

HAND HAND

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CHILDREN'S MUSEUMS IN AN AI WORLD

ABOUT *HAND TO HAND*

Hand to Hand is a quarterly publication of the Association of Children's Museums (ACM). As a member benefit, *Hand to Hand* is available first to ACM members, and then publicly for one year. ACM members may access past editions of *Hand to Hand* via ACM's Groupsites. Opinions expressed in this publication are those of the authors and do not necessarily reflect the position of ACM.

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DISCOVER MORE *HAND TO HAND***Last Issue:****Mental Wellness in Children's Museums** (Volume 36, Number 4)

Mental health is important. Children's museums have long been invested in creating environments where children thrive. Mental health is a pressing current issue for the children in our communities, and children's museums have expansive opportunity to meet those needs with comprehensive, collaborative experiences that supplement the essential work of mental health professionals—providing all children with the skills to navigate their world with joy, wonder, and wellness. This issue will explore mental wellness and it relates to children's museum work, staffing, and communities.

Next Issue:**Climate Action and Environmental Sustainability** (Volume 37, Number 2)

The Caretakers of Wonder (CoW) initiative recognizes that, as cultural organizations dedicated to the well-being of children and families, children's museums are uniquely suited to take sustainable, regenerative, and visible climate actions. Discover how the CoW network and other organizations committed to a better future for our children are learning and leading the way during this age of climate change. If you or someone you know would like to contribute to this issue, please contact **Halie Haskell at Halie.Haskell@ChildrensMuseums.org**.

Looking for more issues of *Hand to Hand*? ACM Members can access the publication archives via ACM Groupsites.

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Hi AI!

PLAYFUL EARLY ENCOUNTERS WITH ARTIFICIAL INTELLIGENCE

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A

rtificial intelligence (AI) is becoming ever more prevalent, transforming our lives and society right before our eyes. Originally a tool for computer scientists and research, AI technology has become more accessible for non-experts, notably reaching into the lives of children.

Machine learning is a subset of AI where computers “learn” by finding patterns in training data to make a prediction or decision.

Some patterns are actually much easier for humans to identify than computers. A much used illustrative example is the complexity of spotting the sometimes subtle differences in images of Chihuahua dogs and blueberry muffins; until the past few years, this was a tricky task for computer vision machine learning systems.

Generative AI builds on machine learning to create new content based on analyzing vast amounts of data. Generative AI has a wide range of applications including: creating human-like text; producing images, artwork, and designs; and enhancing machine learning models through data augmentation.



THINGS TO LOOK FORWARD TO ABOUT AI

- » Sparking creativity, have fun.
- » Help with mundane tasks.
- » Personalized learning.



THINGS TO WORRY ABOUT ABOUT AI

- » **Bias:** Discrimination, stereotypes, exclusion.
- » **Misinformation:** Unintended inaccuracies, “hallucinations”).
- » **Disinformation:** Material intended to deceive. Appears more authentic and harder to detect.
- » **Privacy** risks.
- » Creator and content **rights and ethics.**
- » **Fraud**, scams, and targeted manipulation.
- » **Socioeconomic** harms (e.g. job losses).



HOW WILL AI AFFECT SOCIETY, ESPECIALLY CHILDREN?

Addressing these challenges is crucial as we continue to integrate AI into societal and educational workflows, prompting discussions on how best to engage children and families with this technology while balancing fun and critical awareness. Children are already interacting with AI technologies in many different ways through video games, toys, learning software, social media, and digital assistants. Algorithms provide recommendations to children on what stories to read, what videos to watch, what music to listen to, and who to be friends with. Consider UNICEF’s thoughtful work on these challenges in the box below, which provides a valuable starting point for reflection.



AI Images © Generative AI image created with DALL-E 3 using the prompt “generate a cartoon style image showing the bright future of kids and AI working together” / Generative AI image created with DALL-E 3 using the prompt “give me a suitable image for a presentation slide that shows kids” and the full bullet list under “Things to worry about”



UNICEF RECOMMENDATIONS FOR CHILD-CENTERED AI

1. Support children's development and well-being.

» *Let AI help me develop to my full potential.*

2. Ensure inclusion of and for children.

» *Include me and those around me.*

3. Prioritize fairness and non-discrimination for children.

» *AI must be for all children.*

4. Protect children's data and privacy.

» *Ensure my privacy in an AI world.*

5. Ensure safety for children.

» *I need to be safe in the AI world.*

6. Provide transparency, explainability, and accountability for children.

» *I need to know how AI impacts me. You need to be accountable for that.*

7. Empower governments and businesses with knowledge of AI and children's rights.

» *You must know what my rights are and uphold them.*

8. Prepare children for present and future developments in AI.

» *If I am well prepared now, I can contribute to responsible AI for the future.*

9. Create an enabling environment.

» *Make it possible for all to contribute to child-centred AI.*

UNICEF (2022) Policy guidance on AI for children v2.0

<https://www.unicef.org/innocenti/reports/policy-guidance-ai-children>



WHERE DO WE START AS CHILDREN'S MUSEUMS AND SCIENCE CENTERS?

