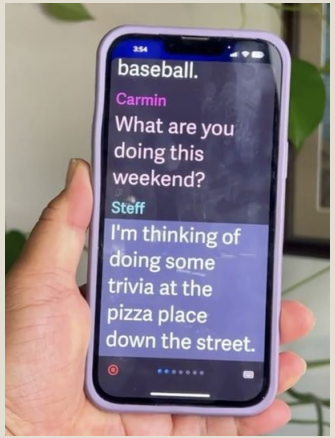
Current state of assistive tech

Speech to text: Ava
AI-powered hearing devices: heardthat.ai (background noise removal)
Non-standard speech: Project Euphonia
Sign language to text: Slait.ai



Slait.ai

ava

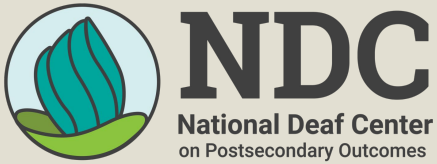


150,000+ users

Current state of assistive tech

“Nothing about us without us.”

Learning Journey Continues

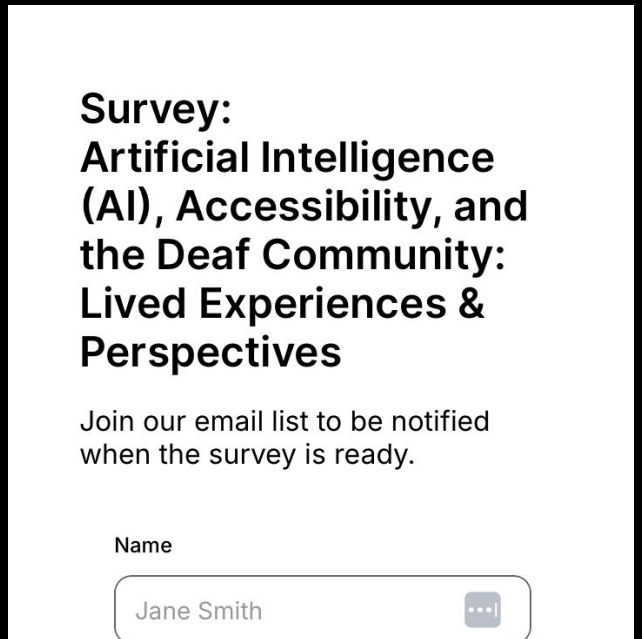


Next Steps

We have a survey!

Our goal is to amplify Deaf and hard of hearing perspectives

almost...



We have a survey waitlist!

Join waitlist

Welcome, Your Experience Matters!

This survey seeks to understand the feelings, experiences, and concerns of the Deaf and Hard of Hearing community, including American Sign Language interpreters, accessibility professionals, and advocates; regarding Artificial Intelligence (AI) and Machine Learning (ML) powered accessibility tools for Deaf and Hard of Hearing individuals.

AI & ML tech professionals, digital product managers, product designers, and user experience researchers, are also invited to participate.

Click the button to “Take the Survey Now.”

RECAP

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Thank You!

Questions & Discussion

Learn More

https://inclusive.microsoft.design/

https://www.history.com/articles/americans-with-disabilities-act-1990-capitol-crawl

https://www.audioeye.com/post/us-accessibility-laws/

https://safeaitf.org/guidance/

https://www.youtube.com/watch?v=-ZkzDIIW1Ts

https://www.popsign.org/

https://www.nidcd.nih.gov/health/statistics/quick-statistics-hearing