We all want to learn strategies and techniques for engaging children and families creatively in this rapidly evolving technology that is already affecting our lives and transforming aspects of society. But this is a daunting topic! Which aspects of AI should we focus on for children and families? And how do we strike the right balance between playful engagement and encouraging critical reflection? Big topics include:

- » Understanding what AI is.
- » Preparing for the future (and the present).
- » Having fun with AI, being creative.
- » Media literacy.
- » Future societal changes.
- » AI in Education.



COMMUNITY ENGAGEMENT WITH AN EYE TOWARD AI EQUITY

AI is a complex topic and we have been at the early stages of formulating how to approach this topic with our local community. AI tools scrub the depth and breadth of the internet to generate new text and images. These tools need to be approached with full awareness of their “failure modes,” in which they offer made-up mashups as if they were settled truth, reproduce and reinforce gender, racial, and ethnic stereotypes, and generally muddy the idea of “fact.”

At Discovery Lab in Tulsa, Oklahoma, we have been very interested in exploring AI, but we are just at the beginning stages. We have engaged with the Urban Coders Guild (UCG) to explore large language models and generative image creation tools with the non-dominant culture youth of UCG. We will take part in an UCG hackathon to do a deep dive into AI. These established BIPOC youth groups can help us understand generative AI's promise as well as its ability to fail or produce hallucinations that look like fact.



HANDS ON ACTIVITIES WITH AI THEMES

The National Informal STEM Education Network (NISE Network) has many activities that focus on the intersection of science and society and include aspects of futures thinking. Two existing hands-on activities with AI themes you can download and use right now are *Scribble Bot* and *What Makes Us Human*.



Scribble Bot Activity | In this activity, learners make a toy bot with a surprising ability: it scribbles on a sheet of paper—seemingly on its own. The experience is designed to prompt conversation and reflection about who is responsible when our human-like creations, such as robots or AI, do harm. And who benefits when they do good? It is about responsible innovation and how to think ahead as we study science and make new technologies. Building the bots is a fun creativity activity for young children, and the follow-up questions are a great way to engage older children and adults in discussing responsible innovation and ethics. As with many NISE Network activities, this one uses easily available supplies and comes with all necessary instructional guides and a facilitation training video. *Learn more and download the activity here: <https://www.nisenet.org/catalog/scribble-bot>*

What Makes Us Human activity | With AI rapidly advancing, how close will it get to us? What sets us apart—for now? In this activity, learners sort abilities from most to least uniquely human, before assigning them to robots responsible for specific jobs. They will then decide how their newly designed robot reacts to a novel situation based on the added abilities. There are no right or wrong answers in the game; instead, learners are encouraged to reflect on how “human” their creations have become and should we build robots like those in the game. This activity is thought-provoking for children and adults and is easy to print out on your own. Downloadable resources include the cards, activity instructional guides,

and a facilitation training video. *Learn more and download the activity here:* <https://www.nisenet.org/catalog/what-makes-us-human>. *More futures thinking activities available at* <https://www.nisenet.org/society>



INTERACTIVE AI EXHIBITION

The Lawrence Hall of Science in Berkeley, California, developed an interactive AI exhibition, called *Virtually Human*, that features a suite of interactive experiences that connect AI models to human experiences, so that children and families can interact with AI systems through familiar and relatable contexts. This approach positions children to investigate the capabilities of each AI model in the exhibit by drawing upon their own shared lived experiences with their family members or peers interacting with the exhibit. For example, visitors can explore how well an AI performs tasks like telling jokes or determining your facial expressions. The exhibition complements the AI experiences with “unplugged,” or non-digital activities designed to encourage children to reflect on how they tackle the same kinds of tasks, to encourage curiosity and sensemaking about how the different AI models work.



Mirror Mirror - Tell What People Are Feeling | Can AI perceive human emotion? In *Mirror Mirror*, explore the AI's ability to detect and interpret your facial expressions and associated emotions. Then, put your skills to the test and sort facial expression images to think about how you figure out what someone might be feeling. *Try the Mirror Mirror activity at home using a device with a camera and keyboard: <https://lawrencehallofscience.org/apps/virtually-human/>*



Teach Me Silly - Learn to Find Patterns | How can AI find patterns in data? In *Teach Me Silly*, train the AI to recognize your silly faces and distinguish them from your serious face. Then, see how well you do at pattern recognition by sorting fingerprints into different types in Fingerprint Classification. *Try the Teach Me Silly activity at home using a device with a camera and keyboard! <https://lawrencehallofscience.org/apps/teach-me-silly/>*

Exploring Ethical Considerations - Look Like Someone Else | How can AI change your appearance? In *Face Paint*, discover how AI can create a “digital disguise” using technology similar to social media photo filters. This exhibit is paired with *Control My Face*, where the AI controls your face to say a series of statements you might not actually agree with, such as “I love it when spiders crawl all over me!” Then using a non-digital exhibit, explore the ethics of looking like another person and the potential harms in *Impersonation Conversation*.

This exhibition will continue to evolve in the coming years, to engage children and families with different kinds of AI models and contexts, and we will plan to share more over time. *Learn more: <https://lawrencehallofscience.org/exhibits/virtually-human/>* 🌐